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Closing the Gap targets: key findings and implications

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AIHW

Closing the Gap targets: key findings and implications

Australian Institute of Health and Welfare
Canberra

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Overview

Overview

Many Aboriginal and Torres Strait Islander (First Nations) people lead happy, healthy and fulfilling lives in their communities, and numerous improvements in their quality of life have been documented over the years. However, a large number of them continue to experience inequality, political exclusion, intergenerational trauma and ongoing institutional racism (Australian Government 2020).

To overcome the entrenched inequalities faced by many First Nations people, the Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations have jointly committed to a new way of developing and implementing policies and programs that have an impact on the lives of First Nations people in the 2020 National Agreement on Closing the Gap (Australian Government 2020). The Agreement includes 17 socioeconomic outcome areas with specific targets and outcome measures as part of a new approach to measuring progress in achieving this objective. These targets are inter-related and associated with various socioeconomic and health measures at different stages of the life course.

There is, however, limited empirical evidence in the academic literature that provides direct insights into the interactions between the specific Closing the Gap target outcomes and their drivers (Bailie et al. 2010; Bodkin-Andrews et al. 2010; Bodkin-Andrews et al. 2012; Bodkin-Andrews et al. 2013; Cairney et al. 2017; Falster et al. 2021; Hayes et al. 2010; He et al. 2019; He et al. 2021; Schultz et al. 2019; Su et al. 2019; Wilson et al. 2019). This research gap makes it difficult to fully understand and quantify the strengths of these interactions in a robust enough way to guide recommendations and policy development on key factors that affect multiple outcomes on the life course for First Nations people.

Understanding the interconnections and cumulative impacts of different events across the life span, including the impact of persistent inequality is critical to formulating and implementing policy and programs. The life course framework suggests that current health is shaped by earlier life events and exposure to physical, environmental and psychosocial factors. This approach has been applied in the areas of epidemiology, behavioural biology and social science to study the origins, persistence and transmission of health disparities across the generations (Jones et al. 2019).

Biddle and Yap (2010) suggest that there are 4 key insights from the life course framework that are relevant to the study of the inequities experienced by First Nations people:

- people's lives are shaped by the social conditions and environment in which they are born and to which they are exposed
- individual lives and the subdomains within their lives are inextricably linked
- institutions and policies can shape trajectories
- human agency is of continued importance and individuals continue to make decisions that can have long-lasting impact.

However, applying the life course approach to fully understand the inequities faced by First Nations people has not been possible (Biddle and Yap, 2010; Walter, 2022). One of the main issues is that life course analyses require rich longitudinal data of a representative First Nations population. The existing longitudinal datasets on the total population (such as the Household, Income and Labour Dynamics Survey) do not contain a sufficient sample of the First Nations population and First Nations-specific data sets (such as the Longitudinal Study of Indigenous Children) are too small and not representative.

The persistence and transmission of health disparities across the generations among First Nations people can also be studied through environmental epigenetics. This growing field of research provides a framework for understanding the biological mechanisms linking the intergenerational effects of colonization and historical trauma. While no studies have yet examined these effects among First Nations communities, it is believed that this evolving field has significant implications for understanding their experiences of historical trauma (Byrne and Keaney 2024; Keaney et al. 2023). However, to ensure meaningful outcomes, Keaney et al. (2023) suggest that epigenetic research with First Nations communities must be Indigenous led, controlled, and aligned with Indigenous data sovereignty.

The current report aims to add to the existing evidence on the health and wellbeing of First Nations people across their life course by analysing trends over time and the key factors associated with individual Closing the Gap targets using a wide range of population, administrative and cross-sectional survey data. As noted by Biddle and Yap (2010), in the absence of longitudinal data, cross-sectional data analyses can help gain insights into the key life stages and the extent to which they differ between First Nations and non-Indigenous populations.

Structure of the report

This report summarises evidence on progress towards and the key factors associated with, 14 of the 17 Closing the Gap targets. The structure of the report is as follows:

- Chapter 1: Long and healthy lives
- Chapter 2: Born healthy and strong
- Chapter 3: Early childhood education
- Chapter 4: Children thriving
- Chapter 5: Student learning potential
- Chapter 6: Further education pathways
- Chapter 7: Youth engagement
- Chapter 8: Economic participation
- Chapter 9: Housing
- Chapter 10: Criminal justice
- Chapter 11: Youth justice
- Chapter 12: Child protection
- Chapter 13: Family safety
- Chapter 14: Social and emotional wellbeing

Each chapter first presents the current state and, where data allow, time trends and progress made over time towards each target. The trends are analysed at the national, state and territory level, by remoteness and socioeconomic indexes, as well as by other relevant demographic and socioeconomic factors. For trends at lower geographic areas, such as Indigenous Regions, see the Closing the Gap Dashboard at AIHW Regional Insights for Indigenous Communities (https://www.rific.gov.au/closing-the-gap?app=rific&code=ctg&release=r2&latitude=-24&longitude=134&region=Target1_AUS).

The chapters then present findings from a review of Australian and international literature on the key factors associated with each target. In the following section of each chapter (where data are available), the results from regression modelling and random forest analyses are presented. Regression analyses provide empirical evidence on the statistically significant

associations between the key factors identified in the literature and target outcomes. Random forest analyses estimate the relative importance of these variables at the population level in predicting the target outcomes. This allows us to rank these factors in order of their relative importance and identify the most important factors for each target outcome. The chapters conclude with a discussion of the implications of these findings in the context of existing policy and programs and strategies for improvement.

The rest of this Overview presents summary of trends for each target outcome. It then summarises the most important factors predicting each target outcome and the range of strategies that could help drive the change for Closing the Gap.

Closing the Gap targets and progress

The Productivity Commission dashboard (2024) regularly updates information on progress towards each target. This information is summarised in Table 1, along with background information on the baseline, target and assessment years. When this report was published, of the 14 Closing the Gap targets:

- 3 showed good improvement and were on track to be met:
 - Born healthy and strong (Target 2)
 - Early childhood education (Target 3)
 - Economic participation (Target 8)
- 5 showed improvement but were not on track to be met:
 - Long and healthy lives (Target 1)
 - Student learning potential (Target 5)
 - Further education pathways (Target 6)
 - Youth engagement (Target 7)
 - Housing (Target 9)
- 4 were worsening:
 - Children thriving (Target 4)
 - Criminal justice (Target 10)
 - Child protection (Target 12)
 - Social and emotional wellbeing (Target 14)
- no change was observed for the youth justice (Target 11)
- no new data were available to assess progress for the family safety (Target 13).

Table 1: Closing the gap targets: baseline, target and assessment year and progress

Socioeconomic outcome area		Target	Baseline year	Target year	Data assessment year	Progress towards target ^(a)
1	First Nations people enjoy long and healthy lives.	Close the Gap in life expectancy within a generation, by 2031.	2005–2007	2031	2020–2022	Target shows improvement but is not on track to be met.
2	First Nations children are born healthy and strong.	By 2031, increase the proportion of First Nations babies with a healthy birthweight to 91%.	2017	2031	2021	Target shows good improvement and is on track to be met.
3	First Nations children are engaged in high quality, culturally appropriate early childhood education in their early years.	By 2025, increase the proportion of First Nations children enrolled in Year Before Full Time Schooling (YBFS) early childhood education to 95%.	2016	2025	2022	Target shows good improvement and is on track to be met.
4	First Nations children thrive in their early years.	By 2031, increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all five domains of the Australian Early Development Census (AEDC) to 55%.	2018	2031	2021	Target is worsening.
5	Students achieve their full learning potential.	By 2031, increase the proportion of First Nations people (age 20–24) attaining year 12 or equivalent qualification to 96%.	2016	2031	2021	Target shows improvement but is not on track to be met.
6	First Nations students reach their full potential through further education pathways.	By 2031, increase the proportion of First Nations people aged 25–34 years who have completed a tertiary qualification (Certificate III and above) to 70%.	2016	2031	2021	Target shows improvement but is not on track to be met.
7	Youth are engaged in employment and education.	By 2031, increase the proportion of First Nations youth (15–24 years) who are in employment, education or training to 67%.	2016	2031	2021	Target shows improvement but is not on track to be met.

(continued)

Table 1 (continued): Closing the gap targets: baseline, target and assessment year and progress

Socioeconomic outcome area		Target	Baseline year	Target year	Data assessment year	Progress towards target ^(a)
8	Strong economic participation and development of people and communities.	By 2031, increase the proportion of First Nations people aged 25–64 who are employed to 62%.	2016	2031	2021	Target shows good improvement and is on track to be met.
9	People secure appropriate, affordable housing that is aligned with their priorities and need.	By 2031, increase the proportion of First Nations people living in appropriately sized (not overcrowded) housing to 88%.	2016	2031	2021	Target shows improvement but is not on track to be met.
10	Adults are not over-represented in the criminal justice system.	By 2031, reduce the rate of First Nations adults held in incarceration by at least 15%.	2019	2031	2022	Target is worsening.
11	Young people are not over-represented in the criminal justice system.	By 2031, reduce the rate of First Nations young people (10–17 years) in detention by at least 30%.	2018-2019	2031	2022-23	Target shows no change from the baseline.
12	Children are not over-represented in the child protection system.	By 2031, reduce the rate of over-representation of First Nations children (0–17 years old) in out-of-home care by 45%.	2019	2031	2023	Target is worsening.
13	Families and households are safe.	By 2031, the rate of all forms of family violence and abuse against First Nations women and children is reduced at least by 50%, as progress towards zero.	2018-19	2031	2018-19	No new data since the baseline year ^(b)
14	People enjoy high levels of social and emotional wellbeing.	Significant and sustained reduction in suicide of First Nations people towards zero.	2018	No specified timeline	2022	Target is worsening.

(a) Progress between baseline and data assessment year.

(b) When this report was published only baseline data were available, and an assessment of progress could not be made.

Source: Productivity Commission 2024.

The following subsections present a summary of the trends observed for each target at the national and jurisdictional levels, by remoteness and socioeconomic indexes.

Long and healthy lives

- In 2020–2022, estimated life expectancy at birth was 71.9 years for First Nations males and 80.6 years for non-Indigenous males, a gap of 8.8 years. Life expectancy was higher for females (75.6 years for First Nations females and 83.8 years for non-Indigenous females), and the gap was slightly smaller (8.1 years).
- For both First Nations males and females, remoteness of residence was related to life expectancy, with life expectancy highest for those living in *Inner/Outer regional* areas (72.8 for males and 76.7 for females) and lowest for those in *Remote/Very remote* areas (67.3 for males and 71.3 for females).
- Life expectancy was lowest for people in the most disadvantaged areas – the bottom quintile of Australian Bureau of Statistics [ABS] derived Socioeconomic Indexes for Areas [SEIFA] – Index of Relative Socioeconomic Disadvantage (IRSD) (69.5 for males and 74.0 for females). Even though life expectancy estimates for non-Indigenous Australians are also lowest for those living in the most disadvantaged areas, they are still higher than estimates for First Nations people in every socioeconomic area.
- If First Nations people had had the same age-specific mortality rates as non-Indigenous Australians between 2017 and 2021, there would have been 9,200 fewer deaths in this period – equivalent to about 1,006 deaths among First Nations males and 834 among First Nations females per year.

Born healthy and strong

- In 2021, 89.6% (16,444) of liveborn singleton (birth of only one child during a single delivery) First Nations babies were of healthy birthweight compared with 94.2% of non-Indigenous babies. This gap has been relatively consistent since 2014.
- In 2021, the proportion of First Nations babies born with a healthy birthweight was above the national projected trajectory point of 89.3%, and above or very close to the 2031 national target in 5 of the 8 states and territories. The highest proportion of healthy birthweight babies was recorded in Victoria, followed by Tasmania and Queensland; the lowest was recorded in the Northern Territory, Western Australia and South Australia.
- The proportion of First Nations babies of healthy birthweight was considerably lower in *Remote* (86%) and *Very remote* (85%) areas than in non-remote areas (90–91%).
- The proportion of First Nations healthy birthweight babies in 2021 was at or above the national projected trajectory point of 89.3% in all except the most disadvantaged areas (IRSD first (bottom) quintile), where about 40% (or 7,300) of First Nations babies lived.

Early childhood education

- The estimated total number of First Nations children enrolled in preschool in the state-specific year before full-time schooling (YBFS) cohort increased from 14,573 in 2016 to 18,920 in 2022.
- According to the official estimates, the proportion of First Nations children enrolled in preschool increased from 77% in 2016 to 99% in 2022, and the target is reported to be on track to be met in 2025. However, caution must be used when interpreting these rates

as there is uncertainty in both the numerator and denominator, in addition to the fact that both the numerator and denominator are from different sources.

- The estimated proportion of First Nations children enrolled in preschool in the YBFS cohort increased between 2016 and 2022 for every state and territory except the Northern Territory.
- Two of the 3 states with the lowest estimated enrolment rates are those with non-government/mixed models of preschool delivery (New South Wales (95.8%) and Queensland (95.2%)).

Children thriving

- In 2021, based on the Australian Early Childhood Development Census (AEDC), about 34% of First Nations children were assessed as being developmentally on track compared with 56% of non-Indigenous children. However, the gap in developmental outcomes between First Nations and non-Indigenous children has been closing over time.
- In 2021, the highest proportion of First Nations children developmentally on track in all 5 AEDC domains was seen in New South Wales (39%), Tasmania (38%) and Victoria (36%), and the lowest in the Northern Territory (16%) and the Australian Capital Territory (27%). The proportion of First Nations children developmentally on track has increased between 2009 and 2021 in most jurisdictions except for Tasmania, the Australian Capital Territory and the Northern Territory.
- In 2021, the proportion of First Nations children developmentally on track in all 5 domains was highest in *Major cities* (38%), followed by *Inner regional* (35%) and *Outer regional* (34%) areas; the corresponding proportions were 28% in *Remote* areas and 16% in *Very remote* areas (with no increase since 2012).
- In less disadvantaged areas (top 3 quintiles of the SEIFA – IRSD), the proportion of First Nations children developmentally on track ranged from 40% to 47% – above the national 39.8% projected for 2021. In the most disadvantaged areas (the bottom SEIFA – IRSD quintile), the proportion developmentally on track was 28%.

Students learning potential

- Nationally, in 2021, 68% of First Nations people aged 20–24 had attained year 12 or an equivalent qualification.
- Among First Nations people aged 20–24 who had not completed year 12 or equivalent (566) in 2011, more than one-quarter (27%) went on to do so by 2016 (analysis is among people who identified as Aboriginal and/or Torres Strait Islander in the 2011 ABS Census of Population and Housing).
- The proportion completing year 12 or equivalent among First Nations people aged 20–24 was higher for women (72%) than for men (64%).
- The proportion of First Nations people aged 20–24 who had attained year 12 or equivalent ranged from 40% in the Northern Territory to 82% in the Australian Capital Territory.
- *Major cities* had the highest proportion of year 12 attainment among First Nations people aged 20–24 (at 76%) while *Very remote* areas had the lowest (42%).

- About 52% of First Nations people aged 20–24 living in most disadvantaged areas (IRSD first decile) completed year 12 or equivalent compared with 89% of First Nations people living in least disadvantaged areas (IRSD decile 10).

Further education pathways

- In 2021, 47% of around 108,000 First Nations people aged 25–34 had completed tertiary education (Australian Qualifications Framework Certificate III or above). This proportion has been steadily increasing over the last 2 decades.
- New South Wales, Victoria and the Australian Capital Territory have the highest proportion of First Nations people aged 25–34 with a tertiary education and have recorded the largest percentage point (pp) increase over time. The Northern Territory has the lowest proportion and smallest increase over time.
- *Major cities* and less disadvantaged areas (top 4 quintiles of IRSD) had rates at or above the projected national trajectory point for 2021. The proportion of First Nations people aged 25–34 with a tertiary education in *Remote and very remote* areas – and in socioeconomically more disadvantaged areas – is still very low.

Youth engagement

- Nationally, the proportion of First Nations youth (aged 15–24 years) fully engaged in employment, education or training (EET) has increased steadily, from 48% in 2001 to 58% in 2021.
- The largest increases between 2006 and 2021 were in New South Wales (from 55% to 62%), Western Australia (from 46% to 53%) and South Australia (from 50% to 55%).
- In 2021, the proportion of First Nations youth fully engaged in EET was highest in *Major cities* at 64% – it fell with increasing remoteness to 30% in *Very remote* areas.
- The proportion of First Nations youth fully engaged in EET was highest (82%) among those living in the least socioeconomically disadvantaged areas, and lowest (39%) among those living in the most disadvantaged areas.
- Rates of full engagement in EET for First Nations females and First Nations males diverge from the age of 19, with rates for men gradually increasing and rates for women remaining relatively flat. This gender gap emerges around the time that many First Nations women start having children.

Economic participation

- The proportion of employed First Nations people aged 25–64 increased from 51% in 2016 to 56% in 2021, higher than the 2021 projected point of 55% on the trajectory to meet the 2031 target rate of 62%.
- The employment rate gap between First Nations and non-Indigenous people aged 25–64 narrowed from 24.7 pp in 2016 to 22.0 pp in 2021.
- In 2021, 34% of First Nations people aged 25–64 were employed full time, 16% were employed part time and 5.6% were employed but away from work. Between 2016 and 2021, the proportion of those employed full time and part time slightly increased.
- In 2021, the Australian Capital Territory (73%), Tasmania (62%) and Victoria (62%) had employment rates at or above the 2031 national target of 62%, and employment rates in New South Wales and Queensland were also higher than the national average of 56%.

- In 2021, the proportion of First Nations people aged 25–64 who were employed consistently fell with increasing remoteness, from 62% in *Major cities* to 35% in *Very remote* areas.
- In 2021, employment rates for First Nations people aged 25–64 ranged from 42% in the most disadvantaged areas (IRSD first quintile) to 81% in the least disadvantaged areas (IRSD fifth quintile). Notably, the employment rates were at or above the 2031 national target of 62% in areas across all IRSD quintiles except for first quintile (most disadvantaged areas) in 2021.

Housing

- Between 2016 and 2021, the proportion of First Nations people (79% to 81%) and First Nations households (89% to 90%) living in appropriately sized housing increased. However, the number of First Nations people living in crowded dwellings (based on the ABS's Census of Population and Housing count) also increased – from 114,000 to around 130,000 – as did the number of First Nations households living in crowded dwellings (from 26,400 to 31,300).
- In 2021, the proportion of First Nations people living in appropriately sized housing were at or above the 2031 national target of 88% in 3 jurisdictions (Victoria, Tasmania and the Australian Capital Territory) but the proportion in the Northern Territory (43%) was considerably behind the target.
- Of the First Nations people living in crowded conditions, 29% were in Queensland, 23% in New South Wales and 23% in the Northern Territory.
- In 2021, the proportion of First Nations people living in appropriately sized housing was close to the 2031 national target of 88% in *Major cities* (88%), *Inner regional areas* (87%) and *Outer regional areas* (82%); in *Remote* (68%) and *Very remote* areas (45%), the proportion of First Nations people living in appropriately sized housing was lower.
- There was a higher level of crowding in social housing dwellings, with 37% of First Nations people in public housing and 43% of First Nations people in community housing living in crowded conditions, compared with less than 12% of First Nations home owners.
- In social housing, almost three-quarters (73%) of First Nations households with 2 families (see Glossary for definition of family) were crowded, compared with 45% in private rental and 24% in owner-occupied dwellings. The pattern was similar for households with 3 or more families, with 97% crowded in social housing, 82% in private rental and 49% in owner-occupied dwellings.

Criminal justice

- Nationally, the age-standardised adult imprisonment rate (ASAIR) for First Nations adults in 2022 was around 2,200 per 100,000 adult population, over 14 times as high as the non-Indigenous ASAIR (150).
- Despite falls for a few years in between, the ASAIR for First Nations people rose from around 1,300 in 2006 to 2,200 in 2021. Over the same period, the non-Indigenous ASAIR rose from around 130 to 150.
- In 2022, per 100,000 adult population, Tasmania (around 680), the Australian Capital Territory (around 1,500) and Victoria (around 1,600) had lower ASAIRs than the 2031 national target of around 1,821. New South Wales (around 1,900) and Queensland (around 2,000) had ASAIRs at or above the projected national trajectory point for 2022.

South Australia (around 2,500), the Northern Territory (around 2,800) and Western Australia (around 3,200) had ASAIRs higher than the national ASAIR (around 2,200).

- Between 2019 and 2022, the ASAIR for First Nations people fell in Victoria, Western Australia, Tasmania and the Australian Capital Territory; it rose in Queensland, South Australia and the Northern Territory and, remained unchanged in New South Wales.

Youth justice

- In 2022–23, on an average day, around 1,500 First Nations young people aged 10–17 were under community supervision, and around 445 were in detention. Most of those in detention were unsentenced (around 375 or 84%), with a smaller proportion sentenced (99 or 22%). The number of unsentenced and sentenced young people in detention may not sum to the total number of young people in detention as young people may have changed legal status during the same day, or been on both types of orders at the same time.
- First Nations youth were 27 times as likely as non-Indigenous youth to be in detention in 2022–23.
- In 2022–23, per 10,000 First Nations young people in detention, the rate of First Nations young people aged 10–17 in detention was at or below the 2031 national target of 22.3 in New South Wales (20), Victoria (9), South Australia (19) and Tasmania (7). Queensland (46) and the Northern Territory (43) had the highest rates.
- In 2021–22, the rate of First Nations young people aged 10–17 in detention was similar in *Major cities* (26 per 10,000) and *Inner regional and outer regional* areas combined (25 per 10,000), but higher in *Remote and very remote* areas combined (37 per 10,000).
- In 2022–23, boys (52 per 10,000) were 7 times as likely as girls (7 per 10,000) to be in detention on an average day.

Child protection

- Nationally, the number of First Nations children aged 0–17 in out of home care (OOHC) increased from nearly 18,000 (54 per 1,000 First Nations children) in June 2019 to around 19,800 (57 per 1,000) in June 2023, increasing the gap between First Nations and non-Indigenous children in OOHC.
- In 2023, First Nations children aged 0–17 were 12.1 times as likely as non-Indigenous children aged 0–17 to be in OOHC, compared with 10.6 times as likely in 2019.
- As at 30 June 2023, nearly 45% (about 8,800) First Nations children in OOHC, had been continuously in care for 5 years or more, after increasing steadily from 40% in June 2019.
- In the Northern Territory (around 31 per 1,000 First Nations children) and Tasmania (just over 33 per 1,000) the rate was only slightly higher than the 2031 national target of 29.5 per 1,000. Among the remaining states and territories, the OOHC rate was much higher, ranging from 47 per 1,000 in Queensland to 103 per 1,000 in Victoria.
- From June 2019 to June 2023, the OOHC rate for First Nations children fell overall in New South Wales, the Australian Capital Territory and the Northern Territory; it rose overall in Victoria, Queensland and South Australia and remained relatively stable in Western Australia and Tasmania.
- As at 30 June 2023, the OOHC rate for First Nations children aged 0–17 was lowest in *Remote and very remote* areas combined (32 per 1,000 First Nations children) and

markedly higher in *Major cities* (nearly 67 per 1,000) and *Inner and outer regional* areas combined (about 73 per 1,000).

Family safety

- Based on the 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), 8.4% (21,700) of the estimated 259,000 First Nations women aged 15 and over reported that they have experienced physical or face-to-face threatened physical harm from a family member in the past 12 months. An estimated 12,400 (57%) reported experiencing harm from a spouse or partner, and an estimated 8,000 (37%) from other family members.
- The proportion of First Nations women aged 15 and over who reported experiencing family violence varied only slightly between jurisdictions, ranging from 6.4% in Queensland to 10% in New South Wales.
- The lowest proportion of First Nations women aged 15 and over who experienced family violence were among those living in *Major cities* (6.6%); the highest proportion were among those living in *Inner regional* areas (12%), followed by those living in *Remote* areas (10%).
- Over the past decade, the number and crude rate of hospitalisations for family violence for First Nations women aged 15 and over has increased overall, from around 1,900 hospitalisations (780 per 100,000 population) in 2012–13 to around 2,800 hospitalisations (940 per 100,000) in 2020–21; however, in 2021–22, the number and rate fell to around 2,400 (780 per 100,000).
- Between 2019–20 and 2021–22, First Nations women aged 15 and over and First Nations children aged 0–14 living in the Northern Territory had the highest rate of hospitalisations for family violence. The rate was more than 2 times that of other states and territories.
- Between 2019–20 and 2021–22, First Nations women aged 15 and over and First Nations children 0–14 living in *Remote and very remote* areas combined had the highest rate of hospitalisations for family violence. The rate was more than 5 times that for other remoteness areas for First Nations women and around 2 and 3 times that for First Nations boys and girls.

Social and emotional wellbeing

- The target associated with this outcome is a significant and sustained reduction in suicide of First Nations people towards zero. However, since the baseline year of 2018, the target is worsening: the age-standardised rate of deaths by suicide increased from 25 in 2018 to 30 per 100,000 population in 2022 among First Nations people in the 5 jurisdictions for which Indigenous identification in the National Mortality Database is considered adequate – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.
- In 2018–2022, the rate of suicide among First Nations males was higher than that for First Nations females in all age groups, except for ages 5–17.
- The number of deaths by suicide per 100,000 among First Nations people in 2018–2022 ranged from 7 for those aged 5–17 to 52 for those aged 35–44, and 20 for those aged 45 and over.

Most important factors

Key factors associated with each target outcome were identified using logistic regression and random forest analysis. The latter assesses the relative importance of variables in the multivariate regression model predicting target outcomes. Detailed description of this method is provided in Appendix A. In brief, random forest analysis allows the variables to be classified and grouped in order of relative importance. However, this can lead to different numbers of variable importance groupings across the target outcomes, which means that factors placed in group 3 from an analysis that produced only 3 ordered relative importance groups is not comparable with factors in group 3 from an analysis that produced 7 groupings. However, the results from random forest analyses allow identification of high-importance variables for each target and the common factors across outcomes. Targeting these common factors in social policy could potentially contribute to progress across several Closing the Gap targets simultaneously.

Most important factors by target outcome

Table 2 summarises the most important variables from random forest analyses undertaken for 11 target outcomes. The list of variables identified as the most important for each target outcome varied widely across the models.

Table 2: Most important predictor variables by target outcome

Target outcome measure	Variables in the most important group
Healthy birthweight	Whether birth was preterm
Preschool attendance	Whether speaks multiple languages Parent 1 (maternal) employment Parent 1 and 2 highest level of school completed Parent 1 and 2 highest level of post-school education State Age
Developmentally on track	Whether child has developmental difficulties
Year 12 or equivalent completion	Household income Overcrowded household Remoteness area Socioeconomic (IRSD) index State
Tertiary education completion	Household income
Youth full time engagement in employment, education or training	Age Whether experienced financial stress Socioeconomic (IRSD) index
Employment	Whether highest education is year 12 or above
Crowded housing	Household income Past history of crowding Number of dependent children in household
Adult imprisonment	Sex Whether ever experienced physical harm Crowded housing
Family violence	Age Whether ran out of food in last year Whether experienced unfair treatment because Indigenous in the last year
Deaths by suicide	Sex
Psychological distress	Went days without money for necessities

Healthy birthweight

In the model predicting healthy birthweight outcome among First Nations babies (Target 2), random forest analysis resulted in 3 importance groupings where the highest importance group included only preterm birth (birth that occurred at less than 37 weeks of gestational age). In the logistic regression model, preterm birth had a strong inverse association with healthy birthweight (OR=0.047, $p<0.0001$), controlling for a range of variables measuring mother's health risk factors, antenatal visits and geographic factors.

Preschool attendance

In the model predicting preschool attendance the highest importance group included a range of variables measuring parents' level of education (highest level of high school completed, and post school qualification), parents' employment status, whether English was the only language spoken at home, age group and the state or territory of residence.

In the regression model controlling for other factors, First Nations children whose parents had completed year 12 had 1.9 (for Parent 1) and 1.2 (for Parent 2) times higher odds of preschool attendance, while children of parents with a post-school qualification had 1.5 (for Parent 1) and 1.2 (for Parent 2) times higher odds of attending preschool. Children of parents who were employed had 1.3 (for Parent 1) times higher odds of attending preschool. In households where English was the only language spoken at home children had 1.2 times higher odds of preschool attendance compared with households speaking languages other than English.

Children developmentally on track

For children being developmentally on track outcome the most important group included only one variable, presence of developmental difficulties that affect learning, such as physical disability and speech, hearing or visual impairments, social or emotional difficulties. In the regression model, having any developmental difficulties, compared with not having any, was associated with 0.22 times the odds of being developmentally on track, controlling for other variables.

Year 12 or equivalent completion

The most important factors for completion of year 12 or equivalent outcome were found to be household income, living in an overcrowded household, remoteness, socioeconomic index and state or territory of residence. Higher levels of equivalised household income, compared with lower levels (bottom 3 deciles), were associated with 1.5 (for middle 4 deciles) and 1.2 (for top 3 deciles) times higher odds of year 12 or equivalent completion among 20–24-year-olds, however, these associations were not statistically significant in the regression model. Living in not crowded household was associated with 3 (for 20–24-year-olds) and 1.7 (for 20–39-year-olds) times the odds of year 12 completion, compared with living in a crowded household. Living in *Major cities*, compared with *Very remote* areas was associated with 4.1 (for 20–24-year-olds) and 2 (for 20–39-year-olds) times the odds of year 12 or equivalent completion, controlling for other factors. Living in areas in middle 3 deciles of IRSD index, compared with the bottom decile was associated with 2.2 (for 20–24-year-olds) and 2 (for 20–39-year-olds) times the odds of year 12 or equivalent completion. The odds of year 12 or equivalent completion were statistically significantly lower for Western Australia, South Australia and the Northern Territory, compared with New South Wales and the Australian Capital Territory combined, net of other factors.

Tertiary education completion

Household income was the most important factor predicting tertiary education completion among First Nations people. Controlling for other factors, equivalised household income in the middle 4 deciles was associated with 3.2 and in top 3 deciles with 6.6 times the odds of completing Certificate III and above, compared with the bottom 3 deciles in the regression model.

Youth engagement

In the model predicting First Nations youth engagement, the most important factors were age, experience of financial stress and socioeconomic index for areas. The regression analysis indicated that 15–17-year-olds had 3.1 times the odds of full engagement in EET, while those aged 18 to 22 had lower odds of full engagement compared with 23–24-year-olds, net of other factors. Not having experienced financial stress was associated with 2.1 times higher odds of youth full engagement in EET, compared with those living in households that have experienced financial stress (among 18–24-year-olds only). Living in areas in 2–4 deciles of IRSD index, compared with the bottom decile, was associated with statistically significantly higher odds of youth engagement, net of other factors.

Employment

The most important factor predicting First Nations employment was completion of higher education. The regression outcomes showed that compared with having completed year 12, higher education was associated with statistically significantly higher odds of employment (OR=1.7 for Advanced diploma/Diploma and Certificate III/IV, and OR=3 for Bachelor degree and above).

Housing

For the First Nations people living in a crowded housing the most important predictors were household income, past history of crowding and the number of dependent children in the household. The regression analyses showed that, net of other factors, equivalised household income of \$1,000 or more, compared with less than \$300, was associated with statistically significantly lower odds of living in a crowded household (OR=0.5 using Australian Census Linked Dataset (ACLD), and OR=0.4 using NATSIHS data). Having lived in a crowded household in 2011, compared with those who did not, was associated with 3.5 times higher odds of living in a crowded household in 2016, controlling for other factors. And compared with having 2 or less dependent children in the household. Having 3–4 children was associated with 1.6 (ACLD) and 2.7 (NATSIHS) times higher odds, while having 5 or more children was associated with 5 (ACLD) and 8.9 (NATSIHS) times higher odds of living in a crowded household.

Adult imprisonment

The most important factors predicting adult imprisonment among First Nations people were sex, experience of physical harm and living in a crowded household. Regression estimates indicated that males had about 6 to 7 times higher odds of being incarcerated than females, net of other factors. Meanwhile, living in a crowded household increased the odds of incarceration 2.3 times. Having experienced physical harm was associated with 1.3 times higher odds of incarceration, although the results were not statistically significant at $p < 0.5$ level.

Family violence

In the model predicting experience of family violence among First Nations women aged 15 and over, the most important variables were age, having run out of food in the last year and experience of unfair treatment because of their Indigenous status. The regression analysis showed that women aged 25–34 had the highest odds of experiencing family violence compared with women aged 55 and over (OR=3.3). Having run out of food in the last 12 months, compared with those who did not, was associated with 1.9 times higher odds of experiencing family violence, net of other factors. And women who reported experience of unfair treatment in the previous 12 months because of their Indigenous status, had 1.6 times higher odds of experiencing family violence, compared with women who did not report unfair treatment.

Deaths by suicide and psychological distress

In the model predicting deaths by suicide, sex was the most important variable. Based on a Cox proportional hazards model, the hazard of death by suicide was 3 times higher among males than females, controlling for other factors.

In the models predicting psychological distress, financial stress was the most important predictor. Net of other factors, going days without money for necessities was associated with 1.7 (using NATISS data) and 2 (using NATSIHS data) times higher odds of psychological distress, compared with those who did not experience financial stress.

Common important factors across targets

Among the most important factors discussed above, several were unique to the target and to the data used, such as preterm births for the healthy birthweight outcome, or developmental difficulties for children being developmentally on track outcome. However, a few common factors could be observed across other target outcomes.

Most common were the measures of household-level economic wellbeing and financial stress. Table 2 shows that household income and related financial status indicators (that is, experience of financial stress, living in a crowded household, and running out of food or experiencing days without money for necessities) were ranked among the most important factors for 7 target outcomes, including year 12 and tertiary education, youth engagement, housing, adult imprisonment, family safety and psychological distress. Education was ranked as being of highest importance for employment and children's preschool attendance.

Other high-importance factors did not appear across many targets and would not be considered as modifiable, such as age, sex, state and remoteness. However, the high ranking of these variables indicates that certain geographic areas or population sub-groups are more vulnerable in regard to these outcomes, and focusing social policy and programs on these sub-groups can contribute towards achieving Closing the Gap targets.

Strategies for improvement

The 4 priority reforms articulated in the 2020 National Agreement on Closing the Gap are seen as central to driving improvements in outcomes by changing the way governments work with First Nations people. These reforms are:

- formal partnerships and shared decision making
- building the community-controlled sector
- transforming government organisations
- shared access to data and information at a regional level (Australian Government 2020).

Shared decision-making and building the community-controlled sector are considered key drivers of change across all target outcomes (SNAICC 2023).

To drive change forward, it is also important to acknowledge the interconnections between the Closing the Gap targets. The targets in the National Agreement are the key socioeconomic outcomes from an individual's birth and throughout their life, where success in each stage depends on the previous stage's outcome. This interdependency is well defined in the life course approach, which suggests that inequities in earlier stages of life affect outcomes at later stages. Therefore, improving early years outcomes for First Nations people – such as healthy birthweight, early years education and child development – will contribute to improved youth and adult outcomes (including education, employment and housing), which will, in turn, affect adult imprisonment and psychological health and wellbeing. Progress in these targets will contribute towards achieving the overarching outcome – improved life expectancy for First Nations people.

The key factors identified for each Closing the Gap outcome area in this report can help not only to inform social policy but also to design effective programs. While the factors across the targets may vary widely, the strategies aimed at managing these factors can be grouped into several categories.

Key strategies for health-related target outcomes

Among the common factors of health-related targets (which include healthy birthweight, life expectancy and psychological distress outcomes) are high-risk health factors, such as tobacco smoking, excessive alcohol use, use of illegal substances, lack of physical exercise and healthy nutrition. These factors are, in turn, closely linked to, and work in addition to, access to health-care services.

To improve health outcomes, it is essential that all First Nations people have access to appropriate, high-quality, timely and culturally responsive health care at all stages of life (NACCHO 2021). Evidence has shown that Aboriginal Community Controlled Health Services, more commonly known as ACCHOs (designed, operated and governed by the First Nations community), are efficient in providing health care to First Nations communities by employing a more comprehensive and integrated approach and by meeting the cultural needs and expectations of these communities (Dalton and Carter 2018; Kildea et al. 2016; Massi 2024). This is why it is so important to increase government funding for programs and services provided by ACCHOs as stated under Priority Reform 2 in the 2020 National Agreement (Productivity Commission 2024).

Improving access to culturally appropriate health-care services is particularly important in remote communities. Life expectancy for First Nations people and the proportion of births of healthy birthweight are lowest in these communities, while suicide rates are the highest of those of all remoteness areas, along with high rates of smoking, concentrated inequality and

large service gaps (see chapters 1, 2 and 14 for more detailed discussion on the associations between remoteness and these outcomes).

While targeted health care can improve the health and life expectancy of First Nations people, it will have a limited effect unless socioeconomic inequality and its associated risks are also reduced.

Key strategies for early years target outcomes

The common high importance factors for the early years outcomes (comprising preschool enrolment and early child development) were the presence of any developmental difficulties – measured as the presence of any physical disability; and speech, hearing or visual impairments – as well as parental education and employment. The key factors associated with early child development also included preschool attendance, highlighting the interdependencies between the targets.

For the early detection and management of health issues to support First Nations children with disability and to maximise participation in the education system, it is critical to increase not only access to health-care but also access to culturally acceptable social services and workforce participation of First Nations people in health, education, and social services.

Interventions aimed at improving preschool attendance could include:

- increasing capacity in geographic areas that have service gaps
- promoting the benefits of preschool participation
- cutting costs
- improving cultural safety and engagement with families and communities.

Improving employment and educational opportunities for First Nations parents depends on a range of broader systemic and structural factors, such as health, housing, transportation and social welfare (as discussed below).

Key strategies for socioeconomic target outcomes

The interdependency between the targets is further evident from the analyses of factors of education, employment and housing. Improved youth engagement in EET and year 12 attainment depend on school attendance and achievement in the early and middle school years, while improved employment depends on educational attainment, particularly at the Certificate III and above level. Living in overcrowded housing is associated with unemployment, as well as with remoteness and socioeconomic index. Year 12 completion is also closely associated with overcrowding and disability, mental health and other health conditions.

These interdependencies imply that improvement in one target is likely to lead to improvements in others. For example, improving school completion of First Nations youth is likely to lead to further improvements in tertiary education attainment, from which employment and housing outcomes may also benefit. Improved housing outcomes and inequities in turn is likely to affect school attendance and completion of the next generation.

Strategies aimed at increasing school attendance should take into consideration the broader social challenges in communities, and foster connections with First Nations peers, mentors and communities. These strategies may include:

- increasing recruitment and professional development of First Nations teachers
- applying culturally responsive teaching

- providing young people with opportunities to stay engaged with school education through vocational education and training programs
- supporting young people throughout their secondary schooling for successful post-school transition, particularly in remote areas.

It is also important to provide additional support for First Nations students with disability and other physical and mental health issues through holistic linked services between schools, community organisations and health-care that are designed and led by and for First Nations people.

Institutional support has been identified as the most crucial contributor to the success of First Nations students in higher education. This support may include:

- acknowledging the value of First Nations people within the institution
- maintaining a respectful First Nations culture at the institution
- having supportive First Nations academics and mentors
- recognising the importance of family commitments and being flexible in enabling these to be met through the delivery of blended online courses.

Improved educational attainment is likely to contribute to better employment outcomes. However, improvement in employment also depends on improved health outcomes and increased support for First Nations people with disability. Investing in programs (such as the Indigenous Skills and Employment Program) that have been shown to be successful in connecting First Nations people with jobs, career advancement opportunities, and new training and job-ready activities could further contribute to the economic participation target.

Programs aimed at improving the housing target could focus on increasing the social housing dwellings available to First Nations people, with consideration given to cultural obligations, appropriate size for accommodating multi-family households and the observation of cultural practices (that is allowing for families and visitors to live comfortably together). The policy response to crowding in First Nations households will also need to consider the needs by remoteness:

- In urban areas, improving household income or providing targeted assistance to First Nations people can help improve access to existing housing stock.
- In regional and remote areas, additional housing stock is required.

Key strategies for justice target outcomes

The key strategies aimed at improving justice-related outcomes (comprising child protection, youth detention, adult imprisonment and family safety) are prevention and early intervention. The success of preventive measures lies in positive relationships between families, communities and service providers, and in ensuring that adequate resources and culturally appropriate services are available.

For the child protection and family safety targets, this means:

- investing in programs and services that support families having difficulty caring for their children
- adopting family-focused case management for families dealing with domestic violence
- involving First Nations communities in service planning
- ensuring universal access to culturally appropriate services.

Elements of successful strategies to reduce the rates of offending among First Nations youth and adults include having courts that provide culturally appropriate and inclusive process that consider the wider circumstances of offenders, and having community support and participation in offenders' re-integration process.

Most importantly, however, prevention and early intervention for justice-related targets would benefit widely from mitigating social inequities in First Nations communities. Improving education, employment and housing outcomes could help to reduce the rates of alcohol and illicit drug use, violence and antisocial behaviours that can lead to family violence, youth offending, adult criminal behaviour and children entering the child protection system.

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Long and healthy lives

1

Summary

Target

The target associated with Outcome 1 of the 2020 National Agreement is to close the gap in life expectancy between Aboriginal and Torres Strait Islander people and non-Indigenous Australians within a generation (by 2031).

Background

Research confirms that life expectancy is affected by several factors, including health risk behaviours, socioeconomic factors (including education) and environmental factors (such as overcrowded housing and sanitation). It has been found that:

- family/community, country and place, cultural identity and self-determination all have strong protective effects on health and wellbeing. Factors posing risks to good health include the long-term effects of colonisation and its ongoing impact on matters such as self-determination, the disruption of ties to land, and the adverse impact of direct and systemic racism
- racism can lead to reduced access to resources associated with health outcomes, such as education, employment, housing and medical care. Studies have also found a strong association between experiences of racism and ill health, psychological distress, mental health conditions and risk behaviours (such as substance use)
- 49% of the burden of disease in First Nations Australians in 2018 was due to potentially modifiable risk factors (AIHW 2022a). Tobacco use was the risk factor that contributed most to deaths and fatal burden among First Nations people (over 800 deaths or about 23% of all First Nations deaths, and 19% of fatal burden)
- social determinants account for around 35% of the health gap according to estimates based on an AIHW analysis (AIHW 2024b). Employment status and hours worked, equivalised household income and highest level of school completed accounted for 14%, 13% and 8.9%, respectively, of the gap in health outcomes between First Nations and non-Indigenous adults aged 18 to 64.

Current status

- Australia has one of the highest life expectancies in the world – in 2020–2022, estimated life expectancy for men was 81.2 years (second in the world) and 85.3 years for women (sixth in the world). However, this high national rate is not one shared equally across society, with one of the largest sources of variation being that between First Nations people and non-Indigenous Australians.
- In 2020–2022, estimated First Nations life expectancy at birth was 71.9 years for First Nations males and 80.6 years for non-Indigenous males, a gap of 8.8 years. Life expectancy was higher for females (75.6 years for First Nations females and 83.8 years for non-Indigenous females), and the gap was slightly smaller (8.1 years).
- For both First Nations males and females, remoteness of residence was related to life expectancy, with life expectancy highest for those living in *Inner and outer regional* areas (72.8 for males and 76.7 for females) and lowest for those in *Remote and very remote* areas (67.3 for males and 71.3 for females).
- Life expectancy was lowest for those in the most disadvantaged areas – the bottom quintile of Australian Bureau of Statistics' (ABS) derived Index of Relative Socioeconomic Disadvantage (IRSD) (69.5 for males and 74.0 for females). Even though life expectancy estimates for non-Indigenous Australians are also lowest for those living in the most

disadvantaged areas, they are still higher than estimates for First Nations people in every socioeconomic area.

- According to the Productivity Commission (2024): ‘... *the target shows improvement but is not on track to be met for males or females. However, this assessment should be used with caution as it is based on a limited number of data points*’.

Key findings

- If First Nations people had had the same age-specific mortality rates as non-Indigenous Australians between 2017 and 2021, there would have been 9,200 fewer deaths in this period – equivalent to about 1,006 deaths among First Nations males and 834 among First Nations females per year.
- Excess numbers of deaths (hereafter referred to as excess deaths) were primarily concentrated among those aged 35–74. For this age group, 2 broad causes of death were responsible for the largest number of excess deaths for both First Nations males and females – cardiovascular diseases (CVD) and cancer.
- Rates of deaths amenable to changes in health risk factors increased with age from 25 years onwards as risks accumulate. Among both First Nations men and women, deaths in this category are strongly related to smoking exposure, accounting for the majority of deaths of those aged from 45 onwards (such as through cancer of the trachea, bronchus and lung; deaths from chronic lower respiratory disease; and cancer of the buccal cavity, pharynx and oesophagus).
- Mortality rates have distinct age and sex patterns – for example, First Nations males have considerably higher mortality rates for deaths amenable to injury prevention than First Nations females (especially in the 15–34 age group) – particularly deaths from suicide and self-inflicted injuries. Among the types of injuries, deaths due to falls start to increase for both First Nations males and females around age 55.
- Among deaths amenable to both medical interventions and changes in health risk factors, ischaemic heart disease and type 2 diabetes were the 2 causes of deaths with the highest age-specific mortality rates, rising from age 35 onwards. The highest rates were for ischaemic heart disease for males and diabetes for females, with both diseases also affected by tobacco use.

Key factors

- Access to appropriate, high-quality, timely and culturally responsive health care throughout life that acknowledges the impact of social, cultural and historical determinants is essential to improving health outcomes for First Nations people. This improvement comes through increasing health literacy and self-management of chronic disease, providing links to services within and outside the health system and improving screening and treatment of acute and chronic illnesses.
- Research has shown that medium to high use of primary health care is associated with greater reductions in hospitalisations and deaths than low use. Recent gains in life expectancy among First Nations people in the Northern Territory and in Queensland have come, at least partly, from a reduction in deaths due to chronic conditions; this positive outcome has benefited from investment in health services focused on primary prevention, early detection, and secondary and tertiary prevention of chronic conditions.
- Some evidence suggests that care delivered through Aboriginal Community Controlled Health Services (ACCHS) is associated with lower rates of preventable hospitalisations among remote First Nations communities. The ACCHS care is likely to be more efficient than mainstream services in providing health care to First Nations communities by

employing more comprehensive and integrated approach, and meeting the cultural needs and expectations of First Nations communities (Dalton and Carter 2018).

- In addition to individual health benefits, it has been estimated that investing in primary care in remote communities could result in from 3 to 10-fold savings in hospital costs. An important driver for change is therefore identifying service gaps for primary health care and considering filling such service gaps with ACCHS.
- Nonetheless, while targeted health care can improve life expectancy, it will have a limited effect on the life expectancy gap unless socioeconomic inequities and their associated risks are also reduced (Georges et al. 2017).

1.1 Introduction

Outcome 1 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander people enjoying long and healthy lives.

The target associated with this outcome is closing the gap in life expectancy between Aboriginal and Torres Strait Islander people and non-Indigenous Australians within a generation (by 2031).

Outcome	Aboriginal and Torres Strait Islander people enjoy long and healthy lives.
Target	Close the Gap in life expectancy within a generation, by 2031.
Indicator	Life expectancy gap.
Measure	Difference between Aboriginal and Torres Strait Islander people and non-Indigenous life expectancy.

Life expectancy at birth is the average number of years that a newborn baby would be expected to live if they experienced the age- and sex-specific death rates current when they were born. The estimates are constructed from life tables based on the prevailing age-specific death rates and so are automatically adjusted for differences in age structures between populations.

(Life expectancy can also be calculated at other ages than at birth, representing the number of years people would be expected to live from a certain age – for instance, life expectancy among those who survived to age 25. Note that the gap in life expectancy between Aboriginal and Torres Strait Islander (First Nations) and non-Indigenous Australians narrows at later ages.)

Life expectancy is a widely used summary indicator of the general health of a population. It can be used to compare population groups or geographic areas, and to compare single population groups over time. It is also intrinsically linked to mortality. Note that in discussing mortality throughout this chapter, we respectfully acknowledge that each individual death represents a loss to a family and the community. More broadly, we recognise and acknowledge the underlying inequalities in mortality patterns in Australia and the factors that underpin them (such as social and cultural determinants, access to health care, and the broader sociopolitical context) (see Section 3 for a conceptual framework and information on factors underpinning life expectancy). These underlying inequalities in mortality patterns create differences in life expectancy. High life expectancy is typically associated with low infant and child death rates, an ageing population and access to high-quality health care (AIHW 2022b, 2022c).

Australia has one of the highest life expectancies in the world – in 2020–2022, estimated life expectancy for men was 81.2 years (second in the world) and 85.3 years for women (sixth in the world) (ABS 2023b). However, this high national rate is not one shared equally across society, with one of the largest sources of variation being that between First Nations people and non-Indigenous Australians.

The baseline data for the initial 2008 life expectancy at birth target showed that, on average over 2005–2007, life expectancy for:

- First Nations males was estimated to be 11.5 years lower than that for non-Indigenous males (67.2 years versus 78.7 years)
- First Nations females was estimated to be 9.7 years lower than that for non-Indigenous females (72.9 years versus 82.6 years) (ABS 2009).

Note that these estimates were revised when the Australian Bureau of Statistics (ABS) released life expectancy estimates for 2010–12 (ABS 2013), with an estimated gap of 11.4 years for First Nations males and 9.6 years for First Nations females.

The differences in life expectancy between First Nations and non-Indigenous Australians reflect the fact that First Nations people have higher mortality rates and die at younger ages than non-Indigenous Australians (AIHW 2018c). Closing the gap in life expectancy by 2031 was one of the original 6 targets from the first Agreement in 2008 (SCRGSP 2009) but it was not on track to be met when the new 2020 Closing the Gap National Agreement was developed. It has been carried over unchanged into the new Agreement (Australian Government 2020).

1.1.1 Measurement issues/considerations

Several conceptual and methodological issues need to be considered when looking at this target:

- Life expectancy is a high-level summary measure. It is a single number that is easy to understand, and highlights where there are gaps between populations or areas but cannot specify why those gaps exist or what can be done to close them.
- Life expectancy is strongly related to the other targets in the National Agreement. However, it can be difficult to see the direct relationship between an individual outcome or target and life expectancy, as the targets work through a set of intervening variables, often over extended time periods.
- As defined at the time of writing of this report, the target is a relative measure. Even if First Nations life expectancy increases, if non-Indigenous life expectancy increases at the same rate, the gap itself will not close. Similarly, the gap could close if the non-Indigenous life expectancy decreases and there is no change in life expectancy for First Nations people.
- It is difficult to measure trends over time in life expectancy by Indigenous status for 2 reasons:
 - The official estimates are produced only every 5 years, as the ABS uses linked Census of Population and Housing (Census) and deaths data to compile First Nations life tables.
 - Estimates at different points are not directly comparable because of underlying changes in Indigenous identification in both the deaths and population data that underpin the estimates.

Given the 5-year period between updates of life expectancy estimates, mortality rates are used as a proxy measure to track progress towards the life expectancy outcome (mortality data are available on an annual basis). However, while life expectancy estimates and mortality counts at the national level are based on data for all jurisdictions (adjusted for under-count), First Nations mortality rates are generally presented only for the 5 jurisdictions (New South Wales, Queensland, Western Australia, South Australia, Northern Territory) with adequate levels of Indigenous identification (for more information, see Box 1.2).

Note that, before 2022, New South Wales used a single source (Death Registration Form) to assign Indigenous status to each death. From the 2022 reference year, 2 sources are used

(Death Registration Form and the Medical Certificate of Cause of Death). This change has 2 implications: data before 2022 for New South Wales underestimate the number of deaths of First Nations people, and data from 2022 onwards are not comparable with previously published estimates.

To guide policies and services to improve health outcomes and decrease mortality rates, closing the gap in life expectancy requires:

- identifying the mortality patterns that underpin the differences in life expectancy
- understanding the broader determinants of those patterns (such as individual, community, structural, cultural, historical and political factors, as well as access to and use of services) (Queensland Health 2019; Ring and Griffiths 2022).

This chapter focuses on differences in mortality patterns by age and underlying cause of death to highlight where current gaps are centred. The first section is, by definition, ‘gap-focused’; the later section focuses on variation in mortality patterns among First Nations people.

Following an overview of the most recent data on the target, an outline of the conceptual framework, and high-level findings from the literature review, the chapter presents findings from the combined 2017–2021 period on:

- all-cause mortality
- mortality by broad underlying cause of death
- excess deaths – the difference between the number of First Nations deaths and the number that would have occurred had non-Indigenous mortality rates applied (note that excess deaths are calculated only for the 2017–2021 period and are not used to compare changes over time)
- detailed analyses of the 2 causes of death that underpin the majority of differences in mortality rates between First Nations people and non-Indigenous Australians
- potentially preventable deaths by type of preventability.

Box 1.1: Age-specific death rates and age-standardised rates

This chapter primarily focuses on age-specific death rates rather than age-standardised death rates.

Age-standardised rates are useful for examining time trends in mortality rates and for comparing groups with different age structures; however, they are synthetic rates and cannot be used to calculate numbers of deaths that would need to be reduced in order to equalise age-specific mortality rates. There are also issues over the relevancy of age-standardised rates when the age-composition of one of the populations is very different from that of the standard population (AIHW 2022b; Thurber et al. 2022).

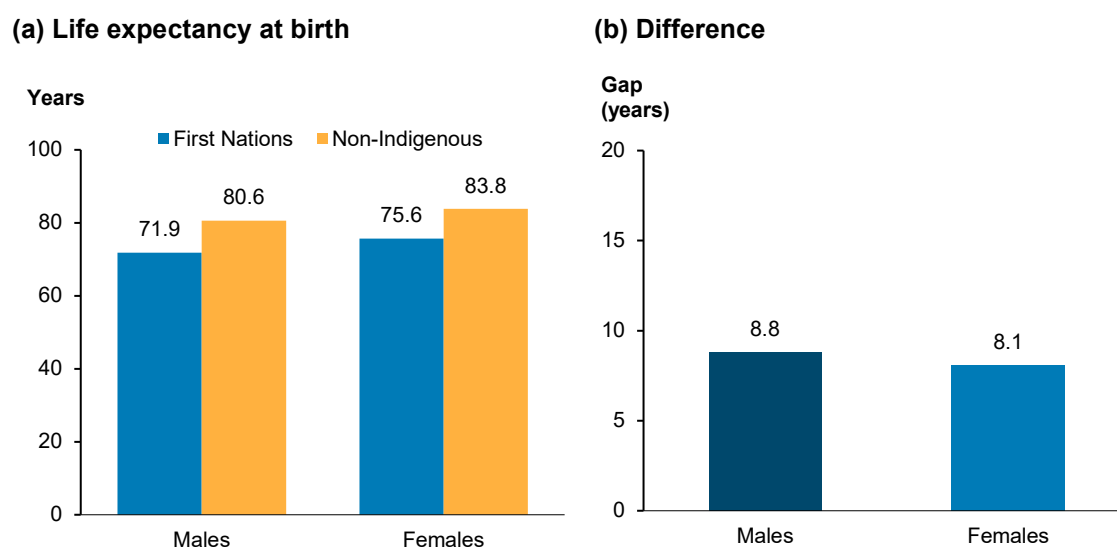
Supplementary Figure S1.1 and Supplementary Table S1.20 highlight the different age structures of the First Nations and non-Indigenous populations.

1.2 Long and healthy lives target: current picture

1.2.1 National

In 2020–2022, estimated life expectancy at birth was 71.9 years for First Nations males and 80.6 years for non-Indigenous males, a gap of 8.8 years. Life expectancy was higher for females (75.6 years for First Nations females and 83.8 years for non-Indigenous females), and the gap was slightly smaller (8.1 years) (Figure 1.1; Table S1.1).

Figure 1.1: Life expectancy estimates, by Indigenous status and sex, 2020–2022



Source: ABS 2023a.

1.2.2 State and territory

For First Nations people, life expectancy was highest in New South Wales for both males (73.8 years) and females (77.9 years) and lowest in the Northern Territory (65.6 years for males and 69.4 years for females). (See Section 1.1.1 for an explanation for potential under-counting of deaths of First Nations people in New South Wales.)

The smallest gaps by Indigenous status were 6.8 years for males and 5.9 years for females in New South Wales; the largest were 13.5 years for males and 13.8 years for females in the Northern Territory. Except for the Northern Territory, the gaps in life expectancy between First Nations people and non-Indigenous Australians within the selected jurisdictions were greater for males than females. For non-Indigenous males and females, there was little variation in life expectancy by jurisdiction (Table 1.1).

Table 1.1: Life expectancy at birth, by selected jurisdictions, Indigenous status and sex, 2020–2022

Jurisdiction	First Nations		Non-Indigenous		Difference (95% confidence interval)			
	Males	Females	Males	Females	Males		Females	
NSW	73.8	77.9	80.6	83.8	6.8	(5.3, 8.3)	5.9	(4.5, 7.3)
Qld	72.9	76.6	80.2	83.5	7.4	(6.0, 8.8)	7.0	(5.7, 8.3)
WA	68.9	72.6	81.2	84.3	12.3	(9.7, 14.9)	11.7	(9.5, 13.9)
NT	65.6	69.4	79.1	83.2	13.5	(12.1, 14.9)	13.8	(12.7, 14.9)

Notes

1. At the time of writing of this report only NSW, Qld, WA and the NT have populations of sufficient size and adequate quality of deaths data to calculate First Nations life expectancy estimates.
2. Values for states and territories should not be compared with national estimates as there are differences in methodologies.

Source: ABS 2023a.

1.2.3 Remoteness area

For First Nations males and females, there was little difference in life expectancy between those living in *Major cities* and those living in *Inner and outer regional* areas, though those living in regional areas had slightly higher life expectancies (by 0.3 years for First Nations males and 0.2 years for First Nations females) than those living in *Major cities*. Life expectancies were, however, much lower for First Nations people living in *Remote and very remote* areas (67.3 for males and 71.3 for females).

For non-Indigenous Australians, there was little difference in life expectancy by remoteness.

The largest gaps between First Nations people and non-Indigenous Australians were 12.4 years for both males and females in *Remote and very remote* areas; the smallest gaps were for those in *Inner and outer regional* areas (6.5 years) (Table 1.2).

Table 1.2: Life expectancy at birth, by remoteness, Indigenous status and sex, 2020–2022

Remoteness	First Nations		Non-Indigenous		Difference	
	Males	Females	Males	Females	Males	Females
Major cities	72.5	76.5	81.0	84.0	8.5	7.5
Inner and outer regional areas	72.8	76.7	79.6	83.2	6.8	6.5
Remote and very remote areas	67.3	71.3	79.7	83.7	12.4	12.4

Source: ABS 2023a.

1.2.4 Socioeconomic index

For First Nations males, life expectancy was highest for those living in the least disadvantaged areas – the top 2 IRSD quintiles (74.6 years), while for First Nations females, it was highest in the third IRSD quintile (78.0 years) (Table 1.3). Life expectancy was lowest for those in the most disadvantaged areas – the bottom IRSD quintile (69.5 for males and 74.0 for females).

For both non-Indigenous males and females, life expectancy increased across each IRSD quintile. The largest gaps between First Nations people and non-Indigenous Australians were for those living in the most disadvantaged areas (the bottom IRSD quintile).

Table 1.3: Life expectancy at birth, by area-level IRSD quintile, Indigenous status and sex, 2020–2022

IRSD quintile	First Nations		Non-Indigenous		Difference	
	Males	Females	Males	Females	Males	Females
Most disadvantaged (bottom quintile)	69.5	74.0	78.4	82.3	8.9	8.3
2nd most disadvantaged quintile	71.7	75.7	79.5	83.0	7.8	7.3
3rd quintile	74.3	78.0	80.8	84.0	6.5	6.0
Least disadvantaged (top 2 quintiles)	74.6	77.0	82.0	84.6	7.4	7.6

Source: ABS 2023a.

Within the First Nations population, there was a gap of 5.1 years between males in the most disadvantaged areas and those in the least disadvantaged areas; correspondingly, there was a gap of 3.0 years for First Nations females. It is also important to note that even though life expectancy estimates for non-Indigenous Australians are lowest for those living in the most disadvantaged areas, they are still higher than those for First Nations people in every area. This highlights the entrenched inequities that persist across all socioeconomic levels and emphasizes that improvements in socioeconomic inequities alone are insufficient to bridge the life expectancy gap, stressing the urgent need for comprehensive and systemic interventions.

1.2.5 Is the target on track to be met by 2031?

According to the Closing the Gap Information Repository Dashboard, as of June 2024 (Productivity Commission 2024):

The target shows improvement but is not on track to be met for males or females. However, this assessment should be used with caution as it is based on a limited number of data points.

It is not only the limited number of data points that are a concern in measuring progress against the target, however. The Aboriginal and Torres Strait Islander life expectancy estimates are not comparable over time as the number of deaths and population estimates recorded at each point reflect changing identification and undercount in the source data used to produce them. For more detail, see *Understanding life expectancy estimates for 2022–2022* (<https://www.abs.gov.au/articles/understanding-life-expectancy-estimates-2020-2022>).

That said, in the most recent round of life expectancy estimates for 2020–2022, the ABS released 95% confidence intervals for the gap in life expectancy between First Nations people and non-Indigenous Australians at both the national and state/territory level (for the 4 jurisdictions with sufficient data quality). In all 4 jurisdictions (New South Wales, Queensland, Western Australia and the Northern Territory), as well as at the national level, the life expectancy gap was statistically significantly greater than 0 based on the 95% confidence intervals. Furthermore, based on these confidence intervals, the life expectancy gap was statistically significantly higher in Western Australia and the Northern Territory, compared with New South Wales and Queensland (Table 1.1).

1.3 Literature review

Health outcomes and life expectancy are related to a complex set of underlying factors that include protective factors, health risk factors, access to and use of health services, environmental factors and health at birth. These are not randomly distributed throughout society but are related to the social and cultural determinants of health.

The World Health Organization defines health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity (WHO 2024). For First Nations people, good health is this and more; namely, a holistic concept that includes physical, social, emotional, cultural, spiritual and ecological wellbeing, for both the individual and the community. This concept of health emphasises the connectedness between these factors and recognises the impact that social and cultural determinants have on health (Dudgeon et al. 2014; Gee et al. 2014; Parker and Milroy 2014; Social Health Reference Group 2004).

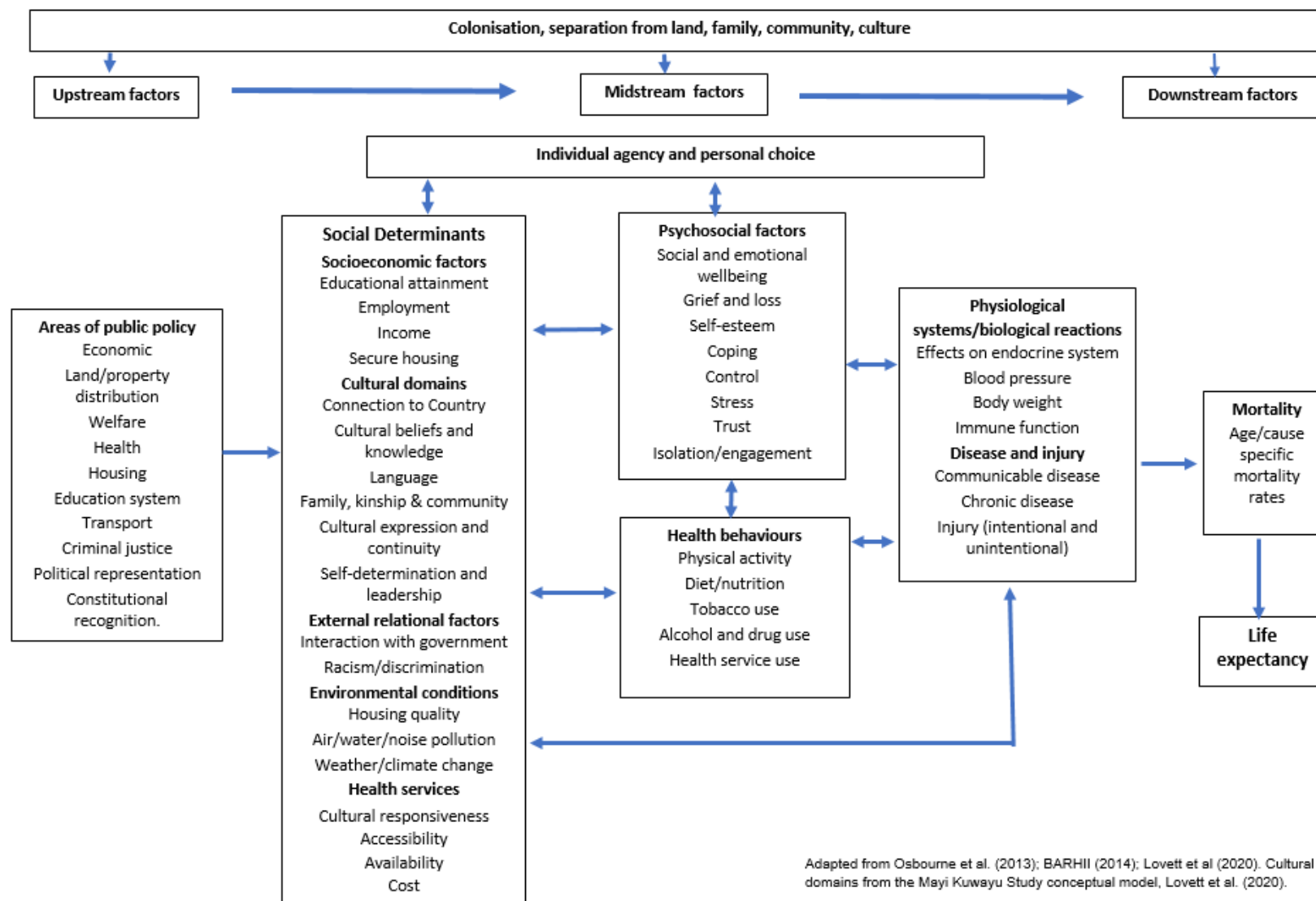
A recent review of the literature on the cultural determinants of health for First Nations people showed that family/community, Country and place, cultural identity and self-determination all had strong protective effects on health and wellbeing (Verbunt et al. 2021). Factors posing risks to good health include the long-term effects of colonisation and its ongoing impact on matters such as self-determination, the disruption of ties to land and the adverse impact of direct and systemic racism (Osborne et al. 2013; Reading and Wien 2009; Thurber et al. 2021b).

This association between health and social and cultural determinants helps to explain and contextualise variation in health-related indicators within the First Nations population, as well as the 'health gap' between First Nations people and non-Indigenous Australians.

1.3.1 Conceptual framework

Figure 1.2 presents a conceptual framework illustrating the complexity of these social and cultural determinants of health. It lays out the potential mechanisms by which individual domains may affect health, wellbeing – and the risk of ill health and death.

Figure 1.2: Conceptual framework of factors affecting life expectancy



1.3.2 Evidence from the literature

Socioeconomic factors and social capital

As shown in Figure 1.2, socioeconomic factors can affect mortality and life expectancy in several ways, including psychosocial factors, health behaviours and through access to financial and social resources. An AIHW analysis indicates that social determinants of health explain 35% of the total health gap between First Nations people and non-Indigenous Australians, with employment/hours worked and household income explaining 14% and 13% of the gap, respectively (AIHW 2024b).

In the Northern Territory, Zhao et al. (2013a) found that socioeconomic disadvantage on its own accounted for 51% of the gap in life expectancy for females and 42% for males. Zhao et al. (2013a) also estimated that around 25–30% of the total health disparity for the Northern Territory First Nations population could be attributed to area-level socioeconomic disadvantage (as measured by the index of relative socioeconomic advantage and disadvantage).

There is considerable research literature on the relationship between educational attainment and mortality and life expectancy. For example, Hart et al. (2017) discussed evidence that points to potential gains of 10 to 12 years in life expectancy for First Nations people by improving educational attainment.

Two recent studies using linked data from the 2016 Census and death registration data from 2016–17 were able to directly estimate the impact of educational attainment at age 25 on life expectancy, and cause-specific mortality rates (for the total population, not disaggregated by Indigenous status).

Welsh et al. (2021a) compared people with the highest educational attainment at age 25 (university qualifications) with those with the lowest attainment at age 25 (no year 12 and no post-secondary education). Although they did not disaggregate the results by Indigenous status, the authors found a:

- 9-year difference in remaining life expectancy for males (61.2 additional years of life versus 52.1 years)
- 5.5-year difference in remaining life expectancy for females (63.6 additional years of life versus 58.1 years).

The authors also noted that the differences for individual-level educational attainment were larger than when area-level indexes of socioeconomic disadvantage were used. It should also be noted that educational attainment is likely to be confounded by many other socioeconomic variables.

Welsh et al. (2021b) looked at the relationship between educational attainment at age 25 and age and cause-specific mortality. They found that those with the highest education had the lowest risk of preventable death, which included injuries in younger adults and preventable cancers and cardiovascular disease in older adults.

It is also important to note that investment in early education is critical to achieving high levels of educational attainment. Investment in kindergarten and year 1 is important to improve literacy, which is essential for a student's overall education and is a predictor for future outcomes in education, health and employment (Australian Education Research Organisation 2023; NSW Government 2017).

Impact of racism and discrimination

The link between self-reported perceptions or experiences of racism and poorer physical and mental health is well established (AHMAC 2017). Racism can lead to reduced access to resources associated with health outcomes – such as education, employment, housing and medical care. Studies have also found a strong association between experiences of racism and ill health, psychological distress, mental health conditions and risk behaviours such as substance use (AHMAC 2017).

The Mayi Kuwayu Study of Aboriginal and Torres Strait Islander Wellbeing included a number of questions about respondents' experiences of everyday discrimination, with 42% reporting no discrimination, 48% low discrimination, and 11% moderate–high discrimination (Thurber et al. 2021b). Those who reported no discrimination experienced better overall health, while the authors found statistically significant associations between experiences of everyday discrimination and poorer outcomes across several domains, including:

- social and emotional wellbeing outcomes – frequent experience of pain, low life satisfaction, low happiness, high or very high psychological distress, doctor-diagnosed anxiety, doctor-diagnosed depression
- culture and identity outcomes – feeling low control over life; feeling torn between cultures; feeling disconnected from culture; choosing not to identify as Aboriginal and/or Torres Strait Islander in the Census, study institution, workplace, Centrelink, or real estate agency
- health behaviours – smoking, gambling, alcohol dependence
- health outcomes – poor/fair general health, doctor-diagnosed heart disease, high cholesterol, high blood pressure, diabetes.

Health risk factors

Modifiable risk factors that can lead to adverse health outcomes include tobacco smoking, risky alcohol consumption and insufficient physical activity for good health (AIHW 2018a, 2022a). First Nations people with more social, economic and cultural advantages are more likely to engage in behaviours that promote good health. For example, First Nations people who were employed were less likely to smoke, less likely to use illicit substances, and more likely to have an adequate daily fruit intake than those who were unemployed (AIHW and NIAA 2022). It is important to note, however, that behaviours such as smoking, poor diet, and lack of exercise are shaped by social and physical environments constrained by socioeconomic disadvantage, rather than being purely lifestyle choices (Adler and Newman 2002).

In the AIHW Burden of Disease study (AIHW 2022a), tobacco use was the risk factor that contributed most to deaths and fatal burden among First Nations people (over 800 deaths or about 23% of all First Nations deaths, and 19% of fatal burden). Health risk factors, including tobacco smoking, body mass index, fruit and vegetable consumption, physical exercise, binge drinking and high blood pressure, are estimated to account for about 30% of the health gap between First Nations and non-Indigenous Australians (AIHW 2024b).

Thurber et al. (2021a) used data from the *45 and Up Study* in New South Wales, linked with deaths registrations data, to examine the direct effect of tobacco smoking on mortality rates for First Nations people. (As well as assigning respondents as part of the current, past or never smoked groups, more detailed analyses looked at factors such as intensity of smoking, age at smoking initiation/cessation and duration of smoking.) The authors found that, even using a conservative methodology, smoking was responsible for half of all deaths among First Nations people aged 45 and over. Survival analyses showed that over 80% of non-

smokers would survive to age 75, compared with 40% of those who were current smokers, and estimated that non-smokers had an extra decade of life expectancy. Quitting was shown to have a beneficial effect on mortality risk at all ages.

It is important to note that the proportion of First Nations people aged 15 and over who smoke has fallen considerably over the past decade: the overall smoking rate has declined from 51% in 2002 to 41% in 2018–19. The decline in overall smoking rates among First Nations adults has mainly occurred in non-remote areas, where the rates dropped from 50% in 2002 to 37% in 2018–19; however, there has been no statistically significant change over this period in smoking rates among First Nations adults in remote areas (AIHW and NIAA 2022).

Progress has also been made in decreasing the proportion of young people who take up tobacco. In 2018–19, 85% of First Nations people aged 15–17 reported that they had never smoked, compared with 72% in 2008.

Role of health services

Access to appropriate, high-quality, timely and culturally responsive health care throughout life that acknowledges the impact of social, cultural and historical determinants is essential to improving health outcomes for First Nations people. This improvement comes through increasing health literacy and self-management of chronic disease, providing links to services within and outside the health system, and improving screening and treatment of acute and chronic illnesses (AIHW 2022b). Access throughout Australia to primary health care services specific to First Nations people is partly funded by the Australian Government through the Indigenous Australians' Health Programme (AIHW 2023a).

An economic evaluation of the Indigenous Australians' Health Programme has found evidence of an association between Aboriginal Community Controlled Health Services (ACCHS) care and prevented hospitalisations (Dalton and Carter 2018). The authors suggest that while mainstream services may seem more efficient in providing health care to First Nations communities due to lower costs, they are likely to be associated with worse health outcomes for three reasons:

- mainstream services provide a less comprehensive and less integrated approach
- First Nations people would face financial difficulties in accessing mainstream services
- they are likely to be associated with reduced attendance and adherence to treatment, due to services that may not meet the cultural needs and expectations of First Nations people.

Recent gains in life expectancy among First Nations people in the Northern Territory (Zhao et al. 2022) and in Queensland (Queensland Health 2019) have come, at least partly, from a reduction in deaths due to chronic conditions; this positive outcome has benefited from investment in health services focused on primary prevention, early detection, and secondary and tertiary prevention of chronic conditions (Ring and Griffiths 2022). For example, a study of First Nations residents living in remote communities found that primary care in remote First Nations communities was associated with cost-savings to public hospitals and health benefits to individuals (Zhao et al. 2014). This research has shown that, in remote Northern Territory communities, those who used primary health care at medium or high levels between 2002 and 2011 had considerable reductions in hospitalisations and years of life lost for patients with renal and ischaemic heart disease. Zhao et al. (2014) also estimated that investing \$1 in primary health care in remote First Nations communities could save between \$3.95 and \$11.75 in hospital costs.

Hoy et al. (2000) showed that a systematic treatment program to lower blood pressure and control blood glucose and lipid levels through interventions (including education about diet, exercise and health behaviours) as well as medical treatment in the Tiwi Islands decreased mortality within around 3 years compared with a historical control group.

There is also a considerable body of research on the role that health services can play in improving birth outcomes for First Nations babies/babies born to First Nations mothers. Panaretto et al. (2007) found that there was a statistically significant reduction in perinatal mortality for babies born to mothers who attended the Mums and Bubs program delivered by the Townsville Aboriginal and Islanders Health Service during 2000–2005 compared with babies born to women who attended the service between 1998–1999, before the Mums and Bubs program was introduced. The AIHW (2014) reviewed initiatives aimed to improve antenatal care and reported a decline in perinatal mortality rate from 18.6 to 5.4 (per 1,000) (statistically non-significant) following the Aboriginal Maternal and Infant Health Strategy in New South Wales and a decline in the perinatal mortality rate from 45.2 to 8.6 (per 1,000) following the Nganampa Health Council initiatives in South Australia.

One of the mechanisms that helps to facilitate comprehensive health care is a specifically designed annual Medicare-funded health check for First Nations people. These customised health checks were first introduced in 1999 following calls by First Nations health leaders (AIHW 2024a). Over time, the program expanded to include younger age groups, eventually offering annual health checks to all First Nations people. It was recognised that many First Nations people have increased risk factors for several conditions, including the chronic diseases that have a substantial effect on burden of disease.

Health checks support engagement in comprehensive primary health care in a culturally safe way. They present an opportunity to:

- identify patients' health goals and priorities
- provide risk assessment and healthy lifestyle information and supports
- encourage early detection and treatment of common conditions that cause ill health and early death – for example, diabetes and heart disease (AIHW 2021c, 2022d; Butler et al. 2022; NACCHO and RACGP 2019).

For the latest data on the uptake of First Nations health checks, see *Health checks and follow-ups for Aboriginal and Torres Strait Islander people* (<https://www.aihw.gov.au/reports/indigenous-australians/indigenous-health-checks-follow-ups/contents/summary>).

1.4 Key factors – mortality patterns

The life expectancy gap between First Nations people and non-Indigenous Australians is the result of differences in age- and cause-specific mortality rates. This section uses data from the National Mortality Database (NMD) for 2017–2021 (the latest data available at the time of analysis) to look at patterns in all-cause mortality, cause-specific mortality, and age-cause-specific mortality to identify opportunities for closing the gap. (See Box 1.2 for further details on the NMD.)

Note that while mortality counts are presented for all states and territories combined, mortality rates, and calculations based on these rates, are reported only for 5 jurisdictions – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data (ABS 2022). Population data used as the denominator for rates are included only for these 5 jurisdictions.

Within these 5 jurisdictions, there are 33 ABS Indigenous Regions (IREGs). Mortality data are presented in this section at this geographical level by sex, age and underlying cause of death.

1.4.1 All-cause mortality

Around 18,700 First Nations people died between 2017 and 2021, at a crude rate of 454 deaths per 100,000 (Table 1.4). During the same period, the crude death rate for non-Indigenous Australians was higher (at 658 deaths per 100,000), but this reflects differing age-at-death patterns (with non-Indigenous Australians much more likely to die at older ages).

The age-standardised death rate for First Nations people was 1.8 times the rate for non-Indigenous Australians.

Table 1.4: Deaths, crude death rate and age-standardised death rate, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2017–2021

	First Nations			Non-Indigenous				
	Deaths	Crude rate (per 100,000)	Age-standardised rate (per 100,000)	Deaths	Crude rate (per 100,000)	Age-standardised rate (per 100,000)	Rate ratio	Rate difference
Males	10,230	496.9	1,058.2	414,039	692.6	603.9	1.8	454.3
Females	8,469	410.8	834.0	383,038	623.9	467.6	1.8	366.4
Total	18,699	453.8	939.4	797,077	658.0	532.8	1.8	406.5

Notes

- Deaths counts are reported as a total across all 8 Australian states and territories.
- Crude and age-standardised rates are expressed as deaths per 100,000 population and are calculated based on the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and Northern Territory combined.
- Crude rates are calculated using the sum of ERPs as at 30 June for each year.
- Age-standardised rates are directly standardised to the Australian ERP as at 30 June 2001, by 5-year age groups up to age 75 and over.
- Rate ratio is the age-standardised rate for First Nations people divided by the age-standardised rate for non-Indigenous Australians. Rate difference is the age-standardised rate for First Nations people minus the age-standardised rate for non-Indigenous Australians.

Source: AIHW National Mortality Database.

Box 1.2: Data sources and quality considerations

Data on deaths – National Mortality Database

Data in the NMD are sourced from the cause of death unit record files, provided to the AIHW by the Registrars of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include cause of death coded by the ABS. The AIHW maintains the data in the NMD.

The NMD comprises information on all deaths registered in Australia from 1964 to 2021, and from 2006 onwards the cause of death information for coroner-certified deaths is revised. These revisions do not increase the overall number of deaths in any processing year but do improve accuracy of cause of death; they can therefore change the cause of death distribution, particularly for causes such as injury and intentional self-harm. Since 1997, cause of death data in the NMD have been classified using the International Statistical Classification of Disease and Related Health Problems, tenth revision (ICD-10).

The data quality statements underpinning the NMD can be found in the following ABS publications:

- ABS quality declaration summary for deaths, Australia methodology – <https://www.abs.gov.au/methodologies/deaths-australia-methodology/2021>
- ABS quality declaration summary for causes of death, Australia methodology – <https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2021>

For more information on the AIHW NMD see deaths data – <https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/deaths-data>.

Data included in this chapter

This chapter uses data for the period 2017 to 2021 combined, with the analysis file extracted in September 2023. Deaths are counted according to the year of registration of death, which is not necessarily the year in which the death occurred. Death registrations were 'Final' for 2019 and prior years, 'Revised' for 2020 and 'Preliminary' for 2021. Revised and preliminary versions are subject to further revision by the ABS.

Population data – 2016 Estimated Resident Population, Series B

ABS population estimates and projections (series B) based on the 2016 Census have been used as the denominator when calculating mortality rates. Estimates of the Aboriginal and Torres Strait Islander population as at 30 June 2016 (based on the 2016 Census) were 19% larger than those as at 30 June 2011 (based on the 2011 Census). Population estimates for non-Indigenous Australians were derived by subtracting Aboriginal and Torres Strait Islander population estimates and projections (series B) based on the 2016 Census from the total Australian Estimated Resident Population (ERP).

Data quality considerations

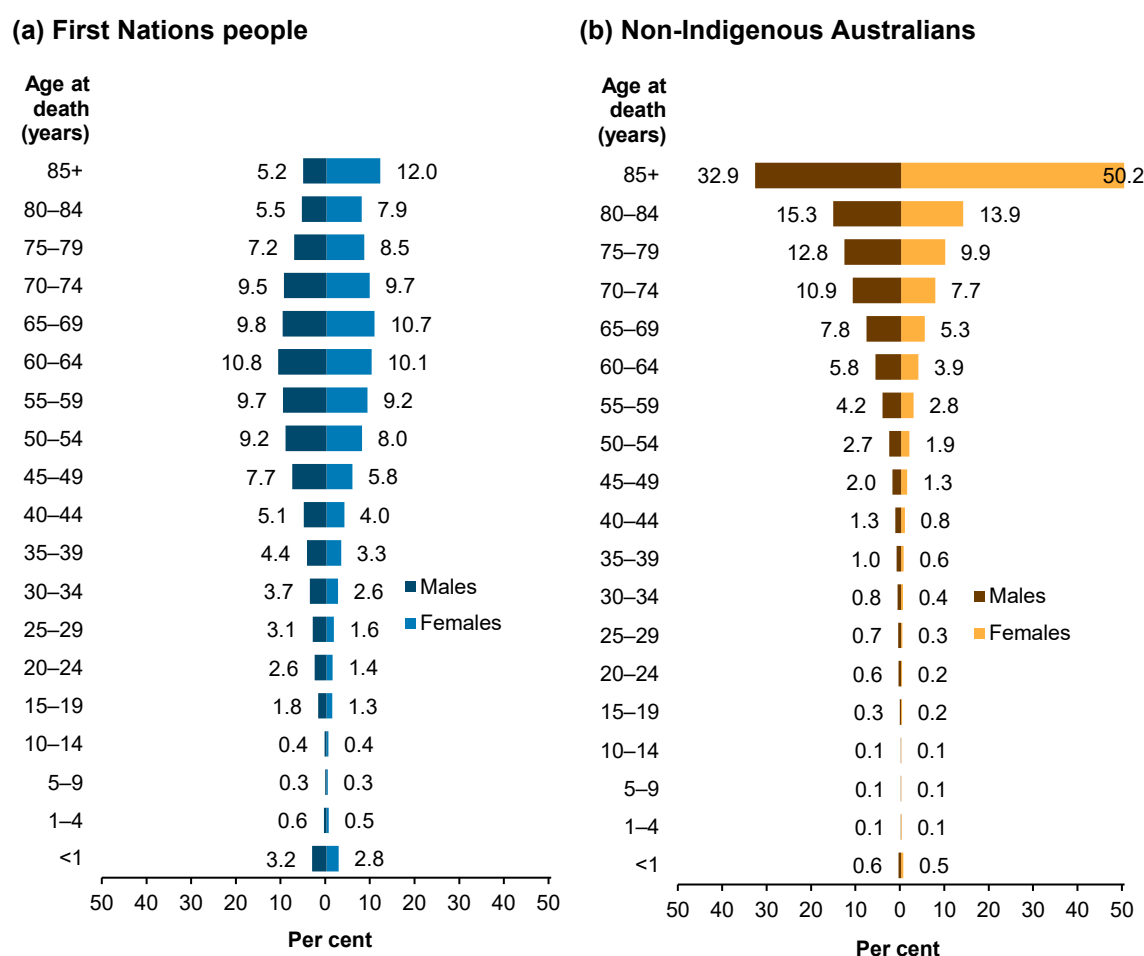
The count of deaths for Aboriginal and Torres Strait Islander people can be influenced by the accuracy of identification of Aboriginal and Torres Strait Islander deaths, and changes to death forms and/or processing systems. Due to the small size of the Aboriginal and Torres Strait Islander population, these factors can markedly affect trends over time and between jurisdictions.

Improvements in data quality and changes in the identification of Indigenous status in deaths registrations, as well as the Census-based population estimates (used as denominators for calculating mortality rates) have a major bearing on the interpretation of findings.

Age at death

Deaths are not equally distributed across age groups. Figure 1.3 and Table S1.2 show that the percentage of deaths by age group (and sex) differs considerably by Indigenous status as well. The proportion of deaths across age groups is much more evenly distributed among First Nations males and females than among non-Indigenous Australians reflecting the younger age structure of the First Nations population. For example, over 50% of non-Indigenous females who died in 2017–2021 were aged 85 or older, compared with only 12% of deaths among First Nations females. The proportion of deaths that occur at younger ages is substantially higher for First Nations people.

Figure 1.3: Percentage distribution of deaths, by age group, sex and Indigenous status, 2017–2021



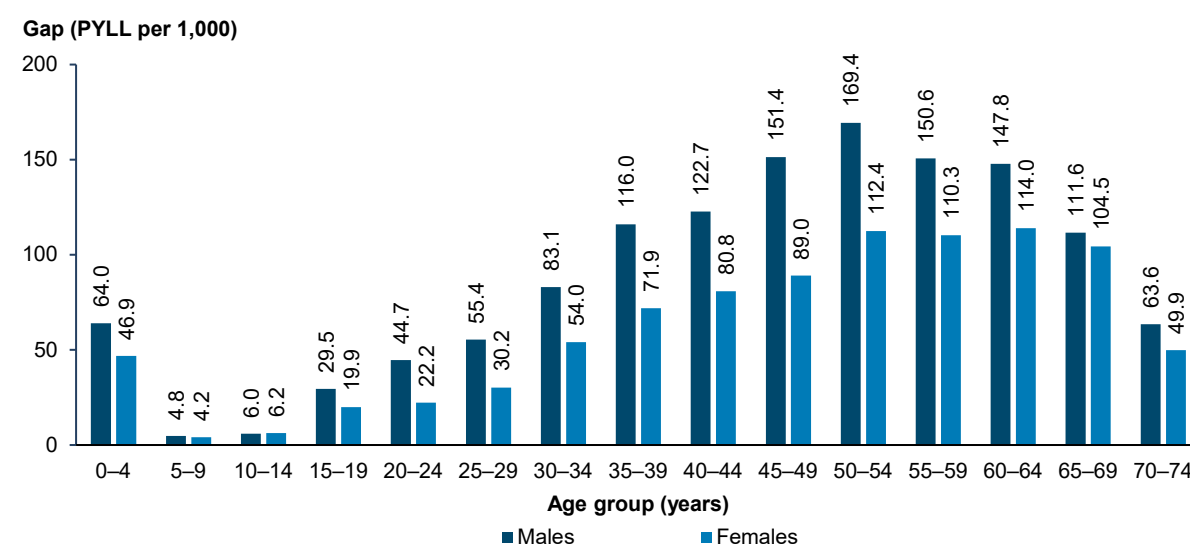
Source: AIHW National Mortality Database.

Potential years of life lost

Potential years of life lost (PYLL) is a population-level measure of premature or untimely death and represents the total number of years of life lost before a given age (in this case, age 75). PYLL gives greater weight to deaths in younger age groups (AIHW 2022a). In 2017–2021, on average, for each death, First Nations males lost around 25.3 years of potential life and First Nations females lost around 23.0 years. In comparison, non-Indigenous males had 15.8 PYLL per death and non-Indigenous females had 15.1 PYLL.

The impact that early deaths have at the population level can also be measured by the PYLL rate, which totals all the PYLL for all the deaths at each age group divided by the number of people in that age group. In 2017–2021, based on PYLL rates, the largest gaps between First Nations and non-Indigenous Australians were in the 45–64 age group (Figure 1.4; Table S1.4). For almost all age groups, the PYLL gap was higher for males than females.

Figure 1.4: Gap in PYLL (per 1,000) before age 75 between First Nations people and non-Indigenous Australians, by age and sex, 2017–2021, NSW, Qld, WA, SA and NT



Notes

1. PYLL represents the total number of years of life lost before a given age (for example, 75 years). If dying before the age of 75 is considered premature, a person dying at age 65 would have lost 10 years of potential life.
2. PYLL rate difference = First Nations PYLL rate (per 1,000) minus non-Indigenous PYLL rate (per 1,000).
3. PYLL rates are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.

Source: AIHW National Mortality Database.

Age-specific death rates

Age-specific death rates represent the frequency that a death occurred to those within a particular age group. Because they control for the size of the population in each group, age-specific rates can be compared across age groups to identify the groups with the highest numbers of deaths per population. For the period 2017–2021, the lowest mortality rate was for non-Indigenous females aged 5–9 (at a rate of 5.8 deaths per 100,000) while the highest was for First Nations males aged 75 and over (at a rate of 7,808 deaths per 100,000). At every age group, the mortality rate is higher for males than females for both First Nations and non-Indigenous Australians. For children and young people, the rate is highest in the early childhood period (ages 0–4) (Figure S1.2; Table S1.21).

Figure 1.5 presents age-specific death rates by IREG for deaths above age 35, as this is where most deaths occurred. As expected, mortality rates in 2017–21 were much higher for those aged 65 and over than for younger groups, but there is substantial variation in this rate across IREGs. It was highest in the following IREGs:

- Kununurra (6,500 per 100,000)
- Port Lincoln – Ceduna (6,397 per 100,000)
- Katherine (6,353 per 100,000).

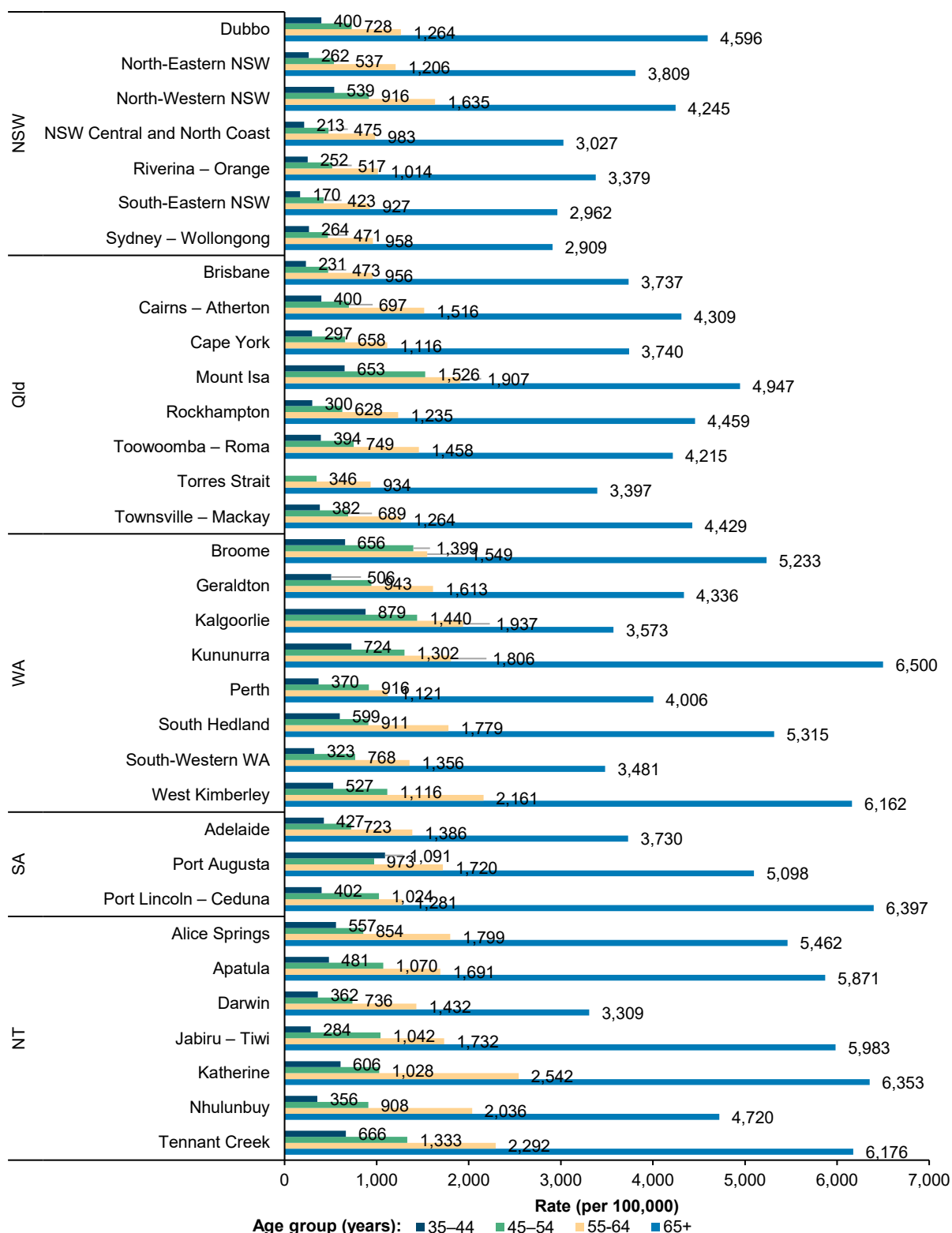
It was lowest in:

- Sydney – Wollongong (2,909 per 100,000)
- South-Eastern NSW (2,962 per 100,000)
- NSW Central and North Coast (3,027 per 100,000).

If these IREGs are ranked by the 65 years and over mortality rate, the median IREG was Geraldton (4,336 per 100,000).

Because of the smaller number of deaths in the younger age categories, in absolute terms, there appears to be less variation in the mortality rates for the 35–44, 45–54 and 55–64 age group categories than for the 65 years and over category. Despite this, on a relative basis, there is still considerable geographic variation in mortality rates for these age groups. For example, death rates among ages 35–44 were 6.4 times as high in Port Augusta (1,091 per 100,000) as in South-Eastern NSW (170 per 100,000). Similarly, the death rate among ages 45–54 was 4.4 times as high in Mount Isa (1,526 per 100,000) as in Torres Strait (346 per 100,000). Finally, among ages 55–64, death rates were 2.7 times as high in Katherine (2,542 per 100,000) as in South-Eastern NSW (927 per 100,000).

Figure 1.5: Age-specific mortality rates (per 100,000), by IREG, First Nations people aged 35 and over, NSW, Qld, WA, SA and NT, 2017–2021



Note: The rate for the age group 35–44 years was suppressed for Torres Strait due to insufficient cell size. Rates are calculated only for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined, due to data quality considerations described in Box 1.2.

Source: AIHW National Mortality Database.

Observed versus expected deaths

Applying the non-Indigenous age-specific death rates to the First Nations population and comparing them with the observed number of First Nations deaths yields the number of 'excess' deaths in each age group. The results show that if First Nations people had had the same mortality rates as non-Indigenous Australians in 2017–2021, there would have been about 9,200 fewer deaths over the 5-year period; this is equivalent to about 1,006 fewer deaths among First Nations males and 834 fewer deaths among First Nations females per year (Table 1.5).

Table 1.5: Excess deaths of First Nations people, by age and sex, NSW, Qld, WA, SA and NT, 2017–2021

Sex	Age group (years)									Total
	0–4	5–14	15–24	25–34	35–44	45–54	55–64	65–74	75+	
Males	186	35	242	424	659	1,109	1,183	926	267	5,030
Females	128	32	133	252	436	784	999	974	432	4,170
Total	314	67	374	676	1,094	1,893	2,182	1,900	699	9,200

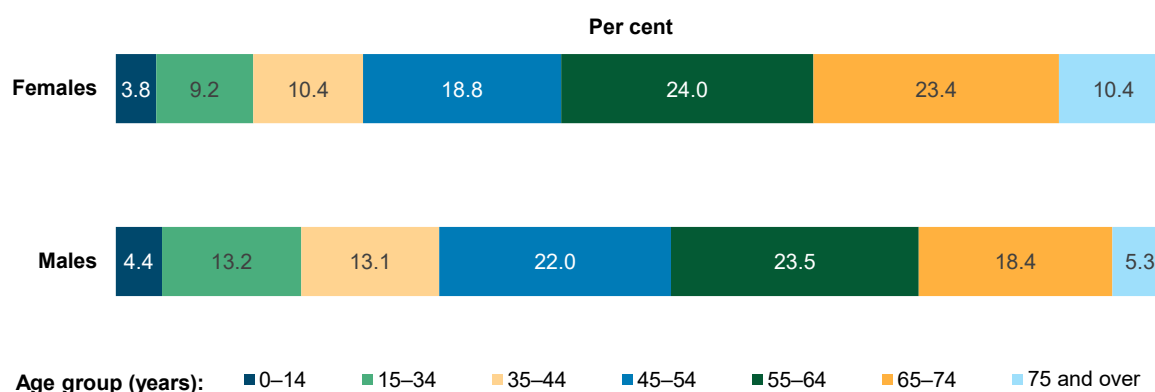
Notes

1. Excess deaths are calculated by applying the non-Indigenous age-sex-specific death rates to the First Nations population to generate the number of expected deaths had the non-Indigenous rates applied. Excess deaths are the difference between the observed and expected deaths.
2. Excess deaths are calculated only for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.
3. Numbers may not sum to totals due to rounding.

Source: AIHW National Mortality Database.

The absolute number of excess deaths is higher for First Nations males than females, and higher proportions of excess deaths occur at younger ages for First Nations males than females (Figure 1.6; Table S1.5). Almost half (47%) the excess deaths for females are in the 55–74 age group and almost half (46%) of male excess deaths are in the 45–64 age group.

Figure 1.6: Distribution of excess deaths of First Nations people, by age and sex, NSW, Qld, WA, SA and NT, 2017–2021



Notes

1. Excess deaths are calculated by applying the non-Indigenous age-sex-specific death rates to the First Nations population to generate the number of expected deaths had the non-Indigenous rates applied. Excess deaths are the difference between the observed and expected deaths.
2. The percentage distribution by age represents the proportion of the total excess deaths in each age group.
3. Excess deaths are calculated only for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.

Source: AIHW National Mortality Database.

1.4.2 Causes of death

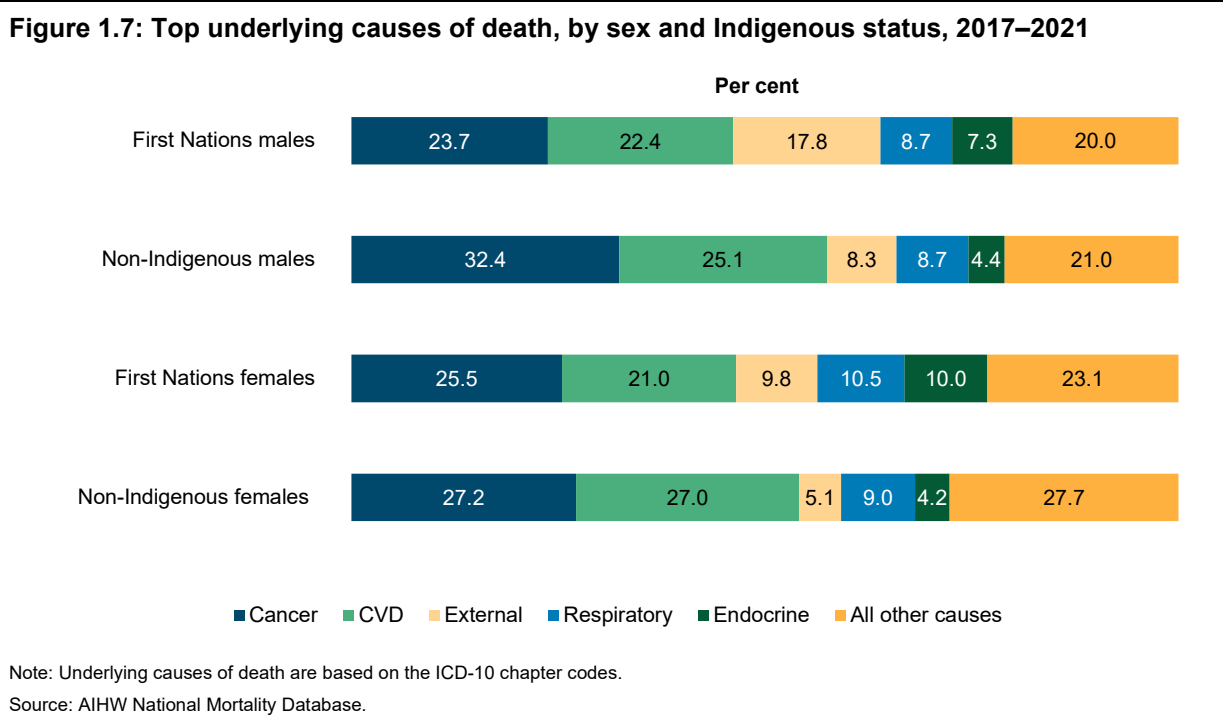
Data are presented for the broad underlying cause of death as defined by ICD-10 chapters (see Table S1.6 for a description of the ICD-10 chapters that are the main broad causes of death for First Nations people).

Distribution of top underlying causes of death

The distribution of causes of death differs by Indigenous status, for both males and females (Figure 1.7; Table S1.7). For First Nations males, the top 3 causes of death are:

- neoplasms (cancer)
- CVD (ICD-10 Chapter IX, diseases of the circulatory system)
- external causes (includes environmental events and circumstances that led to injuries; for example, road traffic injuries, suicide, self-inflicted injuries, falls or poisoning [such as the toxic effects of medicinal or other substances]).

Together, these causes account for 64% of deaths.



While the top 2 causes for non-Indigenous males were the same as those for First Nations males, the third most common cause was different (deaths due to respiratory disease, rather than external causes). Cancer and CVD accounted for 58% of deaths for non-Indigenous males and 46% of deaths for First Nations males.

The pattern differs for females – both First Nations and non-Indigenous females had the same top 3 causes of death (cancer, CVD and respiratory), which explained 57% of deaths for First Nations females and 63% of deaths for non-Indigenous females.

There was a higher proportion of deaths for both First Nations males and females due to external causes and endocrine disorders than for non-Indigenous males and females.

Deaths by age, sex and cause

Causes of death vary by Indigenous status, by sex and by age. For example, for First Nations males and females, and non-Indigenous males, external causes of death dominated as the leading broad cause of death in the young adult and early working life age groups (15–24, 25–34, 35–44) although the proportional contribution of external causes decreased with age (Figure S1.4; Table S1.23). For non-Indigenous females, external causes were no longer the largest proportion of deaths from age 35.

Cancer and CVD were ranked in the top 3 broad causes of death for both First Nations and non-Indigenous Australians for all age groups from age 25 onwards, and their contribution to the proportion of deaths within each age group generally increased with age.

1.4.3 Excess deaths by age, sex and cause of death

This section presents the number of excess deaths by underlying cause of death for First Nations people aged 35–74 (the age groups that account for the highest proportion of the gaps in mortality rates).

The methodology is similar to that used in Table 1.5 – the non-Indigenous age-sex-cause-specific death rates were applied to the First Nations population to generate an expected number of deaths for that age group and cause (for example, how many deaths from external causes for First Nations males aged 35–44 to expect if the non-Indigenous rate was applied). That number (expected deaths) is subtracted from the observed number of deaths, yielding the number of ‘excess’ deaths.

This section focuses on the results for First Nations people aged 35–74, the age group with the largest number of excess deaths.

Males

The results for First Nations males for causes with at least 50 excess deaths are presented in Table 1.6. The number of excess deaths by age is a slightly U-shaped pattern, with 658 excess deaths in the 35–44 age group, climbing to over 1,000 each for the 45–54 and 55–64 age groups, before declining to 927. CVD was the cause of death with the greatest number of excess deaths for those aged 35–74 (1,085 excess deaths). Of those, 63% were in the 45–54 and 55–64 age groups.

Cancer was the cause of death with the second highest number of excess deaths; the majority of those deaths (71%) were in the 55–64 and 65–74 age groups.

Table 1.6 can also be used to highlight the causes of death with the highest number of excess deaths within age groups. For example, for ages 35–44, the highest number of excess deaths was due to external causes of mortality, followed by CVD.

Table 1.6: Number of excess deaths of First Nations males aged 35–74, by underlying cause of death, NSW, Qld, WA, SA and NT, 2017–2021

ICD-10 chapter	Age group (years)				Total excess deaths
	35–44	45–54	55–64	65–74	
CVD	166	368	317	233	1,085
Cancer	37	184	312	244	778
External causes of morbidity	252	137	53	15	457
Diseases of the respiratory system	36	89	142	160	427
Endocrine, nutritional, and metabolic diseases	42	91	141	134	409
Diseases of the digestive system	55	103	89	50	296
Diseases of the genitourinary system	6	24	28	30	88
Certain infectious and parasitic diseases	15	27	31	12	86
Mental and behavioural disorders	13	23	20	23	79
Diseases of the nervous system	15	36	21	1	73
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	15	13	19	6	52
All other causes	6	12	11	17	46
Total excess deaths	658	1,110	1,183	927	3,878

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes.
2. Excess deaths are calculated by applying the non-Indigenous age-cause-sex-specific death rate to the First Nations population to generate the number of expected deaths had the non-Indigenous rates applied. Excess deaths are the difference between the observed and expected deaths.
3. Excess deaths are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.
4. Only underlying causes with at least 50 excess deaths are included as separate rows in the table.
5. A small number of deaths were excluded that were missing age, cause of death or Indigenous status.

Source: AIHW National Mortality Database.

Females

For First Nations females, CVD and cancer also have the highest number of excess deaths (781 and 672, respectively) (Table 1.7).

There is also a high number of excess deaths due to endocrine, nutritional and metabolic diseases (which include diabetes), with 518 excess deaths, with the proportion rising as age increases.

For the youngest females included (aged 35–44), the pattern differs from that for males, with CVD and external causes having essentially the same number of excess deaths (103 and 108, respectively).

Table 1.7: Number of excess deaths of First Nations females aged 35–74, by underlying cause of death, NSW, Qld, WA, SA and NT, 2017–2021

ICD-10 chapter	Age group (years)				Total excess deaths
	35–44	45–54	54–64	65–74	
CVD	103	236	211	230	781
Cancer	47	140	240	245	672
Endocrine, nutritional and metabolic diseases	46	104	175	192	518
Diseases of the respiratory system	30	66	152	154	402
Diseases of the digestive system	48	71	75	36	229
External causes of morbidity	108	77	33	16	234
Diseases of the genitourinary system	8	26	45	39	118
Certain infectious and parasitic diseases	11	22	10	12	55
Mental, behavioural and neurodevelopmental disorders	5	11	11	27	54
All other causes	29	50	50	25	154
Total	436	802	1,002	976	3,216

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes.
2. Excess deaths are calculated by applying the non-Indigenous age-cause-sex-specific death rate to the First Nations population to generate the number of expected deaths had the non-Indigenous rates applied. Excess deaths are the difference between the observed and expected deaths.
3. Excess deaths are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.
4. Only underlying causes with at least 50 excess deaths are included as separate rows in the table.
5. A small number of deaths were excluded that were missing age, cause of death or Indigenous status.

Source: AIHW National Mortality Database.

1.5 Detailed analyses of top causes of excess deaths

This section focuses on the top 2 causes of excess deaths identified in tables 1.8 and 1.9 for First Nations males and females:

- CVD (ICD-10 codes: I00–I99)
- cancer (ICD-10 codes: C00–D48)

Data are presented on age patterns, distribution by state/territory and remoteness, and on the sub-chapter causes of death.

Numbers of deaths are also included to highlight how many people have died from a particular cause (by age or location). This information can be used to help target programs and policies.

1.5.1 Deaths from CVD

For both First Nations males and females, CVD was the cause of death with the highest number of excess deaths. CVD includes a range of conditions affecting the heart and blood vessels, such as coronary (ischaemic) heart disease, stroke and other cerebrovascular diseases. CVD is more common among First Nations people, and the onset of this disease tends to occur between 10 and 20 years earlier than among non-Indigenous Australians (AIHW and NIAA 2022).

In 2018, CVD was the third leading cause of total disease burden among First Nations people, accounting for 10% of the total disease burden, 19% of fatal burden (premature death) and 2.6% of non-fatal burden (that is, living with illness or disability). Most of the burden due to CVD was fatal (86%) (AIHW 2022a).

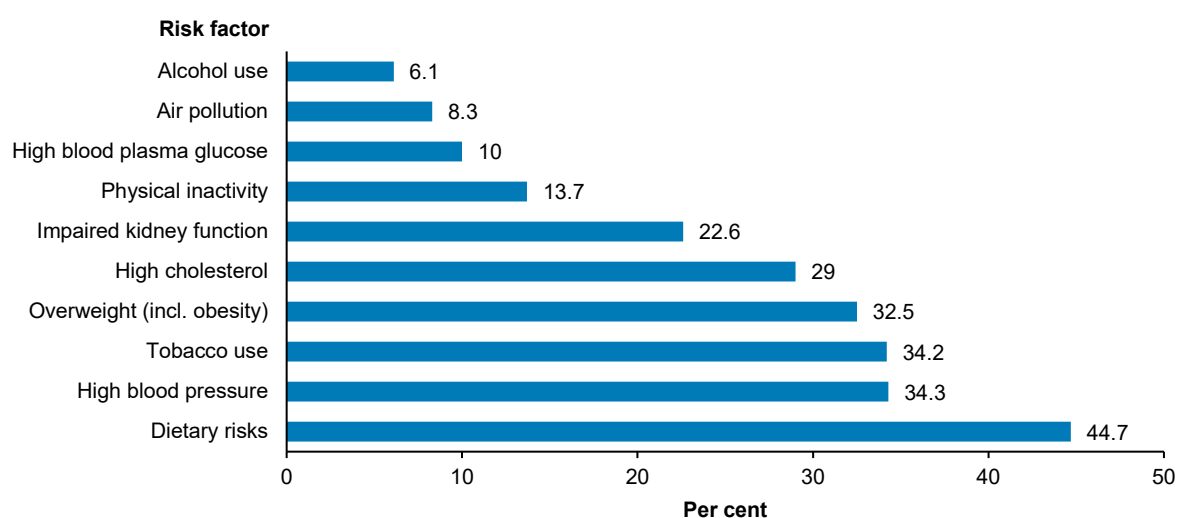
Risk factors for CVD

CVD is related to risk factors such as smoking, low levels of physical activity, overweight or obesity, diabetes, high blood pressure and poorer access to health services (AIHW 2021a).

The leading risk factors associated with the total burden of CVD (fatal and non-fatal) in First Nations people are shown in Figure 1.8. (Note that other important determinants, such as socioeconomic factors, cultural factors and access to health services are not included in the burden of disease estimates.) Together, the joint effect of these leading risk factors accounted for 77% of the total CVD burden.

It is important to note that these risk factors in and of themselves are related to social and cultural determinants (e.g. stress and racism) and to interactions with health services. Previous research has shown that socioeconomic factors are associated with the risk of developing cardiovascular disease and with differences in treatments received (AIHW and NIAA 2022; Beard et al. 2008).

Figure 1.8: Proportion of total burden (disability-adjusted life years, or DALY) attributable to risk factors for CVD in First Nations people, 2018



Note: The percentages of each risk factor cannot be added together as they were analysed separately.

Source: AIHW 2022a.

Deaths from CVD

Between 2017 and 2021, 4,074 First Nations people (2,292 males and 1,782 females) and 207,517 non-Indigenous Australians (104,100 males and 103,417 females) died from CVD.

While CVD mortality rates for First Nations people are improving – falling by 19% between 2010 and 2019 – the gap between First Nations and non-Indigenous Australians has not changed as CVD mortality has declined for non-Indigenous Australians as well (AIHW 2023b).

The number of deaths from CVD varied across remoteness areas for both First Nations males and females, with the highest number of deaths recorded in *Major cities* and *Outer regional* areas for both. For First Nations females, the proportion of deaths within each

remoteness area varied from 20% to 23%, with the highest proportion in *Outer regional* areas. There was slightly more variation for First Nations males, with CVD deaths making up between 21% and 25% of all deaths, with the highest proportion in *Very remote* areas (Table 1.8). It must be noted, however, that Indigenous identification in mortality data is better in remote areas.

The highest number of deaths from CVD for First Nations males was in New South Wales followed by Queensland, with the order reversed for First Nations females (with a higher number in Queensland). Deaths from CVD made up 24–25% of all deaths of First Nations males in the Northern Territory and South Australia. They also made up 26% of all deaths of First Nations females in South Australia.

Table 1.8: CVD deaths, by remoteness and state/territory, Indigenous status and sex, 2017–2021

Remoteness	First Nations				Non-Indigenous			
	Males		Females		Males		Females	
	Deaths	% deaths in area	Deaths	% deaths in area	Deaths	% deaths in area	Deaths	% deaths in area
Major cities	650	21.1	532	21.0	66,803	24.9	68,863	26.6
Inner regional	456	22.1	312	19.5	24,559	25.8	23,996	28.0
Outer regional	519	21.9	453	22.5	10,844	25.2	9,386	27.6
Remote	236	23.7	181	21.3	948	25.3	637	26.6
Very remote	383	25.2	278	20.8	370	25.3	188	24.3
State/territory	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction
	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction
NSW	645	22.0	454	19.9	34,590	25.7	34,845	27.7
Vic	148	21.1	110	19.4	26,010	25.2	26,220	26.4
Qld	615	21.8	503	21.7	20,663	24.9	20,306	27.9
WA	346	22.4	308	23.5	9,117	23.9	8,539	25.3
SA	158	24.8	131	25.7	8,791	25.1	8,795	26.2
Tas	48	25.3	47	26.6	3,090	26.8	3,044	28.1
ACT	15	16.3	10	16.9	1,442	23.5	1,467	25.3
NT	317	24.3	219	17.5	397	19.3	201	18.6

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Chapter IX Diseases of the circulatory system (I00–I99).
2. The table excludes deaths with missing information on remoteness, state/territory or Indigenous status.

Source: AIHW National Mortality Database.

Age patterns

There are considerable differences in the age pattern of deaths from CVD for First Nations and non-Indigenous Australians. In 2017–2021, the median age at death from CVD was:

- 67 for First Nations females and 88 for non-Indigenous females (a difference of 21 years)
- 61 for First Nations males and 82 for non-Indigenous males (a difference of 21 years) (AIHW analysis of NMD data).

The younger distribution of deaths from CVD is particularly pronounced for First Nations males, where 500 of the deaths occurred to men aged 45–54 (making up 29% of all deaths

in that age group) and 523 of the deaths were to men aged 55–64 (making up 25% of all deaths in that age group).

The age pattern of deaths is different for First Nations females, where the highest number of deaths from CVD is for those aged 75 and over (627 deaths, or 26% of all deaths in that age group). However, even though the number of deaths from CVD is smaller at younger ages, CVD deaths account for at least 20% of all deaths from ages 35–44 onwards, except for those aged 55–64 where the proportion is 19% (Table 1.9).

The age-specific death rates, which control for the size of the population in each age group, show that the age group with the highest CVD mortality rates is age 75 and older for both First Nations males and females (at a rate of just over 1,900 deaths per 100,000 for females and just over 2,000 deaths per 100,000 for males) (Table 1.10).

Table 1.9: CVD deaths, by age, sex and Indigenous status, 2017–2021

Age group (years)	First Nations				Non-Indigenous			
	Males		Females		Males		Females	
	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group
0–14	10	2.2	4	1.2	74	2.1	67	2.5
15–24	20	4.4	16	7.1	107	2.9	70	4.9
25–34	81	11.6	52	14.6	427	6.9	186	7.3
35–44	211	21.8	128	20.8	1,381	14.4	575	10.7
45–54	500	29.0	290	24.9	4,285	21.8	1,586	13.1
55–64	523	24.9	303	18.6	9,160	22.1	3,366	13.2
65–74	470	23.8	361	20.9	17,055	22.0	8,058	16.2
75+	477	25.9	627	26.1	71,609	28.4	89,507	31.6
Total with known age	2,292	22.4	1,781	21.0	104,098	25.1	103,415	27.0

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Chapter IX Diseases of the circulatory system (I00–I99).
2. The table excludes a small number of deaths with missing ages and missing Indigenous status.

Source: AIHW National Mortality Database.

The rate ratios in Table 1.10 and Figure 1.9 highlight the considerably higher mortality rates for First Nations males and females, particularly in the working age groups. For example, First Nations females aged 35–44 are nearly 9 times more likely than their non-Indigenous counterparts to die from CVD. While the rate ratios are generally lower for males than females across the board, First Nations males aged 35–44 were 6 times more likely to die from CVD as non-Indigenous males in the same age group.

Table 1.10: Age-specific death rates (per 100,00) from CVD, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2017–2021

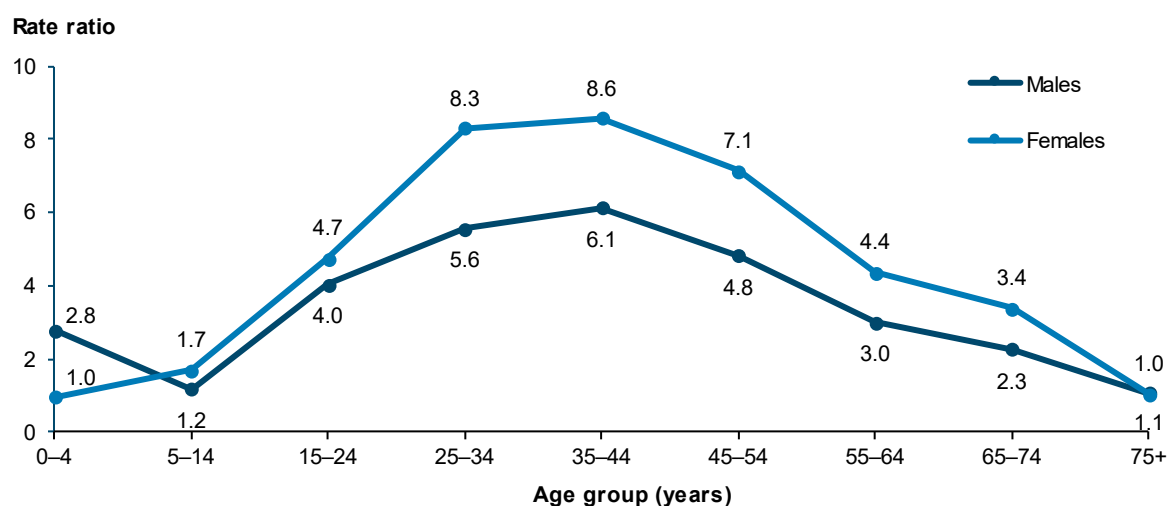
Age group (years)	Males				Females			
	First Nations	Non-Indigenous	Rate difference	Rate ratio	First Nations	Non-Indigenous	Rate difference	Rate ratio
0–4	3.2	1.2	2.1	2.8	1.0	1.0	0.0	1.0
5–14	0.5	0.4	0.1	1.2	0.5	0.3	0.2	1.7
15–24	5.2	1.3	3.9	4.0	4.6	1.0	3.6	4.7
25–34	26.8	4.8	22.0	5.6	18.1	2.2	16.0	8.3
35–44	101.9	16.7	85.3	6.1	58.1	6.8	51.4	8.6
45–54	264.1	54.8	209.3	4.8	139.2	19.5	119.6	7.1
55–64	383.6	127.9	255.6	3.0	197.1	45.1	152.0	4.4
65–74	691.2	306.5	384.7	2.3	466.9	138.0	329.0	3.4
75+	2013.4	1864.9	148.5	1.1	1907.1	1854.7	52.4	1.0

Notes

1. Age-specific rates are calculated by dividing the number of deaths in an age group by the population in that age group – expressed as per 100,000.
2. Underlying causes of death are based on the ICD-10 chapter codes. Table includes deaths from ICD-10 Chapter IX Diseases of the circulatory system (I00–I99).
3. Rate difference is the age-specific rate for First Nations people minus the age-specific rate for non-Indigenous Australians.
4. Rate ratio is the age-specific rate for First Nations people divided by the age-specific rate for non-Indigenous Australians.
5. Rates are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.

Source: AIHW National Mortality Database.

Figure 1.9: Rate ratio of First Nations to non-Indigenous age-specific death rates from CVD, by sex, NSW, Qld, WA, SA and NT, 2017–2021



Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Chapter IX Diseases of the circulatory system (I00–I99).
2. The figure excludes a small number of deaths with missing age or Indigenous status.
3. Rate ratio is the rate for First Nations people divided by the rate for non-Indigenous Australians.
4. Rates are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.

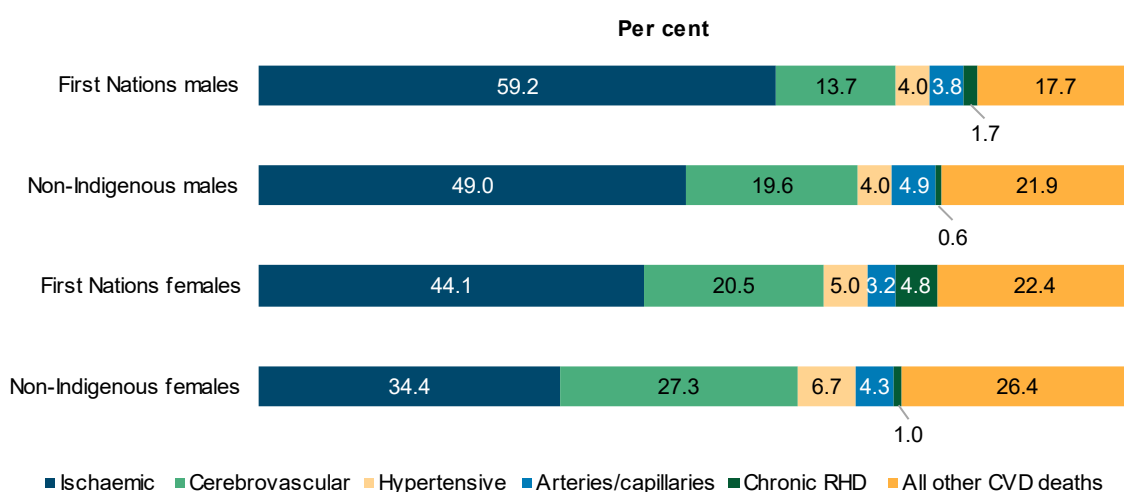
Source: AIHW National Mortality Database.

1.5.2 Sub-chapter causes of CVD deaths

Two main sub-chapter causes of death are responsible for the majority of CVD deaths for First Nations people (Figure 1.10; Table S1.8):

- ischaemic heart disease (IHD) (also known as coronary heart disease), which is disease due to blockages in the heart's own (coronary) arteries, expressed as angina or a heart attack
- cerebrovascular disease, which is any disorder of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is stroke (AIHW 2023a).

Figure 1.10: Distribution of sub-chapter causes of CVD deaths, by sex and Indigenous status, 2017–2021



RHD = rheumatic heart disease.

Note: Underlying causes of death are based on the ICD-10 chapter/sub-chapter codes.

Source: AIHW National Mortality Database.

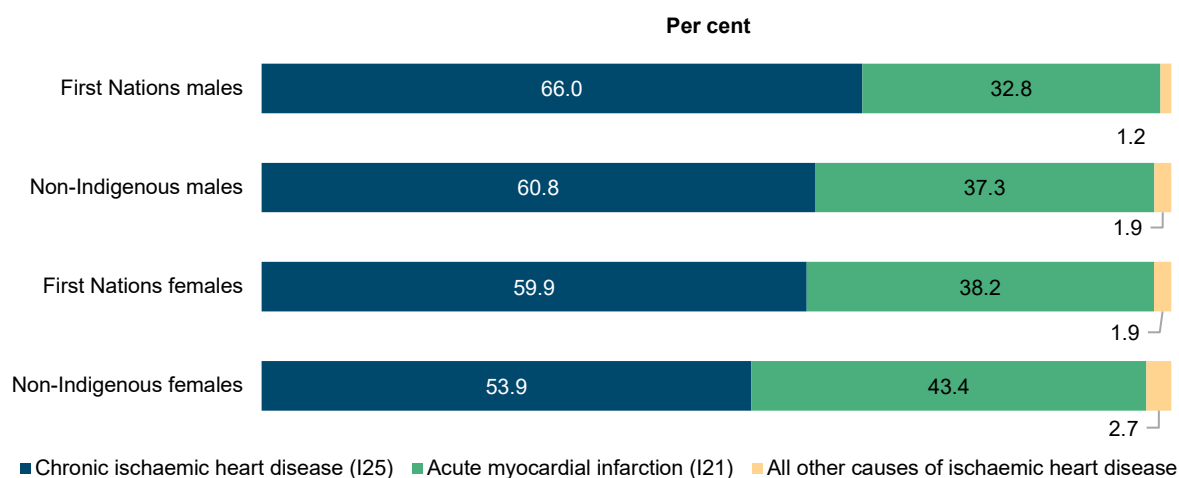
Ischaemic heart disease (I20–I25)

Nearly twice as many First Nations males died from IHD as First Nations females between 2017 and 2021 (1,357 and 786 deaths, respectively). There was also a higher number of deaths for non-Indigenous males than non-Indigenous females, but the difference was not as great (50,976 and 35,581, respectively).

The median age at death for First Nations females who died from IHD was 66, compared with 88 for non-Indigenous females (a difference of 22 years); it was 60 for First Nations males, compared with 80 for non-Indigenous males (a difference of 20 years).

Two causes of death were responsible for nearly all IHD deaths – chronic ischaemic heart disease (CIHD) and acute myocardial infarction (AMI, or heart attack) (Figure 1.11; Table S1.9).

Figure 1.11: Distribution of detailed causes of deaths from ischaemic heart disease, by Indigenous status and sex, 2017–2021

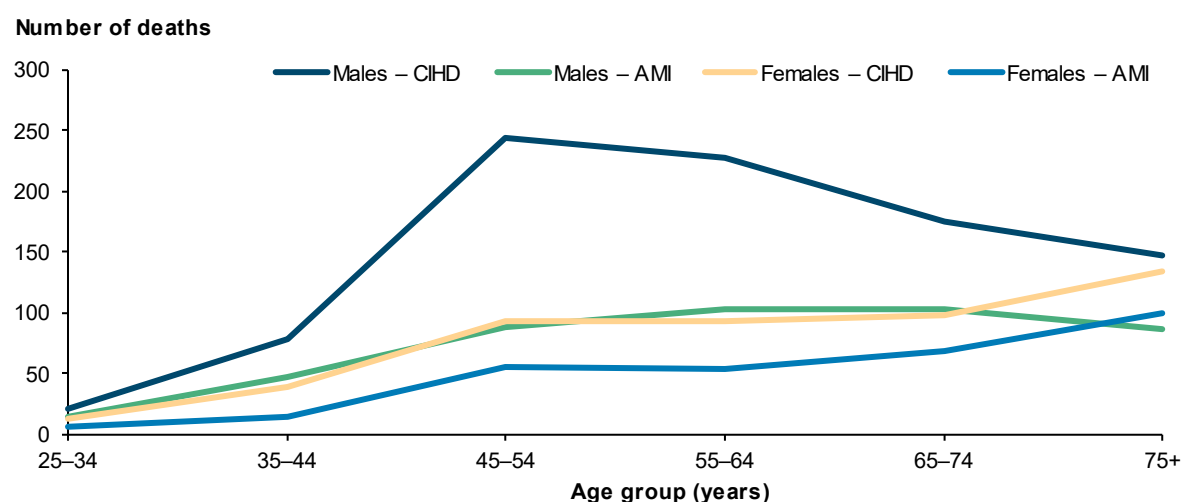


Note: Underlying causes of death are based on the ICD-10 chapter/sub-chapter codes. Figure includes deaths from ICD-10 Chapter codes I20–I25.

Source: AIHW National Mortality Database.

For First Nations females, the number of deaths from CIHD and from AMI generally increase with age. The pattern for First Nations males is different, where the number of deaths, particularly for CIHD, increases early and then peaks in the 45–54 and 55–64 age groups before declining (Figure 1.12; Table S1.10).

Figure 1.12: Age distribution of the number of deaths of First Nations people from CIHD and AMI, by sex, 2017–2021



Note: Underlying causes of death are based on the ICD-10 chapter/sub-chapter codes. Figure includes deaths from ICD-10 codes I21 and I25.

Source: AIHW National Mortality Database.

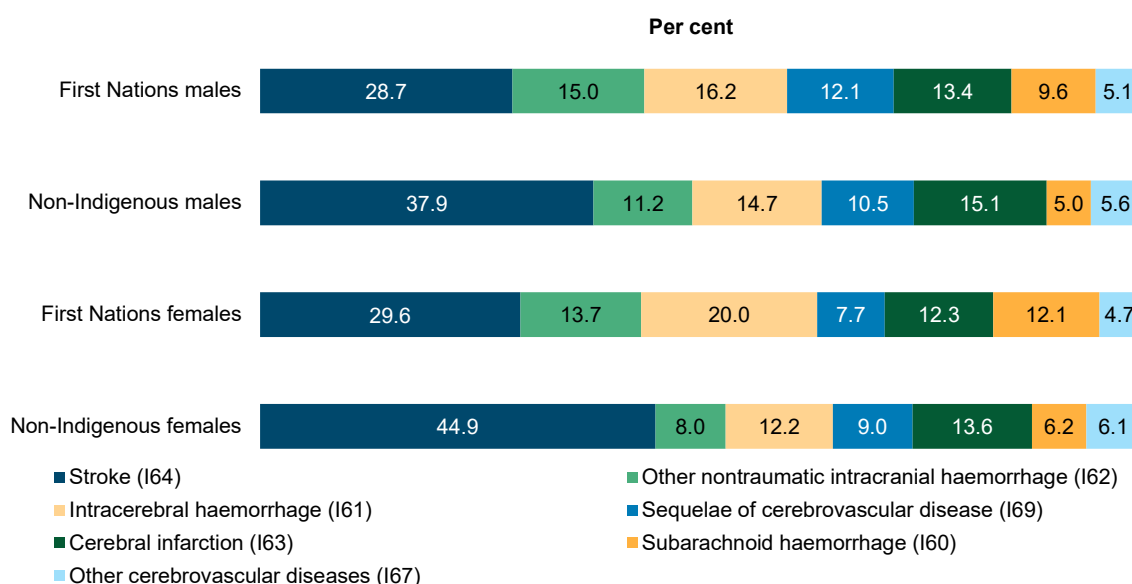
Cerebrovascular disease (I60–I69)

Slightly fewer First Nations males than females died from cerebrovascular diseases between 2017 and 2021 (314 and 365, respectively).

The median age at death for First Nations females who died from cerebrovascular disease was 72, compared with 88 for non-Indigenous females (a difference of 16 years), and was 65 for First Nations males, compared with 83 for non-Indigenous males (a difference of 18 years). Thus, the difference in median age at death is smaller for First Nations females for cerebrovascular diseases than for IHD.

Strokes accounted for roughly 30% of cerebrovascular deaths for both First Nations males and females, followed by intracerebral haemorrhages and other nontraumatic intracranial haemorrhages (Figure 1.13; Table S1.11).

Figure 1.13: Distribution of detailed causes of cerebrovascular deaths, by sex and Indigenous status, 2017–2021



Note: Underlying causes of death are based on the ICD-10 chapter/sub-chapter codes. Figure includes deaths from ICD-10 codes I60–I69.

Source: AIHW National Mortality Database.

1.5.3 Deaths from cancer

For both First Nations males and females, the cause of death with the second highest number of excess deaths was cancer.

Cancer is a broad term used for diseases in which abnormal cells divide without control and can invade nearby tissues. Cancer cells can also spread to other parts of the body through the blood and lymph systems. The effectiveness of treatment and survival rates can vary between different cancers, patients and the stage at which the cancer is first diagnosed (AIHW 2021b).

The diagnosis of any chronic or life-threatening illness affects all aspects of the lives of patients and their families – from the physical through the emotional to practical, everyday matters. A cancer diagnosis not only brings these disruptions but also the fact that the treatment that may save the patient's life is itself often associated with substantial physical

and psychosocial morbidity. Treatment in specialised cancer centres or units may be far from home, which can pose pressing practical, financial and emotional challenges for First Nations patients from *Remote* and *Very remote* areas. As well, it can be difficult to navigate the complex cancer care system, particularly if it is not well equipped to support the needs of First Nations patients.

Cancer incidence rates are reported for New South Wales, Victoria, Queensland, Western Australia and the Northern Territory. In the period 2012–2016, the age-standardised incidence rate for all cancers combined for First Nations people was 14% higher than for non-Indigenous Australians. Age-standardised cancer incidence rates were highest for First Nations people in *Major cities* (538 cases per 100,000 people) and lowest in *Very remote* areas (424 cases per 100,000 people).

Recent time trends show that age-standardised mortality rates for cancer have worsened for First Nations people while improving for non-Indigenous Australians, leading to an increased gap (AIHW 2023c). In 2015–2019, the age-standardised mortality rate for all cancers combined for First Nations people was 45% higher than that for non-Indigenous Australians.

In 2012–2016, the 5-year approximate relative survival for all cancers combined was 54% for First Nations people and 68% for non-Indigenous Australians, though this differed across remoteness areas. Five-year observed survival (which is not comparable with 5-year relative survival) for First Nations people in 2007–16 was 53% in *Major cities*, 47% in *Inner and outer regional* areas and 38% in *Remote and very remote* areas; the corresponding observed survival rates for non-Indigenous Australians in these areas were 60%, 58% and 61% (AIHW 2021b).

First Nations people have a higher incidence of fatal, screen-detectable and preventable cancers that:

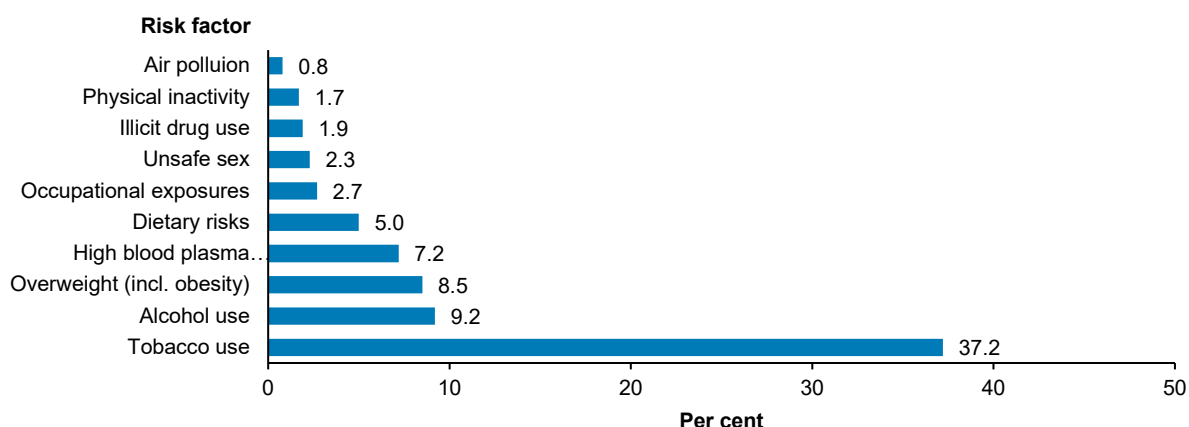
- are more likely to be diagnosed at more advanced stages – often with comorbidities that are more complex
- are less likely to have treatment sought
- require patients often to have to wait longer for surgery than non-Indigenous Australians (AIHW 2018b; Cunningham et al. 2008; Sanjida et al. 2022).

Cancer and other neoplasms made up 10% of the total burden, 20% of the fatal burden and 1.2% of the non-fatal burden among First Nations people in 2018. Lung (25%), mouth and pharyngeal (10%), bowel (8%) and liver (7%) cancers accounted for half (50%) of the cancer burden among First Nations people. Cancer burden was almost entirely due to dying prematurely, with only 6.4% of this burden due to living with cancer (AIHW 2022a).

Risk factors for cancer

There are a number of risk factors for cancer, including biomedical factors (such as genetic susceptibility and hormonal factors), behavioural factors (such as smoking, alcohol consumption and physical inactivity) and environmental factors (such as modern carcinogens, industrial pollutants, sunlight and radiation) (AIHW 2021b). The leading risk factors associated with the total burden of cancer (fatal and non-fatal) in First Nations people are shown in Figure 1.14.

Figure 1.14: Proportion of total burden (DALY) attributable to risk factors for cancer in First Nations people, 2018



Note: The percentages of each risk factor cannot be added together as they were analysed separately.

Source: AIHW 2022a.

The effect of these risk factors combined contributed 56% of the total cancer burden, with the largest individual risk factor being tobacco use, followed by alcohol use (AIHW 2022a).

Deaths from cancer

Cancer is the broad leading cause of death for First Nations males and females. Between 2017 and 2021, 4,586 First Nations people (2,429 males and 2,157 females) and 238,151 non-Indigenous Australians (134,152 males and 103,999 females) died from cancer.

Over the decade from 2010 to 2019, the age-standardised mortality rate for First Nations people increased by 12% while the non-Indigenous rate decreased by 10%. This resulted in the absolute gap (rate difference) between First Nations and non-Indigenous Australians widening (AIHW 2023b).

The number of deaths from cancer varied across remoteness areas for both First Nations males and females, with the highest number of deaths in *Major cities and Inner/Outer regional* areas for both. Deaths from cancer accounted for 27% and 30% of all deaths of First Nations males and females, respectively, in *Inner regional* areas – and for 20–21% of deaths of First Nations people in *Remote* and *Very remote* areas (Table 1.11).

There were nearly equal numbers of deaths from cancer in New South Wales and Queensland for First Nations males and females. Cancer accounted for slightly more than a quarter of deaths of First Nations people in New South Wales and Queensland, and around 20% in the Northern Territory and Western Australia.

Table 1.11: Cancer deaths, by remoteness and state/territory, Indigenous status and sex, 2017–2021

Remoteness	First Nations				Non-Indigenous			
	Males		Females		Males		Females	
	Deaths	% deaths in area	Deaths	% deaths in area	Deaths	% deaths in area	Deaths	% deaths in area
Major cities	778	25.2	667	26.3	85,540	31.8	69,484	26.8
Inner regional	554	26.9	480	30.1	31,960	33.5	23,818	27.8
Outer regional	544	22.9	528	26.2	14,606	34.0	9,545	28.1
Remote	217	21.8	176	20.8	1,274	34.0	731	30.5
Very remote	308	20.2	282	21.1	481	32.8	235	30.4

State/territory	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction	Deaths	% deaths in jurisdiction
NSW	758	25.8	642	28.2	43,225	32.1	33,793	26.8
Vic	167	23.8	151	26.6	32,726	31.7	26,307	26.5
Qld	729	25.8	639	27.6	28,147	33.9	20,843	28.6
WA	311	20.1	295	22.5	12,341	32.4	9,373	27.7
SA	136	21.4	115	22.5	11,292	32.3	8,834	26.4
Tas	48	25.3	50	28.2	3,719	32.2	2,831	26.1
ACT	26	28.3	18	30.5	1,978	32.3	1,645	28.4
NT	254	19.5	247	19.8	724	35.2	373	34.4

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Chapter II (C00–D48).

2. The table excludes deaths with missing information on remoteness, state/territory or Indigenous status.

Source: AIHW National Mortality Database.

Age patterns of death from cancer

In 2017–2021, the median age at death from cancer, based on AIHW analysis of NMD data, was:

- 65 for First Nations females and 76 for non-Indigenous females (a difference of 11 years)
- 65 for First Nations males and 76 for non-Indigenous males (a difference of 11 years).

For First Nations males, the largest number of deaths from cancer was in the 65–74-year-old age group (709 deaths), followed by the 55–64 and 75 and older age groups (Table 1.12). Deaths from cancer made up the highest proportion of all deaths in the 65–74 age group – 36% of all deaths.

For First Nations females, both the largest number (606) and largest percentage of deaths (35%) occurred in the 65–74-year-old age group, followed by the 55–64-year-old age group. Although the number of deaths from cancer was relatively high among First Nations females aged 75 and over, they made up a smaller proportion of all deaths (22%) than in the more middle-aged groups.

Table 1.12: Cancer deaths, by age, sex and Indigenous status, 2017–2021

Age group	First Nations				Non-Indigenous			
	Males		Females		Males		Females	
	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group	Deaths	% of all deaths in age group
0–14	15	3.2	13	3.9	255	7.3	189	6.9
15–24	20	4.4	6	2.7	259	6.9	196	13.6
25–34	34	4.9	36	10.1	609	9.9	608	23.8
35–44	86	8.9	107	17.4	1,629	17.0	2,038	37.9
45–54	359	20.8	314	26.9	5,853	29.8	5,948	49.0
55–64	688	32.8	557	34.1	17,913	43.2	14,002	55.1
65–74	709	35.9	606	35.0	35,313	45.6	24,607	49.4
75+	518	28.2	518	21.5	72,319	28.6	56,411	19.9
Total with known age	2,429	23.7	2,157	25.5	134,150	32.4	103,999	27.2

Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Chapter II (C00–D48).

2. The table excludes a small number of deaths with missing ages and missing Indigenous status.

Source: AIHW National Mortality Database.

The age-specific death rates for cancer show that the age group with the highest mortality rates is 75 years and older for both First Nations males and females (at a rate of just over 2,200 deaths per 100,000 for males and nearly 1,600 deaths per 100,000 for females) (Table 1.13). While almost all the rates for First Nations people are generally higher than those for non-Indigenous Australians, the disparity (as measured by rate difference and rate ratio) is smaller than for CVD mortality.

Table 1.13: Age-specific death rates from cancer, by Indigenous status and sex, NSW, Qld, WA, SA and NT, 2017–2021

Age group (years)	Males				Females			
	First Nations	Non-Indigenous	Rate difference	Rate ratio	First Nations	Non-Indigenous	Rate difference	Rate ratio
0–4	1.4	2.9	–1.5	0.5	2.4	2.2	0.2	1.1
5–14	2.9	2.2	0.6	1.3	2.0	1.5	0.5	1.3
15–24	4.9	3.6	1.3	1.4	1.1	2.7	–1.5	0.4
25–34	11.3	7.0	4.3	1.6	12.0	6.9	5.1	1.7
35–44	38.9	19.8	19.1	2.0	48.2	25.0	23.2	1.9
45–54	181.2	76.6	104.6	2.4	145.3	74.1	71.1	2.0
55–64	509.3	257.7	251.6	2.0	362.5	189.6	172.9	1.9
65–74	1,052.5	649.3	403.2	1.6	773.9	424.6	349.3	1.8
75+	2,206.1	1,881.1	324.9	1.2	1,585.8	1,168.6	417.2	1.4

Notes

1. Age-specific rates are calculated by dividing the number of deaths in an age group by the population in that age group. Expressed as per 100,000.
2. Underlying causes of death are based on the ICD-10 chapter codes. Table includes deaths from ICD-10 Chapter II Neoplasms (C00–D48).
3. Rate difference is the age-specific rate for First Nations people minus the age-specific rate for non-Indigenous Australians.
4. Rate ratio is the age-specific rate for First Nations people divided by the age-specific rate for non-Indigenous Australians.
5. Rates are calculated for the 5 jurisdictions of New South Wales, Queensland, Western Australia, South Australia and the Northern Territory combined due to data quality considerations described in Box 1.2.

Source: AIHW National Mortality Database.

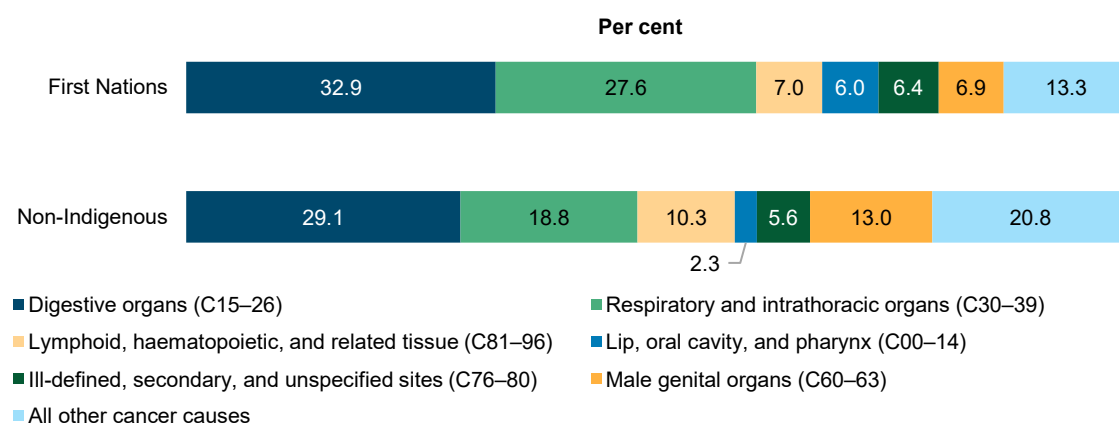
Sub-chapter causes of cancer-related deaths

For consistency with other causes of death, this section first focuses on the distribution of the ICD-10 sub-chapter codes before examining some clinical coding groups.

Two sub-chapter causes of death are responsible for 61% of cancer deaths for First Nations males – cancer of the digestive organs (includes bowel and colorectal cancer, stomach cancer, liver cancer and pancreatic cancer) and cancer of the respiratory and intrathoracic organs (includes lung cancer and throat cancer) (Figure 1.15a; Table S1.12). The same 2 sub-chapters are responsible for 54% of cancer deaths for First Nations females, with breast cancer responsible for an additional 12% of cancer deaths (Figure 1.15b; Table S1.12).

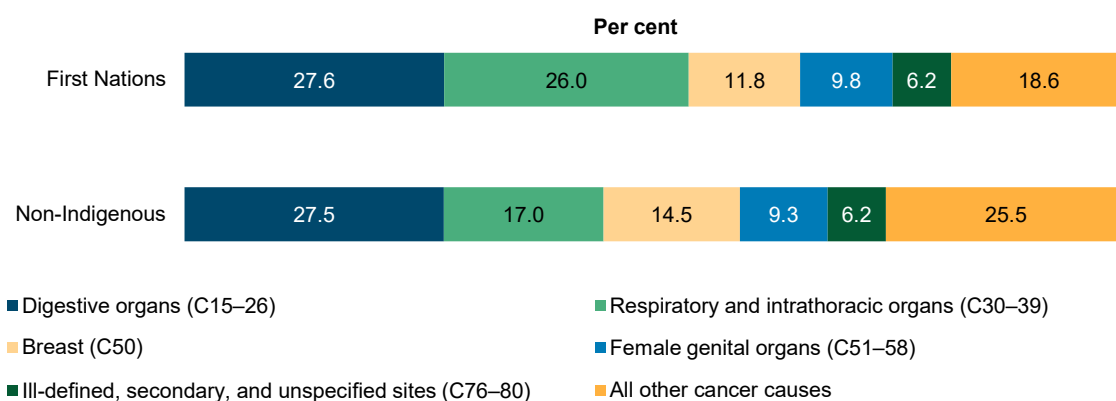
Figure 1.15: Distribution of sub-chapter causes of cancer deaths, by Indigenous status, 2017–2021

(a) males



Note: Underlying causes of death are based on the ICD-10 chapter code. Figure includes deaths from ICD-10 Chapter II Neoplasms (C00–D48).
Source: AIHW National Mortality Database.

(b) females

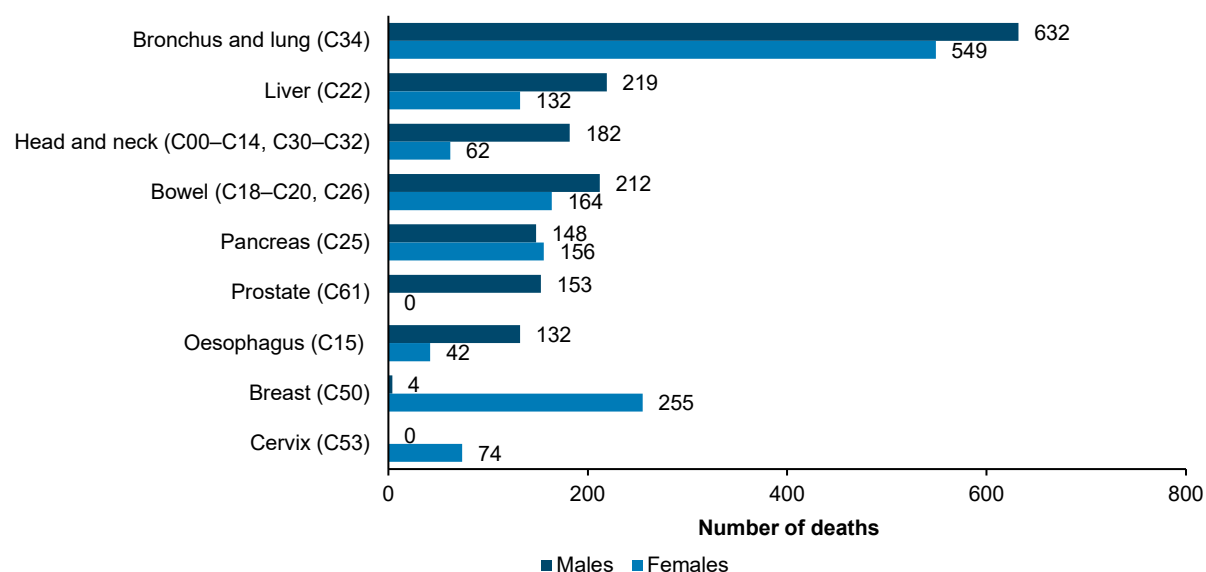


Note: Underlying causes of death are based on the ICD-10 chapter code. Figure includes deaths from ICD-10 Chapter II Neoplasms (C00–D48).
Source: AIHW National Mortality Database.

The causes, treatment options and survival rates differ for individual cancer types within the sub-chapters, so Figure 1.16 and Table S1.13 present the number of deaths for a selected group of cancer types for First Nations people.

By far, bronchus and lung cancer (referred to as lung cancer from here on in the chapter) was responsible for the largest number of cancer deaths among First Nations people, followed by liver cancer for First Nations males and breast cancer for First Nations females.

Figure 1.16: Cancer deaths, by selected types of neoplasms, by sex, First Nations people, 2017–2021



Note: Underlying causes of death are based on the ICD-10 chapter code. Figure includes selected deaths from ICD-10 Chapter II Neoplasms (C00–D48).

Source: AIHW National Mortality Database.

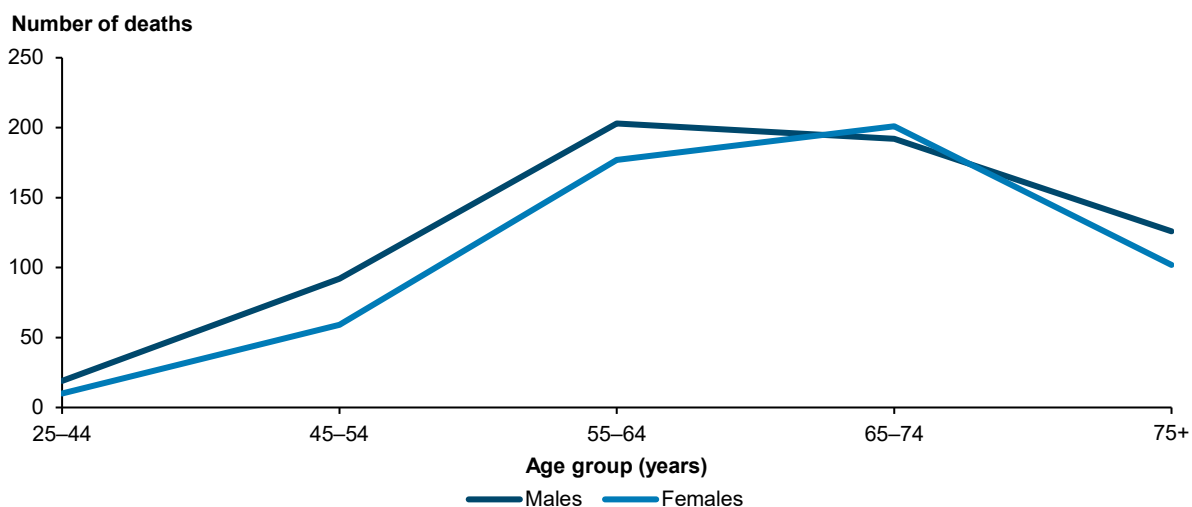
Lung cancer

The median age at death for First Nations males who died from lung cancer was 65, compared with a median age of 74 for non-Indigenous males (a difference of 9 years). For First Nations females, the median age at death was 66, compared with 74 for non-Indigenous females (a difference of 8 years).

The median age at death is a function of two factors: age-specific mortality rates and the age structure. The First Nations population is considerably younger, on average, than the non-Indigenous population. This means that even if the age specific mortality rates across the two populations was identical, First Nations people would have a lower median age at death.

For First Nations males, the number of deaths from lung cancer peaked in the 55–64-year-old age group (203 deaths), and then was steady before declining. Eighteen per cent of lung cancer deaths occurred before age 55. For First Nations females, the highest number of deaths from lung cancer was in the 65–74 year age group (201), and 13% of the deaths occurred before age 55 (Figure 1.17; Table S1.14).

Figure 1.17: Deaths from lung cancer, by age group, First Nations people, 2017–2021



Note: Underlying causes of death are based on the ICD-10 chapter code. Figure includes deaths from ICD-10 code C34.
Source: AIHW National Mortality Database.

Table 1.14: Deaths from lung cancer, by remoteness, state/territory and Indigenous status, 2017–2021

Remoteness	First Nations				Non-Indigenous			
	Males		Females		Males		Females	
	Deaths	% of cancer deaths in area	Deaths	% of cancer deaths in area	Deaths	% of cancer deaths in area	Deaths	% of cancer deaths in area
Major cities	203	26.1	180	27.0	15,140	17.7	11,281	16.2
Inner regional	135	24.4	144	30.0	5,663	17.7	4,064	17.1
Outer regional	159	29.2	137	25.9	2,820	19.3	1,742	18.3
Remote	50	23.0	41	23.3	267	21.0	151	20.7
Very remote	81	26.3	42	14.9	117	24.3	50	21.3

State/territory	Deaths	% of cancer deaths in state/territory	Deaths	% of cancer deaths in state/territory	Deaths	% of cancer deaths in state/territory	Deaths	% of cancer deaths in state/territory
NSW	203	26.8	189	29.4	7,626	17.6	5,425	16.1
Vic	47	28.1	45	29.8	5,886	18.0	4,292	16.3
Qld	193	26.5	163	25.5	5,207	18.5	3,723	17.9
WA	63	20.3	50	16.9	2,180	17.7	1,571	16.8
SA	41	30.1	31	27.0	2,015	17.8	1,439	16.3
Tas	12	25.0	17	34.0	702	18.9	541	19.1
ACT	5	19.2	4	22.2	299	15.1	242	14.7
NT	68	26.8	50	20.2	150	20.7	95	25.5

Notes

- Underlying causes of death are based on the ICD-10 chapter codes. The table includes deaths from ICD-10 Code C34.
- The table excludes deaths with missing information on remoteness, state/territory or Indigenous status.

Source: AIHW National Mortality Database.

The highest proportion of lung cancer deaths for First Nations males was in *Outer regional* areas (29%), and for First Nations females in *Inner regional* areas (30%) (Table 1.14). Among jurisdictions, for both First Nations males and females, lung cancer made up the highest proportion of cancer deaths in South Australia and Tasmania, and the lowest proportion in Western Australia. (The Australian Capital Territory had very small numbers of First Nations lung cancer deaths and was excluded).

1.6 Avoidable and preventable causes of death

This section examines deaths that may be considered as potentially avoidable or preventable – that is, deaths from conditions considered to be avoidable, given timely and effective health care (including disease prevention and population health initiatives) (AIHW and NIAA 2022; Page et al. 2007). For ease of presentation, they are referred to hereafter as ‘avoidable deaths’.

Aggregate reporting on potentially avoidable deaths among First Nations people between 2006 and 2019 for New South Wales, Queensland, Western Australia, South Australia and the Northern Territory was published in the Aboriginal and Torres Strait Islander Health Performance Framework (see <https://www.indigenoushpf.gov.au/measures/1-24-avoidable-preventable-deaths>) (the Framework) (AIHW and NIAA 2022). This section builds on and extends that reporting by adding additional causes of death and by grouping deaths according to the potential mechanism of prevention (Mackenbach et al. 2015; Welsh et al. 2021b). (For these reasons, the results presented here are not directly comparable with those presented in the Framework.) The findings highlight potential opportunities to reduce deaths from these causes, noting that the analyses by Welsh et al. (2021b) found a statistically significant educational gradient in avoidable deaths, with the highest rates among those with the lowest educational attainment (although the authors did not disaggregate by Indigenous status).

Four broad categories of avoidable deaths are included. These categories are mutually exclusive, so there is no overlap in deaths between categories (see Appendix A for more detail on the methodology and the coding framework):

- deaths amenable to injury prevention
- deaths amenable to changes in health risk factors – such as tobacco use, alcohol use, dietary factors, physical activity, safe sex (see Figure 1.2, which highlights the complexity of factors affecting health risks – this group of causes of death were referred to as deaths amenable to behaviour change in Welsh et al [2021b])
- deaths amenable to medical intervention (including through screening, immunisation, early diagnosis and/or effective treatment)
- deaths amenable to both medical intervention and changes in health risk factors.

The above categories were used when calculating the average annual age-specific mortality rates (deaths per 100,000 population) for First Nations males and females aged 74 and younger for the 2017–2021 period. These rates are shown in Figure 1.18 and Table S1.15. Age-sex-specific mortality rates were then calculated for the major causes within each of the 4 categories; they are presented in figures 1.19 to 1.22 (tables S1.16 to S1.19).

For both First Nations males and females, the age distribution of potentially avoidable deaths is similar to the age pattern of all deaths: mortality rates for very young children (aged 0–4) are higher than those for the 5–14 age group, and mortality rates then increased from the 15–24 age group onwards. Among deaths at an early age, almost all those that are potentially avoidable are deaths in the ‘amenable to medical intervention’ category, which, in

this age range, is a category made up almost exclusively of deaths due to complications of the perinatal period (see AIHW and NIAA 2022 for more detail on infant deaths).

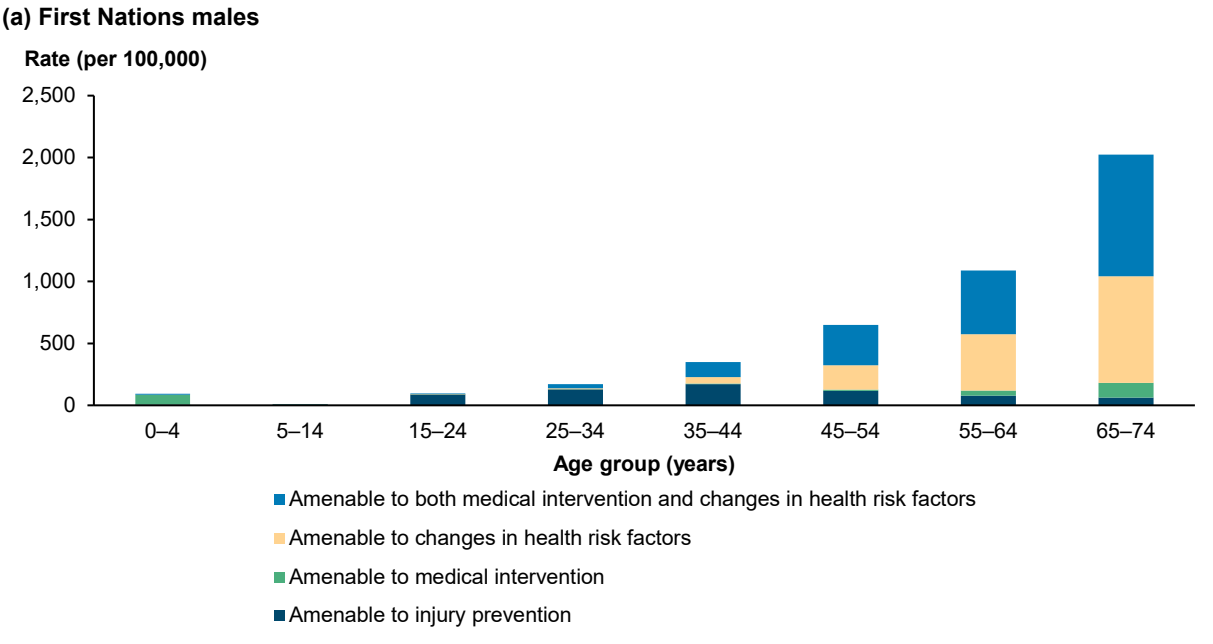
As age increases, the type of preventability of deaths also changes. Among both First Nations males and females, deaths in the 5–14 and 15–24 age groups are almost exclusively those in the ‘amenable to injury prevention’ category.

In the 25–34 age range, potentially avoidable deaths in the ‘amenable to both medical intervention and changes in health risk factors’ category begin to emerge, representing 19% and 31%, respectively, of potentially avoidable deaths among First Nations men and women in this age category. Most avoidable deaths in this age category are still those in the ‘amenable to injury prevention’ category, however.

At ages 35–44, deaths in the ‘amenable to injury prevention’ category start to become a smaller proportion of potentially avoidable deaths (48% among men and 33% among women), although the rates for deaths amenable to injury prevention are still higher than those for the 25–34 year age group. Deaths in the ‘amenable to changes in health risk factors’ category begin to emerge, and the proportion of deaths in the ‘amenable to both medical intervention and changes in health risk factors’ category continues to grow.

From ages 45–54 onwards, the rate of potentially avoidable deaths in the ‘amenable to injury prevention’ starts to decline, while the rates of deaths in the ‘amenable to changes in health risk factors’ category and in the ‘amenable to both medical intervention and changes in health risk factors’ category increase exponentially.

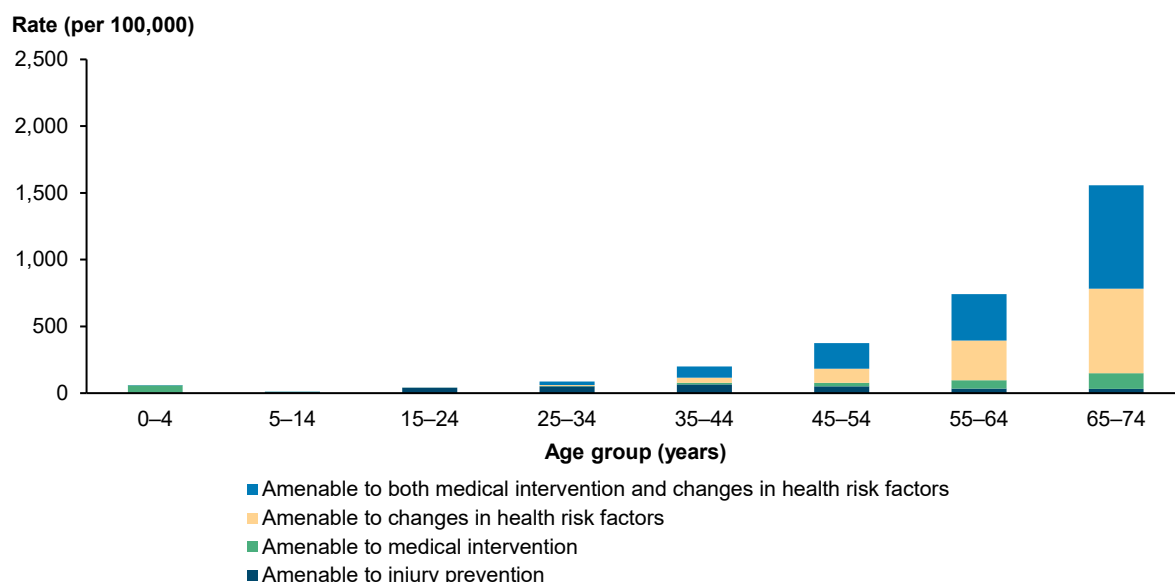
Figure 1.18: Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths, by preventability status and sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021



(continued)

Figure 1.18 (continued): Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths, by preventability status and sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021

(b) First Nations females



Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. Coding framework is available in Appendix Table A.1. The categories are mutually exclusive.

2. Rates based on causes of death with very small counts have been excluded from figures.

Source: AIHW National Mortality Database.

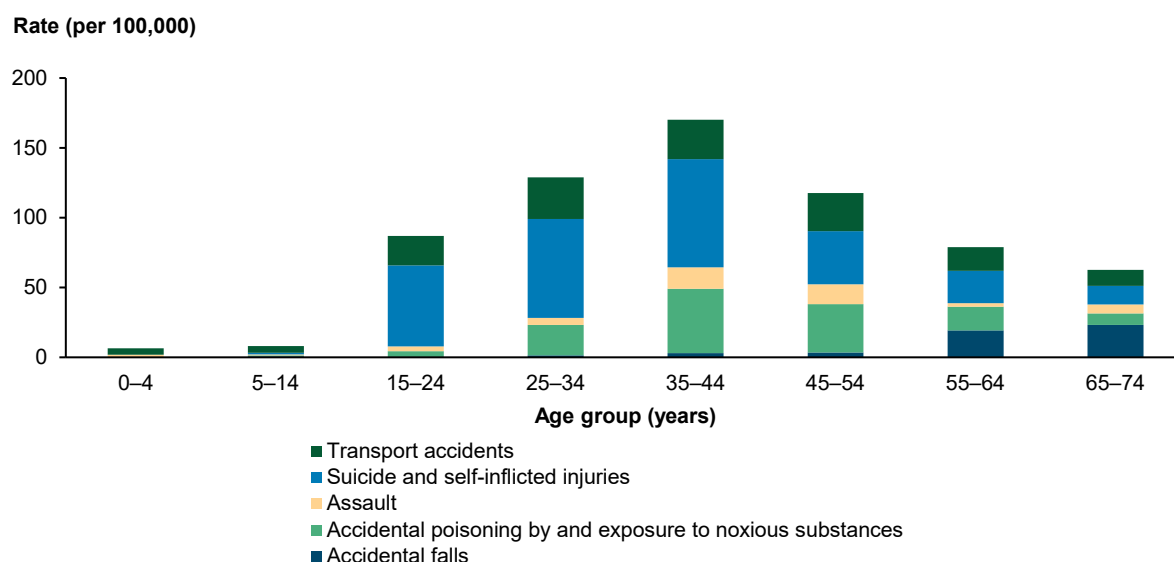
1.6.1 Deaths amenable to injury prevention

Figure 1.19 and Table S1.16 show the age-specific mortality rate breakdown for potentially avoidable deaths amenable to injury prevention. For First Nations males, the average annual mortality rates for this category are much higher than for First Nations females for all age groups above ages 5–14, and are more than double the rates for age groups between 15–24 and 55–64. However, the actual proportion of deaths due to each cause is roughly similar across the sexes.

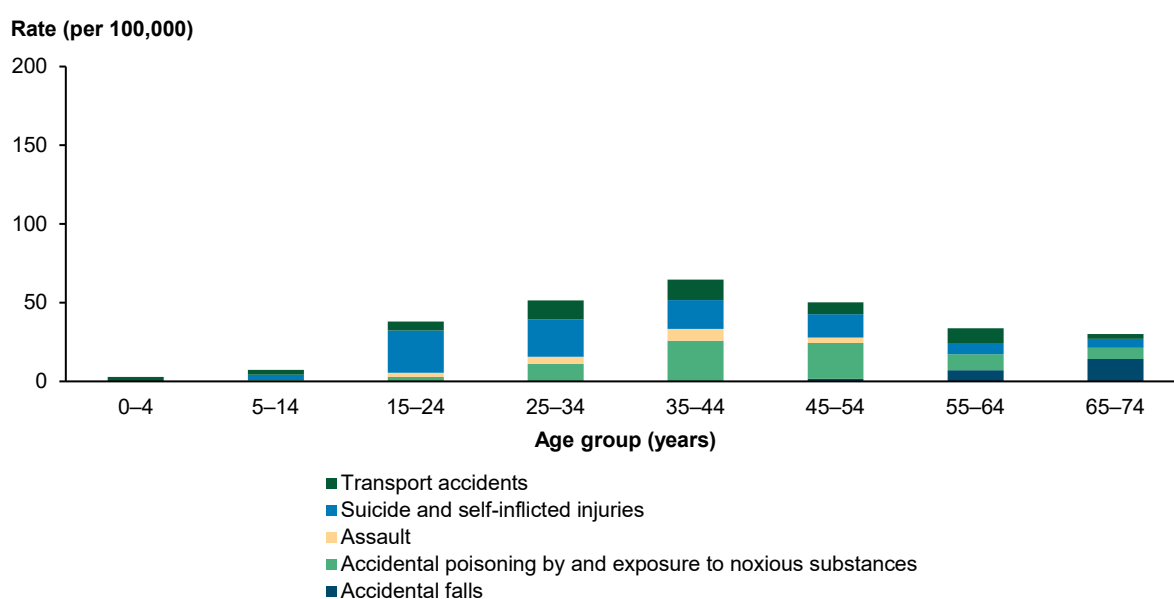
Transport accidents affect most age groups, and rates are higher for First Nations males than females. People of working age between 25 and 64 are those most affected by accidental poisoning, mainly through harmful exposure to pharmaceutical and non-pharmaceutical drugs. Persons aged between 15 and 64 are those most affected by suicide and self-inflicted injuries, although this is especially pronounced among First Nations men between ages 25 and 44 (for more information, see Chapter 14 on social and emotional wellbeing target).

Figure 1.19: Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths amenable to injury prevention, by sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021

(a) First Nations males



(b) First Nations females



Notes

- Underlying causes of death are based on the ICD-10 chapter codes. Coding framework is available in Appendix Table A.1.
- Rates based on causes of death with very small counts have been excluded from figures.

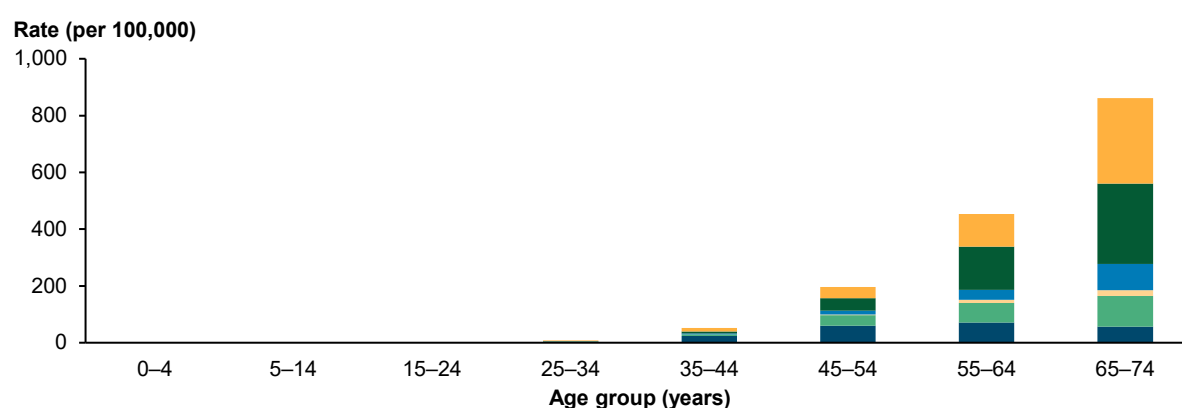
Source: AIHW National Mortality Database.

1.6.2 Deaths amenable to changes in health risk factors

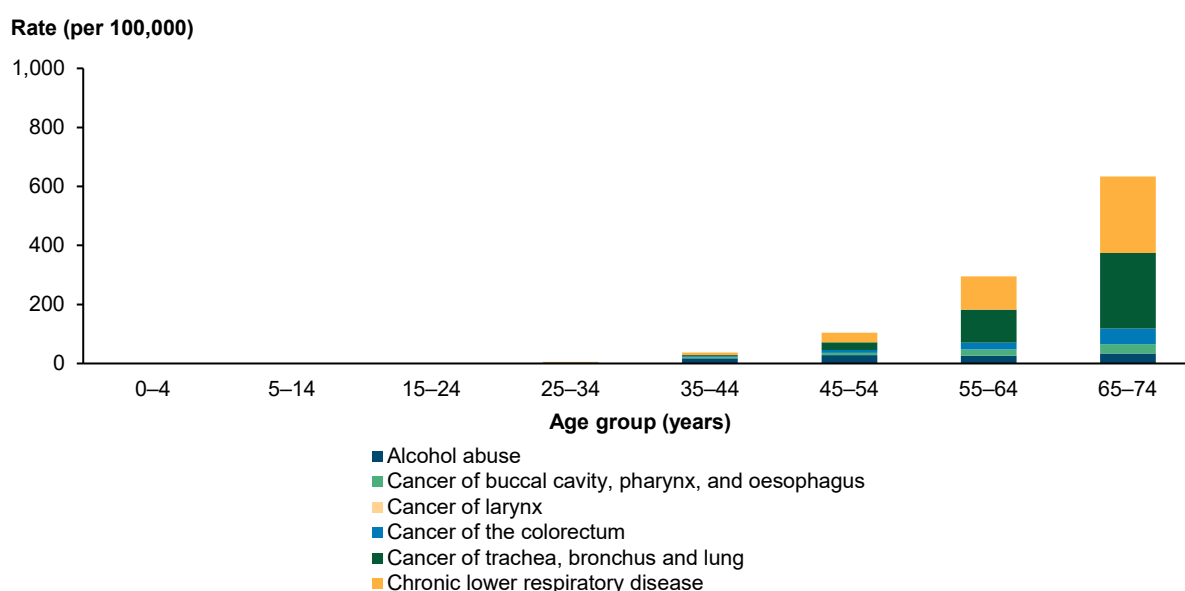
Figure 1.20 and Table S1.17 provide a similar breakdown for potentially avoidable deaths amenable to changes in health risk factors (potentially avoidable deaths that are amenable to both medical intervention and changes in health risk factors are not included here but are shown in Figure 1.21). As would be expected across both sexes, rates of potentially avoidable deaths in this category increased with age from age 25 onwards as risks accumulate (rates for those younger than 25 are close to 0). Among both First Nations men and women, deaths in this category are strongly related to smoking exposure, accounting for the majority of deaths at ages 45 and over (such as through cancer of the trachea, bronchus and lung; deaths from chronic lower respiratory disease; and cancer of the buccal cavity, pharynx and oesophagus).

Figure 1.20: Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths amenable to changes in health risk factors, by sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021

(a) First Nations males



(b) First Nations females



Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. Coding framework available in Appendix Table A.1.
2. Rates based on causes of death with very small counts have been excluded from figures.

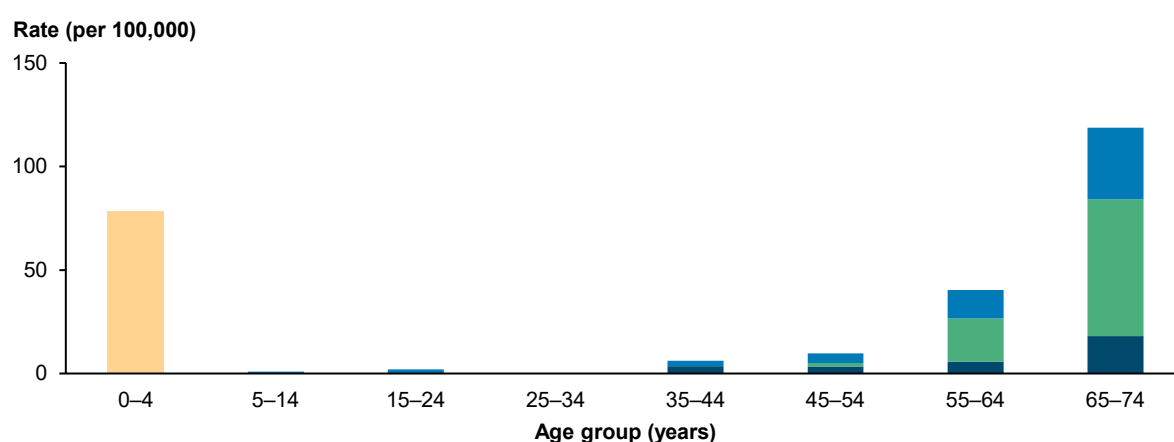
Source: AIHW National Mortality Database.

1.6.3 Deaths amenable to medical intervention

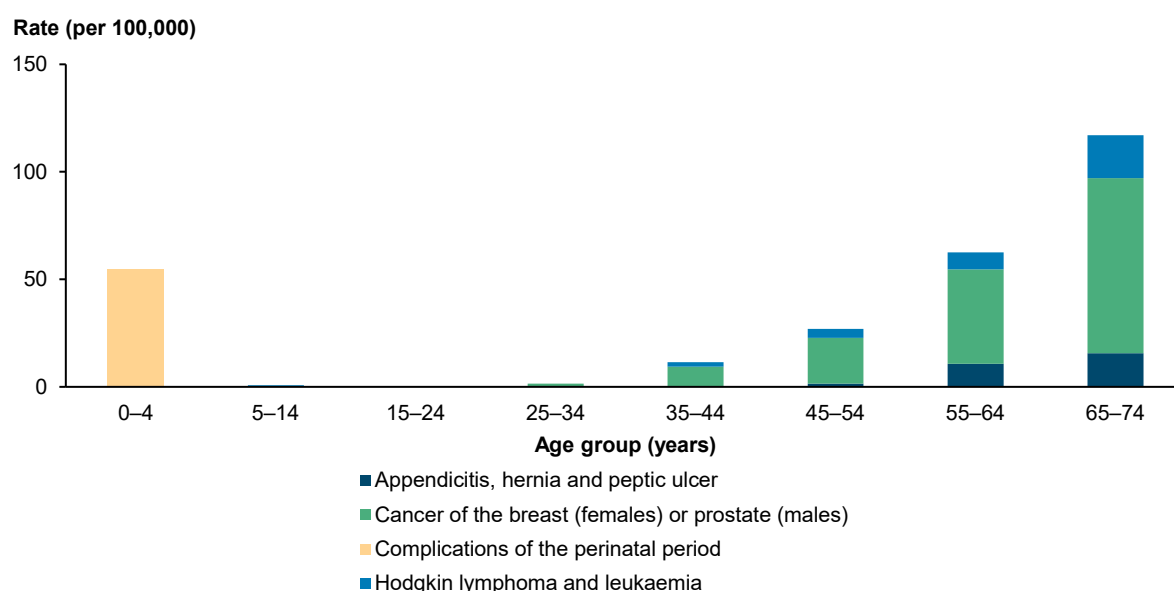
For deaths due to causes that are amenable to medical intervention (Figure 1.21; Table S1.18), the highest rate for an individual cause for First Nations people under age 75 is among young children (aged 0–4) and is due to complications of the perinatal period (for more detailed information on early childhood mortality, see AIHW and NIAA 2022). For older First Nations males, the highest rate is for prostate cancer, followed by Hodgkin lymphoma and leukemia. For older First Nations females, the highest rate is for breast cancer, followed by nearly equal rates for Hodgkin lymphoma and leukemia, and then by appendicitis, hernia and peptic ulcer.

Figure 1.21: Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths amenable to medical intervention, by sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021

(a) First Nations males



(b) First Nations females



Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. Coding framework available in Appendix Table A.1.

2. Rates based on causes of death with very small counts have been excluded from figures.

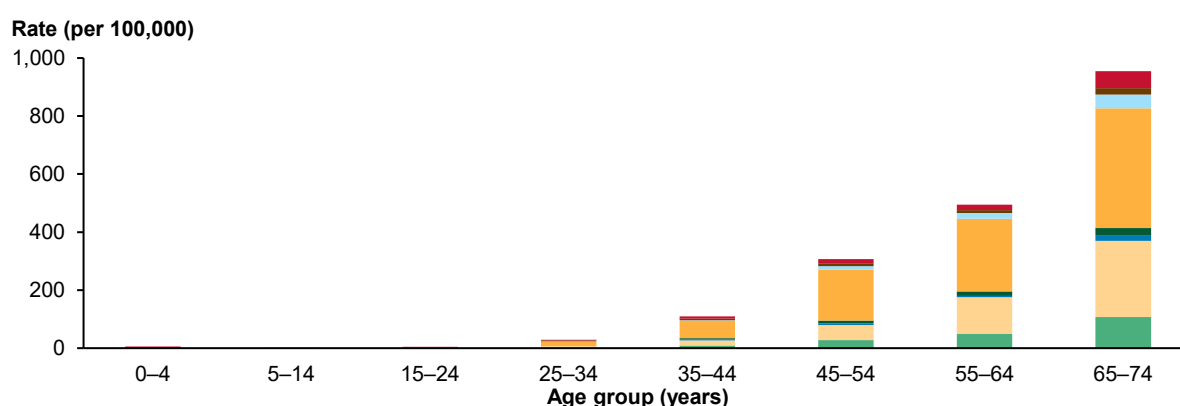
Source: AIHW National Mortality Database.

1.6.4 Deaths amenable to both medical intervention and changes in health risk factors

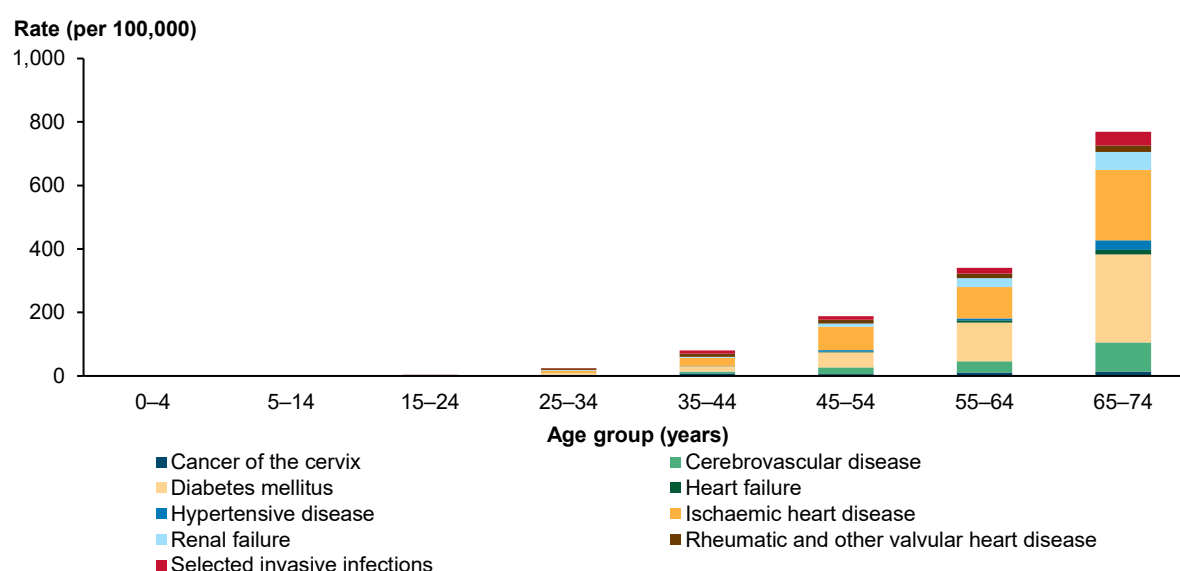
Figure 1.22 and Table S1.19 show the age-specific mortality rate breakdown for potentially avoidable deaths that are amenable to both medical intervention and changes in health risk factors. Similar to what is shown in Figure 1.20, deaths in this category increase with age from age 25 onwards among both First Nations men and women (and are close to 0 for those under age 25). For First Nations males, ischaemic heart disease is the largest individual contributor to potentially avoidable deaths in this category among most age groups, followed by diabetes mellitus and cerebrovascular disease. For First Nations females, mortality rates are highest for diabetes mellitus, followed by ischaemic heart disease and cerebrovascular disease.

Figure 1.22: Average age-specific annual mortality rate (per 100,000) of potentially avoidable deaths amenable to both medical intervention and changes in health risk factors, by sex, First Nations people, NSW, Qld, WA, SA and NT, 2017–2021

(a) First Nations males



(b) First Nations females



Notes

1. Underlying causes of death are based on the ICD-10 chapter codes. Coding framework available in Appendix Table A.1.

2. Rates based on causes of death with very small counts have been excluded from figures.

Source: AIHW National Mortality Database.

1.6.5 Potential for improvement

Overall, the highest rates of avoidable deaths are those in the categories ‘amenable to changes in health risk factors’ and ‘amenable to both medical intervention and changes in health risk factors’. Deaths in both these categories are related to smoking exposure.

In the category deaths ‘amenable to both medical intervention and changes in health risk factors’, the highest rates in deaths are for ischaemic heart disease and diabetes mellitus. Risk factors for both conditions include low levels of physical activity, overweight or obesity, high blood pressure and cholesterol.

In addition to implementing programs and policies aimed to reduce smoking, increase physical activity and promote a healthy bodyweight, access to relevant medications to control high blood pressure and cholesterol are key to reducing these avoidable deaths.

1.7 Policy implications

To improve life expectancy for First Nations people, the age- and cause-specific mortality patterns that underpin life expectancy estimates need to be identified. This is necessary to highlight opportunities for continued improvements in health and wellbeing and reductions in avoidable and early deaths.

The implications of the differences in mortality rates between First Nations and non-Indigenous Australians are considerable. If First Nations people had had the same age-specific mortality rates as non-Indigenous Australians in 2017–2021, there would have been 9,200 fewer deaths of First Nations people in this period – equivalent to about 1,006 deaths among males and 834 among females per year (known in demographic terms as ‘excess deaths’).

Causes of excess deaths

The analyses found that excess deaths were primarily concentrated among those aged 35–74. Within this age group, 2 broad causes of death were responsible for the largest number of excess deaths for both First Nations males and females – CVD and cancer.

Reducing deaths from these 2 causes would contribute substantially to reducing the gap in life expectancy. The detailed analyses in Section 1.5 showed that:

- for deaths due to CVD in 2017–2021 (even though mortality rates have improved over time for First Nations people), there were considerably higher mortality rates for CVD for both First Nations males and females compared with those for their non-Indigenous counterparts, across all age groups. This was particularly the case for the working age population. Within this category, the largest numbers of deaths were due to ischaemic heart disease (also known as coronary heart disease) and cerebrovascular disease
- risk factors for CVD include dietary factors, high blood pressure, tobacco use, overweight/obesity and high cholesterol. Along with programs and policies aimed at reducing smoking, increasing physical activity and promoting a healthy bodyweight, improvements are needed in access to better treatment and relevant medications to control high blood pressure and cholesterol. Recent consensus guidelines recommend that CVD risk factor screening for First Nations people should start from age 18 at the latest, and that the approach to screening needs to consider social determinants and individuals’ social and emotional wellbeing (Agostino et al. 2020).
- for deaths due to cancer, recent time trends show that age-standardised mortality rates have worsened for First Nations people while improving for non-Indigenous Australians,

leading to an increased gap (AIHW and NIAA 2022). The 2 sub-chapter causes of death with the largest proportions of cancer deaths for both First Nations males and females were cancer of the digestive organs (includes bowel and colorectal cancer, stomach cancer, liver cancer and pancreatic cancer) and cancer of the respiratory and intrathoracic organs (includes lung cancer and throat cancer)

- once individual cancer types were examined, however, lung cancer was by far the largest cause of cancer-related deaths, and tobacco use was the largest risk factor for all cancers combined.

Potentially avoidable deaths

The last section of this chapter focused on potentially avoidable deaths among First Nations people, where the deaths were categorised according to the mechanism by which they might be preventable. This categorisation helps shed light on potential intervention points for improvement. The findings showed that:

- rates of deaths amenable to changes in health risk factors increase exponentially with age from age 25 onwards as risks accumulate. Among both First Nations men and women, deaths in this category are strongly related to smoking exposure, accounting for the majority of deaths at ages 45 and above (such as through cancer of the trachea, bronchus and lung; deaths from chronic lower respiratory disease; and cancer of the buccal cavity, pharynx and oesophagus)
- there are distinct age and sex patterns – for example, First Nations males have considerably higher mortality rates for deaths amenable to injury prevention than First Nations females, especially in the 15–34 age group, and particularly those from suicide and self-inflicted injuries. Among the types of injuries, deaths due to falls begin to increase for both First Nations males and females starting around age 55
- the lowest age-specific mortality rates are for deaths amenable to medical interventions
- among deaths amenable to both medical interventions and changes in health risk factors, ischaemic heart disease and diabetes mellitus were the 2 causes of death with the highest age-specific mortality rates, rising from ages 35 and above. For males, the rates for ischaemic heart disease were highest, while for females the rates were highest for diabetes mellitus (that is, type 2 only), both of which are also affected by tobacco use.

Gains in life expectancy

The findings from the mortality analyses and the literature review highlight several key factors. Conceptually, life expectancy (and the key causes of death identified in this chapter) reflect a complex set of both historical and contemporary factors, including health risk behaviours, socioeconomic factors and environmental factors (such as overcrowded housing and sanitation) (AIHW 2018c; SCRGSP 2016; Zhao et al. 2013b). It has been found that:

- health risk factors accounted for around two-thirds (66%) of the gap in disease burden between First Nations people and non-Indigenous Australians, according to the 2018 Australian Burden of Disease study:
 - tobacco use was the leading risk factor, accounting for 20% of the overall gap in disease burden between First Nations and non-Indigenous Australians (AIHW 2022a)
- social determinants account for around 35% of the health gap according to estimates based on analysis of the 2017–19 Australian Health Survey data:

- employment status and hours worked, equivalised household income, and highest level of school completed accounted for 14%, 13% and 8.9%, respectively, of the gap in health outcomes between First Nations and non-Indigenous adults aged 18 to 64 years (AIHW 2024b).

However, these studies are not able to account for the potential role of the difference in access to health services or discrimination between First Nations and non-Indigenous Australians due to lack of data on these measures.

As the other Closing the Gap socioeconomic outcomes/targets improve, and additional components of the 2020 National Agreement are embedded within society, it is likely that progress will be made on improving health and wellbeing overall and reducing the mortality rate for First Nations people (AIHW 2018a; Dudgeon et al. 2014; Thurber et al. 2021b; Welsh et al. 2021a, 2021b; Zhao et al. 2013a, 2013b).

While these larger changes are taking place, it is also important to note the link between improvements in health services access and chronic disease management and gains in life expectancy among First Nations people:

- Recent life expectancy increases among First Nations people in the Northern Territory, across all adult age groups, were consistent with improved health service access and chronic disease management (Georges et al. 2017).
- In Queensland, 36% of the First Nations male life expectancy increase and 48% of the First Nations female life expectancy increase, between 2010–12 and 2015–17, can be attributed to the reduced mortality rate from cardiovascular disease (primarily coronary heart disease and stroke) (Queensland Health 2019).
- In Queensland, reduction in diabetes mortality contributed 0.5 and 0.3 years to the increased life expectancy of First Nations males and females, respectively (Queensland Health 2019).

The role of health services and First Nations-led policies

These positive outcomes have benefited from investment in health services focused on primary prevention, early detection, and secondary and tertiary prevention of chronic conditions. ACCHS care has been shown to be associated with prevented hospitalisations among remote First Nations communities. The ACCHS care is likely to be more efficient in providing health care to First Nations communities due to its comprehensive and integrated approach, and meeting the cultural needs and expectations of First Nations communities.

Some evidence suggests that investing in primary care in remote communities could result in considerable savings in hospital costs. Therefore, it is important to identify service gaps for primary health care and consider filling such service gaps with ACCHS.

There are also important roles for culturally responsive and First Nations-led policies and programs, in partnership with government, that target individual causes of death or health risks specifically (including health promotion, access to health services, improved medical care, and chronic disease management).

- For example, future reductions in lung cancer mortality are likely to be effected through a combination of factors such as:
 - primary prevention (continuing reductions in the uptake of tobacco use among First Nations young people, noting that smoking rates are still higher in remote areas)
 - reductions in smoking among those who had begun using tobacco (through programs such as Tackling First Nations Smoking)

- the new National Lung Cancer Screening Program starting by July 2025 (Cancer Australia 2020, 2023; Thurber et al. 2021a).

Over time, life expectancy improvements for First Nations people living in the Northern Territory have shifted from younger to older age groups. Between 1967–1971 and 1980–1984, there were rapid rises in life expectancy through reduced rates of infant mortality. More recently, from 1994–1998 to 2008–2012, there were modest gains in older age groups. The higher mortality rate of First Nations people living in the Northern Territory aged 35–74 now accounts for 73% of the gap in life expectancy between them and all Australians (Georges et al. 2017).

In recent decades, the predominant causes of death of First Nations people shifted from maternal, perinatal and infectious diseases to chronic diseases (Condon et al. 2004; Zhao and Dempsey 2006). A transition in nutrition from childhood malnourishment and stunting to overeating – often of food high in calories but of poor nutritional quality – is likely to have contributed to the increased prevalence of chronic diseases (Gracey and King 2009). Concurrently, socioeconomic disadvantage, a major factor of the life expectancy gap in the Northern Territory, is contributing as much as half of the difference between First Nations and non-Indigenous populations (Georges et al. 2017). This evidence suggests that targeted health care can improve life expectancy, but it will have a limited effect on the life expectancy gap unless socioeconomic inequities and their associated risks are also reduced (Georges et al. 2017).

Appendix 1A: Potentially avoidable deaths

An initial list of causes of death that were considered potentially preventable/avoidable were drawn from the Welsh et al (2021b) and Mackenbach et al. (2015) articles. That list was then checked against the list of avoidable causes of death reported in the Aboriginal and Torres Strait Islander Health Performance Framework (AIHW and NIAA 2022) – based on those in the National Healthcare Agreement (Indicator PI-16) (see <https://meteor.aihw.gov.au/content/725797>) – and additional causes of death were added.

Some causes of death appeared in both the ‘amenable to changes in health risk factors’ and the ‘amenable to medical intervention’ categories. We created an additional category (amenable to both changes in health risk factors and medical intervention) so that each cause of death appears in one category only. The final coding framework is presented in Table 1A.1.

Table 1A.1: Coding framework for potentially preventable/avoidable deaths

Cause of death	ICD-10 codes
Amenable to injury prevention	
Accidental falls	W00–W19
Accidental poisoning by and exposure to noxious substances	X40–X49
Assault	X85–Y09
Suicide and self-inflicted injuries	X60–X84, Y87.0
Transport accidents	V01–V99
Amenable to changes in health risk factors	
Alcohol abuse	F10, I42.6, K70, K85–K86.0, X45
Cancer of buccal cavity, pharynx, and oesophagus	C00–C15
Cancer of larynx	C32
Cancer of colorectum	C18–C21, C26.0
Cancer of trachea, bronchus and lung	C33–C34
Chronic lower respiratory disease	J40–J47
Amenable to medical intervention	
Appendicitis, hernia and peptic ulcer	K25–K28, K35–K38, K40–K46, K56
Cancer of the breast	C50 (women only)
Complications of the perinatal period	P00–P96
Hodgkin lymphoma and leukaemia	C81, C91–C95
Appendicitis, hernia and peptic ulcer	K25–K28, K35–K38, K40–K46, K56
Amenable to both medical intervention and changes in health risk factors	
Cancer of the cervix	C53 (women only)
Cerebrovascular disease	I60–I69
Diabetes mellitus	E10–E14
Heart failure	I50, I51.1, I51.2, I51.4, I51.5
Hypertensive disease	I10–I15
Ischaemic heart disease	I20–I25
Renal failure	N17–N19
Rheumatic and other valvular heart disease	I00–I09, I33–I37
Selected invasive infections	A38–A41, A46, A48.1, G00, G03, J02.0, J13–J16, J18, L03

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Born healthy and strong

2

Summary

Target

The target associated with Outcome 2 in the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander babies of a healthy birthweight to 91% by 2031.

Background

- Birthweight is a key indicator of infant health and a principal determinant of a baby's chance of survival and good health.
- Babies with a low birthweight are more likely to experience illness or die in infancy, have poorer development of their mental functioning abilities, and have an increased risk of chronic diseases in adulthood. Low birthweight is also associated with poorer cognitive development.
- The drivers of low birthweight identified in the literature include factors associated with birth, mother's background, health, and health behaviours, such as:
 - preterm births (births at less than 37 weeks of gestation)
 - maternal smoking, alcohol consumption and drug use during pregnancy
 - extremes of maternal age (especially mothers younger than 16 or older than 40)
 - not having timely and regular antenatal visits
 - maternal infections and chronic conditions
 - exposure to environmental factors (for example, indoor air pollution)
 - facing physical, emotional or sexual abuse during pregnancy.
- Having a high birthweight baby has been shown to be associated with factors including (Ng et al. 2010):
 - maternal diabetes
 - pre-pregnancy overweight and obesity
 - education level of the mother (higher education level is protective against having a high birthweight baby).
- Aboriginal and Torres Strait Islander (First Nations) women are at an increased risk for low birthweight and premature births, due to factors that include intergenerational trauma, colonisation, stigma and racism. Racism also affects access to social resources such as education, employment, and stable housing and these factors may moderate or mediate associations between racism and birth outcomes.

Current status

- In 2021, 89.6% (16,444) of liveborn singleton First Nations babies were of healthy birthweight compared with 94.2% of non-Indigenous babies. This proportion has increased from 89% in 2014, however the gap between First Nations and non-Indigenous populations has been relatively consistent over this period.
- In 2021, the proportion of liveborn singleton babies considered to be of low birthweight was about 9.1% among First Nations babies, twice as high as among non-Indigenous babies.
- In 2021, the proportion of First Nations babies born with a healthy birthweight was above the projected 2021 national trajectory point of 89.4%, and above or very close to the 2031 national target in 5 of the 8 states and territories. The highest proportion of healthy

birthweight babies was recorded in Victoria, followed by Tasmania and Queensland; the lowest was recorded in the Northern Territory, Western Australia and South Australia.

- The proportion of First Nations babies of healthy birthweight was considerably lower in *Remote* (86%) and *Very remote* (85%) areas than in non-remote areas (90–91%).
- The proportion of First Nations healthy birthweight babies in 2021 was at or above the projected 2021 national trajectory point of 89.4% in all except the most disadvantaged areas (Index of Relative Socioeconomic Disadvantage [IRSD] first quintile), where about 40% (or 7,300) of First Nations babies live.

Key findings

- Results of the logistic regression analysis show that mother's smoking during pregnancy was associated with statistically significantly lower odds of a healthy birthweight compared with not smoking, controlling for other factors.
- Nationally, the proportion of mothers smoking tobacco any time during pregnancy has fallen, from 43% (6,840 women) in 2014 to 38% (6,950 women) in 2021. This decline was mostly seen in *Major cities* and *Outer regional/Inner regional* areas, while in *Remote and very remote* areas the rate of smoking at any time during pregnancy among mothers of First Nations babies has remained relatively constant over time.
- The proportion of healthy birthweight First Nations babies was over 92% where the mother did not smoke during pregnancy – above the 91% target set for 2031. The rate of a healthy birthweight outcome was also considerably higher where the mother was smoking in the first half of pregnancy, but discontinued in the second half.
- Previous studies have shown that an estimated 37% of low birthweight births among First Nations babies could be attributed to smoking during pregnancy. A large study of over 18,000 babies born to First Nations mothers in New South Wales between 2010 and 2014 suggested that around 27% of perinatal deaths, 26% of preterm births and 48% of small for gestational age outcomes could be attributed to smoking in pregnancy.
- Mother attending antenatal care in the first trimester and having 5 or more visits during pregnancy was associated with increased odds of a healthy birthweight, compared with starting antenatal care after the first trimester and having fewer than 5 visits. The proportion of First Nations births where the mother had her first antenatal visit in the first trimester of pregnancy has increased from about 56% in 2014 to 73% in 2021.
- However, First Nations mothers, on average, access antenatal care later than non-Indigenous mothers and access fewer antenatal visits across their pregnancy. Research has found that poorer access to culturally safe primary health care services with maternal/antenatal services was associated with higher rates of smoking and low birthweight. First Nations women in *Remote and very remote* areas, compared with other remoteness areas, had the lowest levels of access to maternal health services.
- In 2021, the proportion of liveborn singleton First Nations births where the mother attended 5 or more antenatal care visits was about 89%. This proportion has been relatively consistent over time. The proportion of healthy birthweight First Nations babies is considerably higher among those whose mother attended 5 or more antenatal care services throughout the pregnancy (92%) compared with those with fewer than 5 visits (83%).
- Maternal hypertension and underweight are associated with lower odds of a healthy birthweight outcome. Meanwhile, maternal gestational and pre-existing diabetes, and overweight and obesity were found to increase the odds of a healthy birthweight outcome. However, these associations should not be interpreted as protective factors. Despite resulting in a birthweight within a healthy range due to metabolic disbalance,

maternal diabetes is known to increase the risk of diabetes and/or obesity in adulthood for the offspring and cause pregnancy complications. Similarly, overweight and obesity are associated with adverse outcomes both for the mother and the baby.

Key factors

- A number of strategies and approaches have been suggested for improving health outcomes for First Nations mothers and babies:
 - systematic approaches to mitigate socioeconomic disadvantage, improve education and health literacy
 - family-based approaches to improve social and lifestyle factors, such as prevention and cessation of tobacco and alcohol use, supporting social and emotional wellbeing and nutrition
 - better access to and improvement in culturally safe and trusted services both in community-controlled and mainstream sectors
 - particular support to women in rural and remote communities for accessing care
 - continuous improvement of clinical guidelines aimed at meeting the needs of First Nations pregnant women.
- At the community level, interventions include stopping smoking during and after pregnancy; providing perinatal care that is affordable, accessible, culturally appropriate and gender sensitive; and providing mothers with social support.
- To improve healthy birthweight rates in the First Nations population, it is imperative that women, particularly in rural and remote areas, have improved access to, and take up of, culturally appropriate and holistic antenatal care services and programs specifically designed by and for First Nations people.
- These programs have been shown to have a considerable impact on maternal smoking and alcohol use during pregnancy, maternal nutrition and breastfeeding practices, which, in turn, reduce the low birthweight rate, and the incidence of preterm births and child mortality.
- Evidence shows that culturally safe and appropriate models of care that address the needs of First Nations women result in quantifiable improvements in antenatal care attendance, preterm births, birth outcomes, perinatal mortality and breastfeeding practice.
- The successful models of care are based on culturally appropriate and safe care, continuity of care, collaboration between midwives and First Nations health workers, and involvement of senior family members such as grandmothers in the care of pregnant women.
- Investing in health services operated and governed by the First Nations community, such as Aboriginal Controlled Community Health Services, which play an important role in providing culturally appropriate antenatal care to First Nations women, will help progress towards the healthy birthweight outcome, as well as support Priority Reform 2 in the 2020 National Agreement on Closing the Gap, aimed at increasing funding for First Nations programs and services through community-controlled organisations.

2.1 Introduction

Outcome 2 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander children being born healthy and strong.

The target associated with this outcome is increasing the proportion of Aboriginal and Torres Strait Islander babies of a healthy birthweight to 91% by 2031.

Outcome	Aboriginal and Torres Strait Islander children are born healthy and strong.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander babies with a healthy birthweight to 91%.
Indicator	The proportion of Aboriginal and Torres Strait Islander babies with a healthy birthweight.
Measure	Numerator – number of liveborn singleton Aboriginal and Torres Strait Islander babies who weighed between 2,500 and 4,499 grams at birth. Denominator – total number of liveborn singleton Aboriginal and Torres Strait Islander babies.

Birthweight is a key indicator of infant health and a principal determinant of a baby's chance of survival and good health (AIHW 2023). Healthy birthweight is defined as babies who weigh between 2,500 and 4,499 grams at birth (AIHW 2023) – as opposed to low birthweight (less than 2,500 grams) and high birthweight (4,500 grams and over), both of which are associated with increased risk of illness and death from infancy and into adulthood.

Data for this target come from the AIHW National Perinatal Data Collection (NPDC). The analyses in this chapter relate only to live singleton Aboriginal and Torres Strait Islander (First Nations) births and exclude:

- multiple births
- births of less than 20 weeks of gestation
- births where mothers are Australian non-residents, residents of external territories and where state/territory of residence was not stated in records
- births where the Indigenous status of the baby was not stated.

The structure of the rest of this chapter is as follows:

- Section 2.2 presents the current picture and time trends in First Nations healthy birthweight outcome disaggregated by geographic and demographic characteristics and other target indicators.
- Section 2.3 presents broad findings of the literature review.
- Section 2.4 presents the results from the regression modelling and random forest analysis of the factors associated with healthy birthweight using NPDC.

The chapter concludes with a discussion of policy implications in Section 2.5.

2.2 Born healthy and strong target: current picture and time trends

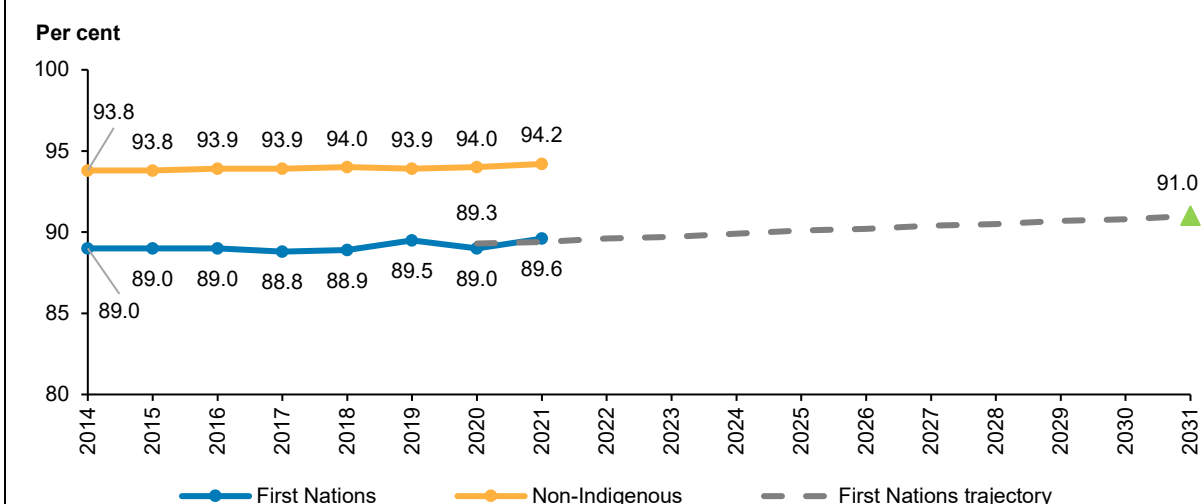
2.2.1 National

In 2021, 303,462 liveborn singleton babies were recorded, of which about 6.0% (18,351) were First Nations babies. This proportion has increased from 5.3% in 2014 due to an increasing number of First Nations births and a decreasing number of non-Indigenous births. In 2021, 89.6% (16,444) of liveborn singleton First Nations babies were of healthy birthweight compared with 94.2% among non-Indigenous babies. This gap has been relatively consistent since 2014 (Figure 2.1; supplementary Table S2.1). The 2021 observed proportion of First Nations births of healthy birthweight was above the 89.4% projected for the trajectory to meet the 2031 target; it was reported that the target shows good improvement, and is on track to be met (Productivity Commission 2024).

In 2021, the proportion of liveborn singleton babies considered to be of low birthweight was about 9.1% among First Nations babies, twice as high as among non-Indigenous babies (4.5%); the proportion of babies considered to be of high birthweight among First Nations and non-Indigenous babies was about the same – 1.3% and 1.2%, respectively (Table S2.2).

In 2031, the number of liveborn singleton First Nations babies is estimated to be 27,620. (based on the medium series projection that First Nations births will be between 25,940 and 29,300 in 2031 [ABS 2011-to-2031] and an assumption that liveborn singleton births account for about 96% of all births). To reach the 91% healthy birthweight outcome, the number of liveborn singleton First Nations babies of healthy birthweight will need to be about 24,230 nationally; this represents about 7,800 additional First Nations births of healthy birthweight in 2031 compared with 2021, or about a 0.14 pp increase in the proportion of healthy birthweight First Nations babies every year between 2021 and 2031.

Figure 2.1: Liveborn singleton babies of healthy birthweight, by Indigenous status, Australia, 2014–2021



Note: The vertical axis starts at 80% for ease of reading the figure. The difference between the categories may thus appear larger than they actually are and must be interpreted together with numeric values (see Table S2.2).

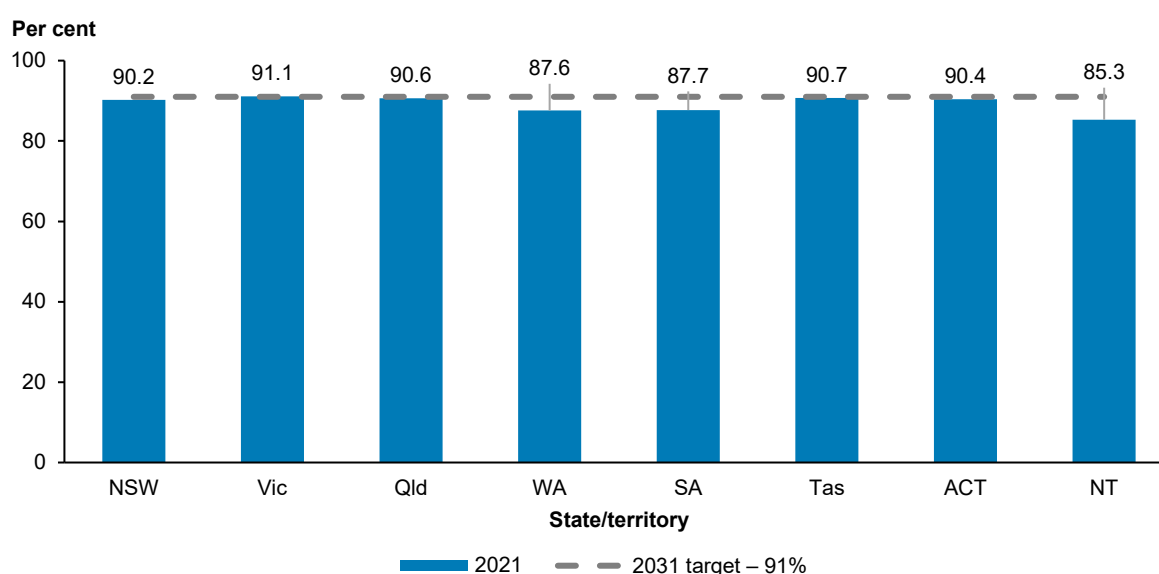
Source: AIHW analysis of National Perinatal Data Collection 2014–2021.

2.2.2 State and territory

Disaggregation of the proportion of babies of healthy birthweight by jurisdiction shows there are differences across the states and territories. In 2021, the proportion of First Nations babies born with healthy birthweight was above the projected 2021 national trajectory point of 89.4%, and, in fact, above or very close to the 2031 national target, in 5 of the 8 states and territories. The highest proportion of healthy birthweight babies was recorded in Victoria (91.1%), followed by Tasmania (90.7%) and Queensland (90.6%) – and the lowest in the Northern Territory (85.3%), Western Australia (87.6%) and South Australia (87.7%) (Figure 2.2; Table S2.3).

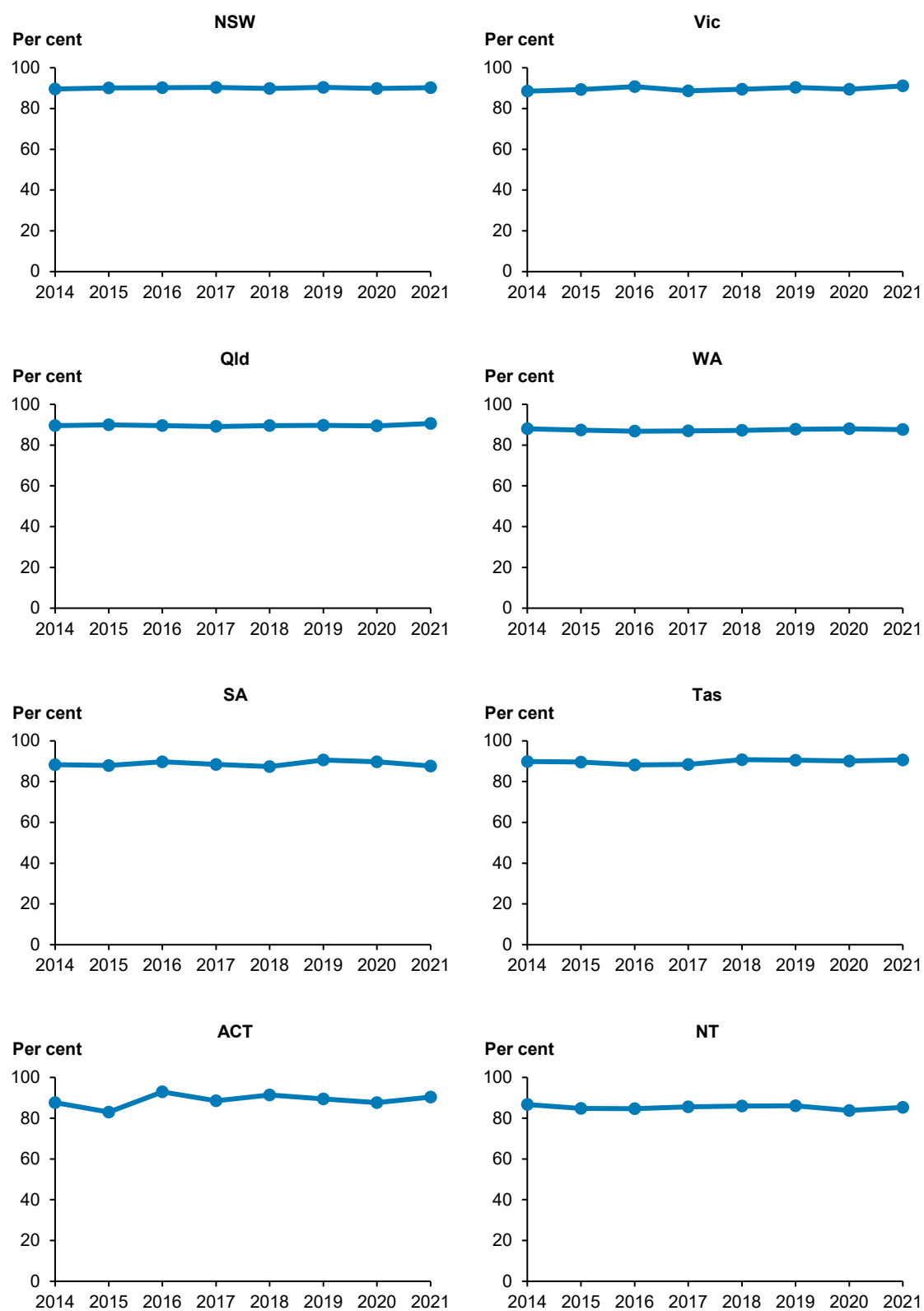
Time trends by jurisdiction show that the proportion of First Nations babies of healthy birthweight has been relatively consistent over time across most jurisdictions, with some variation seen in the Australian Capital Territory, most likely due to smaller numbers of First Nations births. Notably, in 2020, the proportion of First Nations babies of healthy birthweight dropped across all states and territories except Western Australia, with the largest decline seen in the Northern Territory (2.3 pp) (Figure 2.3; Table S2.3). Between 2020 and 2021, the proportion of First Nations babies of healthy birthweight increased in all jurisdictions except Western Australia and South Australia, where it declined.

Figure 2.2: Liveborn singleton First Nations babies of healthy birthweight, by jurisdiction, 2021



Source: AIHW analysis of National Perinatal Data Collection 2021.

Figure 2.3: Liveborn singleton First Nations babies of healthy birthweight, by jurisdiction, 2014–2021



Source: AIHW analysis of National Perinatal Data Collection 2014–2021.

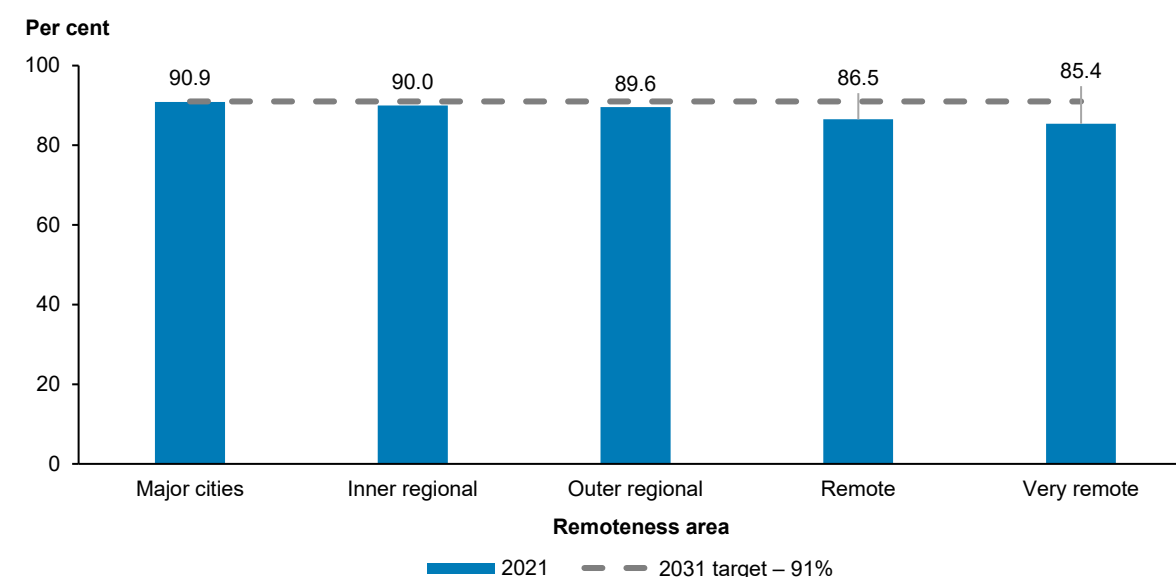
2.2.3 Remoteness area

Analyses of trends show that the proportion of healthy birthweight First Nations babies declines by remoteness. However, the variation is relatively small between *Major cities*, *Inner regional* and *Outer regional* areas, ranging from 91% to 90%, respectively in 2021 (Figure 2.4; Table S2.4). These figures are at or above the projected 2021 national trajectory point of 89.4%. The proportion of First Nations babies of healthy birthweight is considerably lower in *Remote* (86%) and *Very remote* (85%) areas (Figure 2.4).

Between 2014 and 2021, the proportion of First Nations babies of healthy birthweight has increased in *Major cities*, remained stable in regional areas but declined in *Remote* and *Very remote* areas (Figure 2.5; Table S2.4).

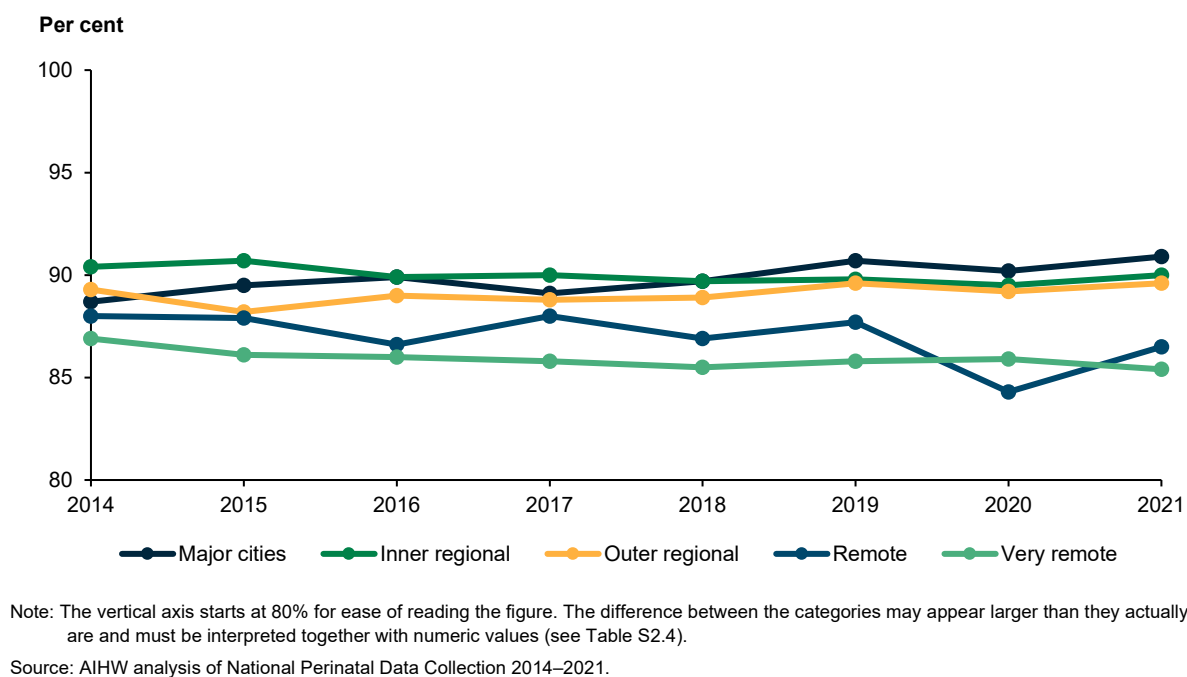
The decline in the proportion of healthy birthweight babies between 2019 and 2020 was seen across all remoteness categories, except *Very remote* areas, with the sharpest decline in *Remote* areas (3.4 pp decline compared with a 0.3–0.5 pp decline in other remoteness areas) (Figure 2.5; Table S2.4).

Figure 2.4: Liveborn singleton First Nations babies of healthy birthweight, by remoteness, 2021



Source: AIHW analysis of National Perinatal Data Collection 2021.

Figure 2.5: Liveborn singleton First Nations babies of healthy birthweight, by remoteness, 2014–2021



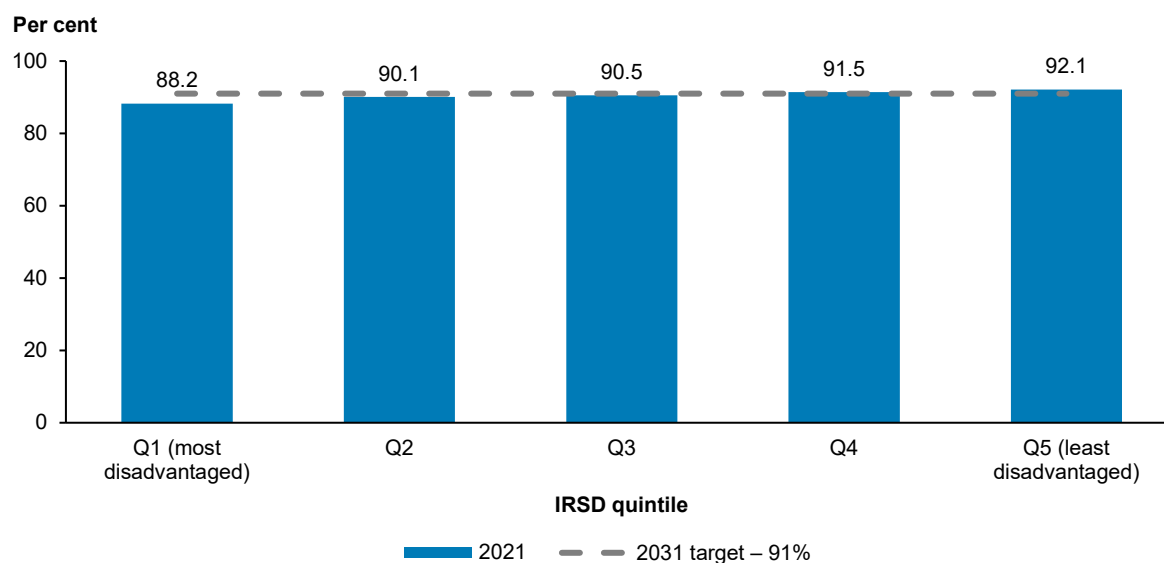
2.2.4 Socioeconomic index

The distribution of the proportion of healthy birthweight babies by the Australian Bureau of Statistics (ABS) derived IRSD quintiles shows that the proportion of healthy birthweight in First Nations babies increases with decreasing levels of disadvantage. The proportion of First Nations healthy birthweight babies in 2021 was at or above the projected 2021 national trajectory point of 89.4% in all except the most disadvantaged areas (IRSD first quintile), where about 40% (or 7,300) of First Nations babies are born. In fact, the proportion of First Nations babies of healthy birthweight was above the 2031 national target of 91% in the least disadvantaged areas in the fourth and fifth quintiles of IRSD (Figure 2.6; Table S2.5).

Across the years, the differences between the proportion of healthy birthweight First Nations babies by IRSD categories has not varied considerably (Figure 2.7; Table S2.5).

In 2020, a 0.5–1.1 pp decline in the proportion was seen across all IRSD categories, except in the least disadvantaged areas (fifth IRSD quintile), where a 2.4 pp increase was recorded. However, this proportion needs to be interpreted with caution considering the small number (about 900 out of 18,350) of liveborn singleton First Nations babies in this category (Figure 2.7).

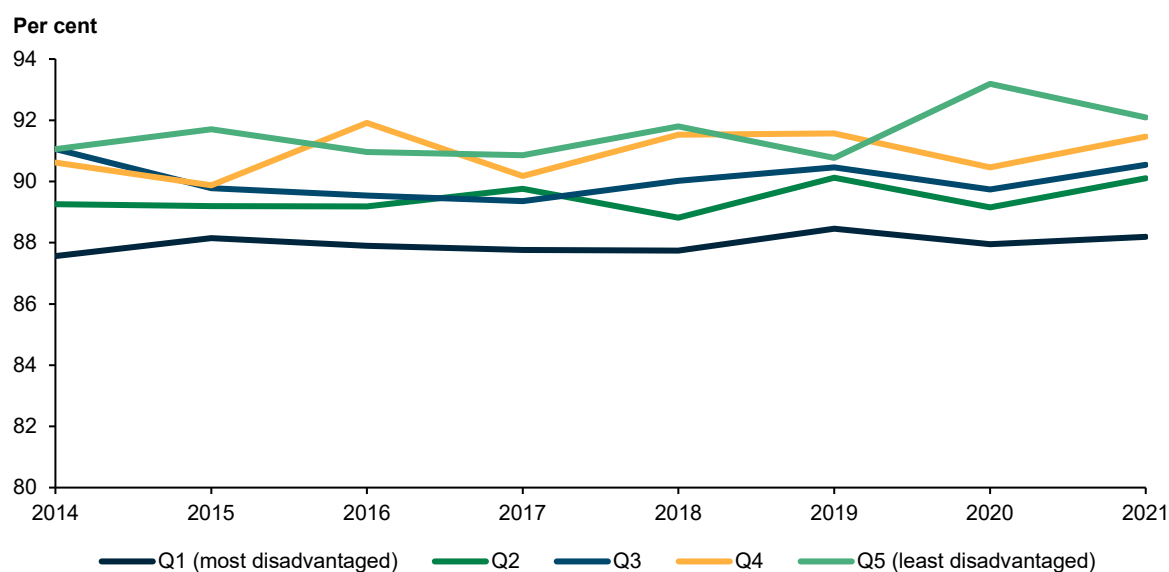
Figure 2.6: Liveborn singleton First Nations babies of healthy birthweight, by IRSD quintile, 2021



Q = quintile.

Source: AIHW analysis of National Perinatal Data Collection 2021.

Figure 2.7: Liveborn singleton First Nations babies of healthy birthweight, by IRSD, 2014–2021



Q = quintile.

Note: The vertical axis starts at 80% for ease of reading the figure. The differences between categories may appear larger than they actually are and must be interpreted together with numeric values (see Table S2.5).

Source: AIHW analysis of National Perinatal Data Collection 2014–2021.

2.2.6 Mother's pre-existing health conditions

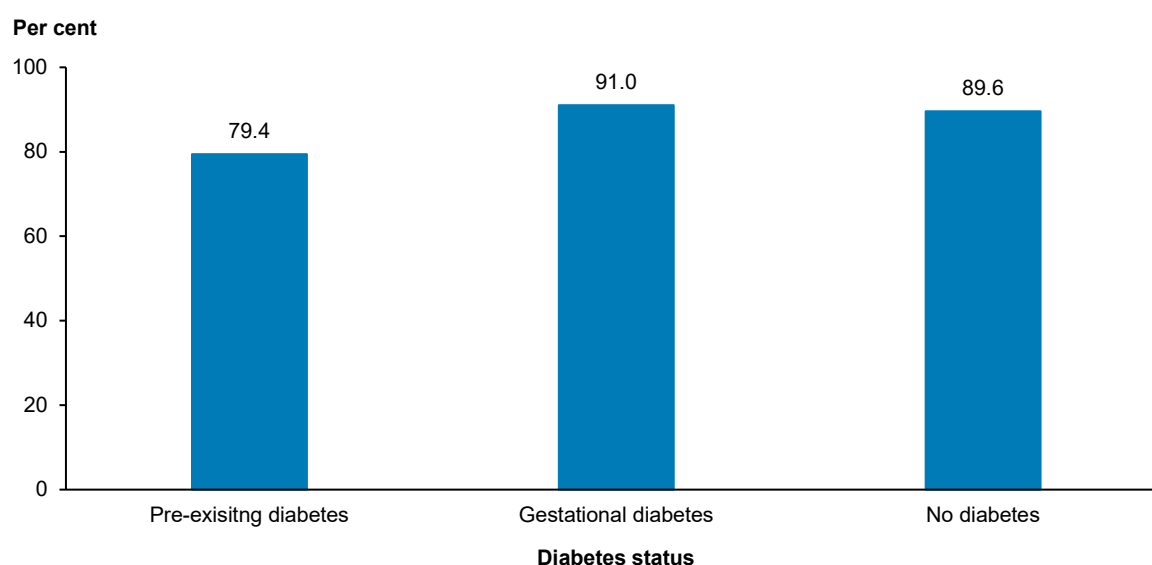
Healthy birthweight is closely linked to a mother's health conditions before and during pregnancy. This section looks into the prevalence of pre-existing health conditions among mothers of First Nations babies and the distribution of healthy birthweight outcome in the presence and absence of these conditions.

Diabetes

About 17% (3,100) of mothers of First Nations babies were recorded as having been diagnosed with diabetes, of which 1.8% had pre-existing diabetes, and 15% had gestational diabetes in 2021 (Table S2.6). The remaining 15,300 mothers of First Nations babies did not have diabetes.

The distribution of healthy birthweight First Nations babies by mother's diabetes status shows that the lowest proportion of healthy birthweight is seen among First Nations babies with mothers who have pre-existing diabetes (79.4% or 260), while the highest proportion (91% or 2,500) is among those with mothers having gestational diabetes (Figure 2.8; Table S2.7). However, these associations should not be interpreted as maternal diabetes having a protective effect. Maternal diabetes is known to increase the risk of diabetes and/or obesity in adulthood for the offspring and cause pregnancy complications.

Figure 2.8: Liveborn singleton First Nations babies of healthy birthweight, by mother's diabetes status, 2021



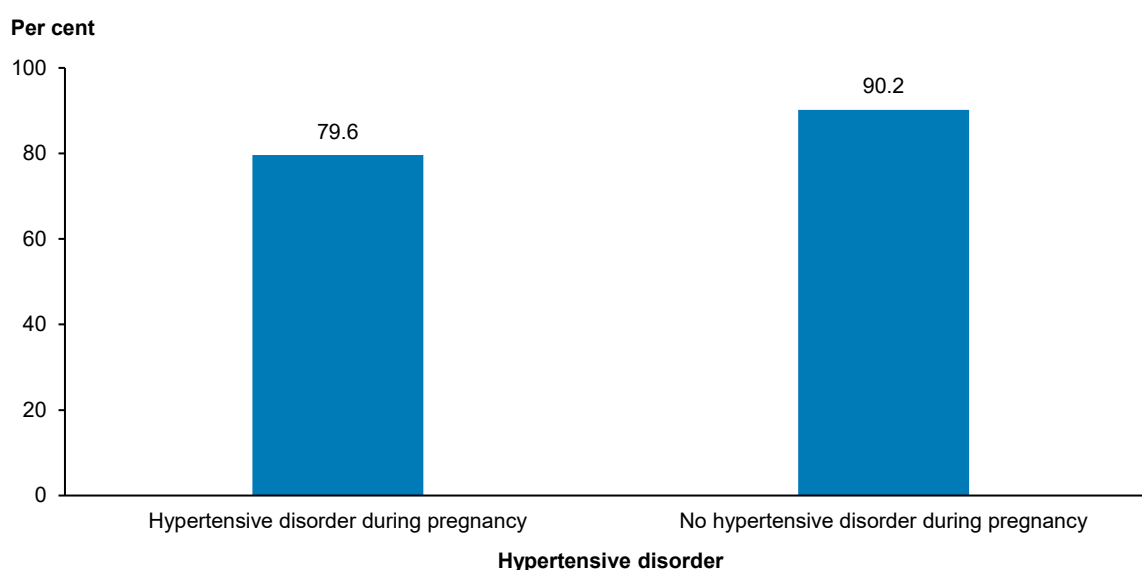
Source: AIHW analysis of National Perinatal Data Collection 2021.

Hypertension

The proportion of mothers of First Nations babies with hypertension was 6.4% (1,170) in 2021 (Table S2.6).

The proportion of healthy birthweight First Nations babies varied considerably by the mother's hypertension status. About 80% (930) of First Nations babies with a mother who had hypertensive disorder had a healthy birthweight, compared with about 90% (15,400) of babies with a mother with no hypertensive disorder (Figure 2.9; Table S2.8).

Figure 2.9: Liveborn singleton First Nations babies of healthy birthweight, by presence of hypertensive disorder among mothers, 2021



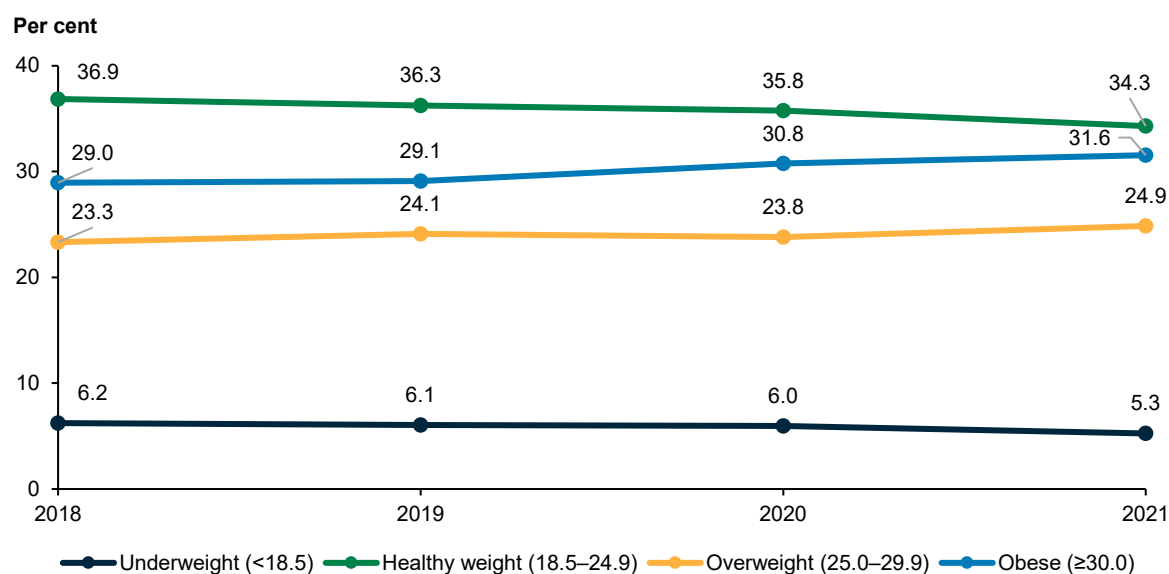
Source: AIHW analysis of National Perinatal Data Collection 2021.

Pre-pregnancy body mass index

BMI indicates your body size. It is calculated using a person's weight and height (weight in kilograms divided by height in metres squared (kg/m^2)). Along with several other factors, like blood pressure and cholesterol, BMI can help estimate a person's risk of various adverse health outcomes. It is important to remember, though, that BMI is not the most reliable measure of whether your weight is in a healthy range for your height. It is not a good overall indicator of how healthy you are, and does not take into account important factors like age, gender and body composition (fat, muscle and bone). Further, it may not be an accurate measure for some ethnic groups, including First Nations peoples (<https://www.heartfoundation.org.au/bmi-calculator>). However, it is a practical and useful measure for identifying overweight and obesity at a population level.

In 2021, the proportion of mothers of First Nations babies that had a healthy pre-pregnancy BMI was 34% (6,300), with about 5% (960) considered underweight, 25% (4,570) considered overweight and 32% (5,800) considered obese (Table S2.15). Over time, the proportion of underweight mothers has been slowly declining, while the proportion of overweight and obese mothers has been increasing (Figure 2.10).

Figure 2.10: Distribution of pre-pregnancy BMI among mothers of First Nations babies, 2016–2021



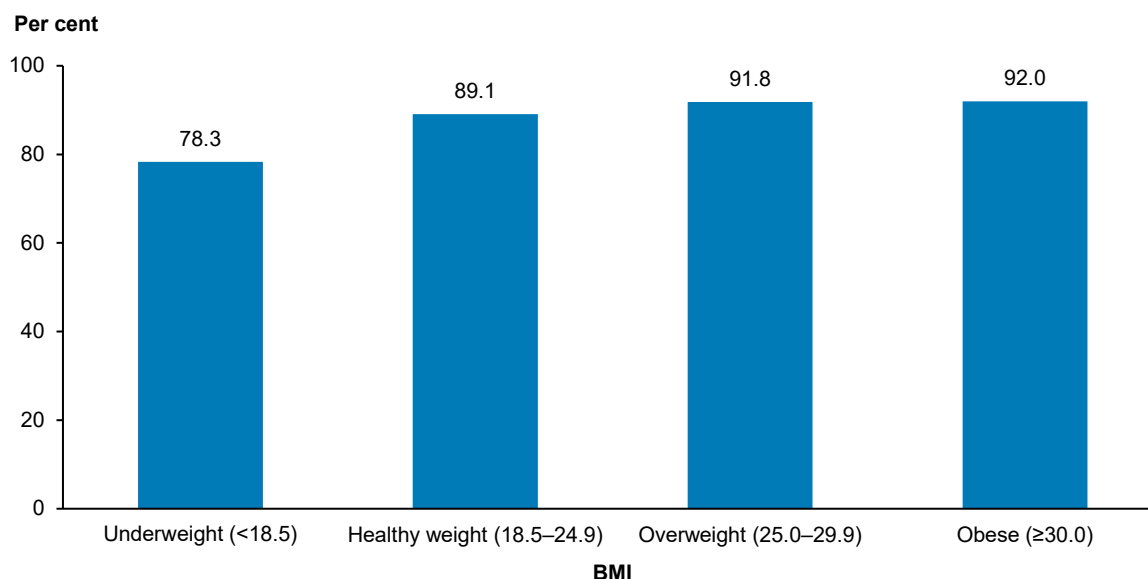
Source: AIHW analysis of National Perinatal Data Collection 2016–2021.

Mother's pre-pregnancy BMI is strongly associated with baby's birthweight: mother being underweight is often associated with low birthweight, while healthy weight, overweight and obese are more often associated with healthy birthweight and high birthweight.

This association is evident in Figure 2.11 (see also Table S2.9). It shows the distribution of the proportion of healthy birthweight First Nations babies by mother's pre-pregnancy BMI in 2021. The lowest proportion was seen if the mother was in the underweight category (78% or 755 babies) – this proportion increased gradually with increasing BMI of the mother. The highest proportion of healthy birthweight babies was seen if the mother had obesity (92% or 5,330 babies).

However, the association between overweight or obesity and healthy birthweight should not be viewed as a protective factor. Women with overweight and obesity are more likely to have larger babies, often increasing the risk of complications during pregnancy and delivery.

Figure 2.11: Liveborn singleton First Nations babies of healthy birthweight, by mother's pre-pregnancy BMI, 2021



Source: AIHW analysis of National Perinatal Data Collection 2021.

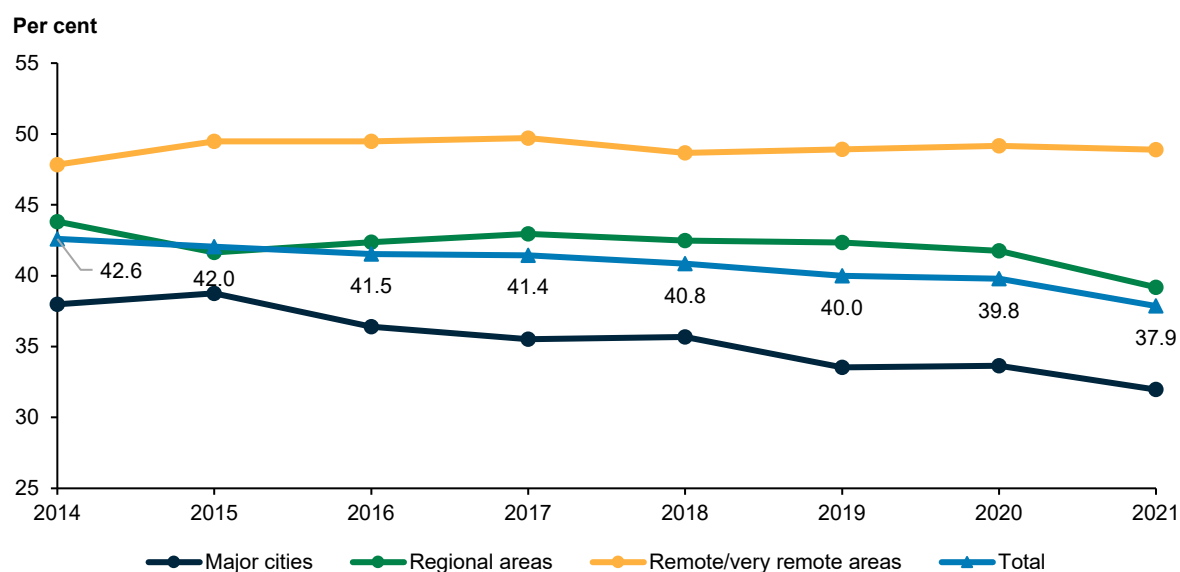
2.2.7 Health behaviour during pregnancy

Healthy birth outcomes can be strongly affected by a mother's risk and protective factors during pregnancy. These may include risk factors such as smoking and alcohol use during pregnancy, as well as protective factors, such as timely and regular antenatal visits during pregnancy. The NPDC includes data on mother's tobacco smoking during pregnancy and antenatal visits. However, data on mother's alcohol use in the NPDC are collected only for Tasmania, the Australian Capital Territory and the Northern Territory, with about 5% not stated in the latter.

Tobacco smoking during pregnancy

The proportion of mothers smoking tobacco any time during pregnancy has been declining nationally – falling from 43% (6,840 women) in 2014 to 38% (6,950 women) in 2021 (Figure 2.12). This decline was mostly seen in *Major cities* (on average, falling by 0.9 pp annually) and regional areas (on average, falling by 0.7 pp annually), while the rate of smoking among mothers of First Nations babies any time during pregnancy in *Remote and very remote* areas has remained relatively constant.

Figure 2.12: Distribution of mothers of First Nations babies smoking at any time during pregnancy, 2014–2021

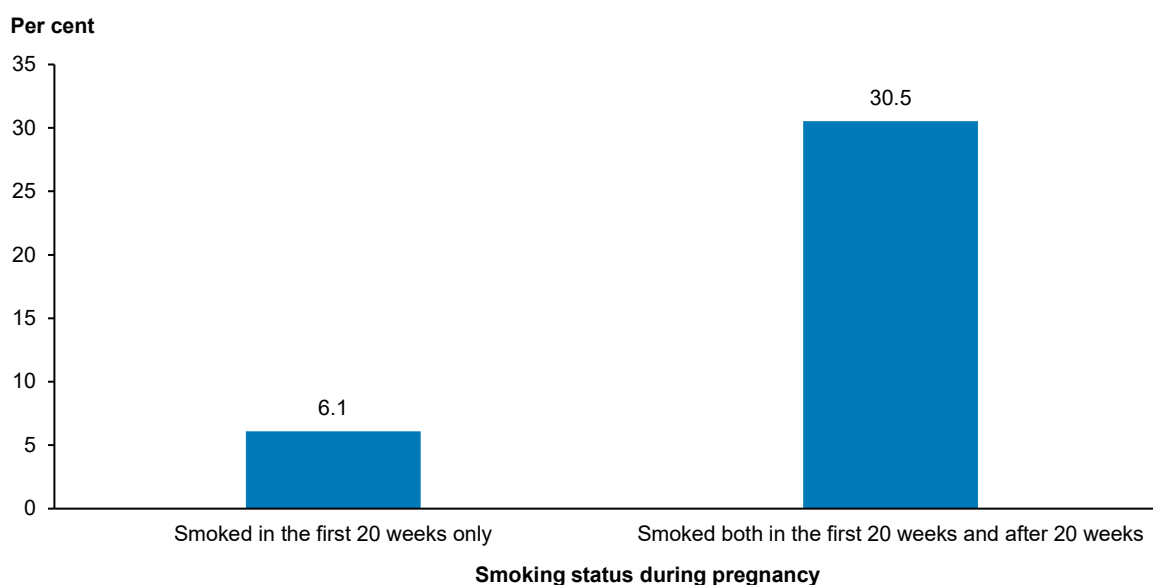


Note: The axis starts at 25% for ease of reading the figure. The differences between the categories appear larger than they actually are and must be interpreted together with numeric values (Table S2.10).

Source: AIHW analysis of National Perinatal Data Collection 2014–2021.

In 2021, 31% (5,600) of mothers of First Nations babies smoked tobacco both in the first 20 weeks and after 20 weeks of pregnancy. Another 6.1% (1,120) smoked only in the first 20 weeks of pregnancy (Figure 2.13; Table S2.11).

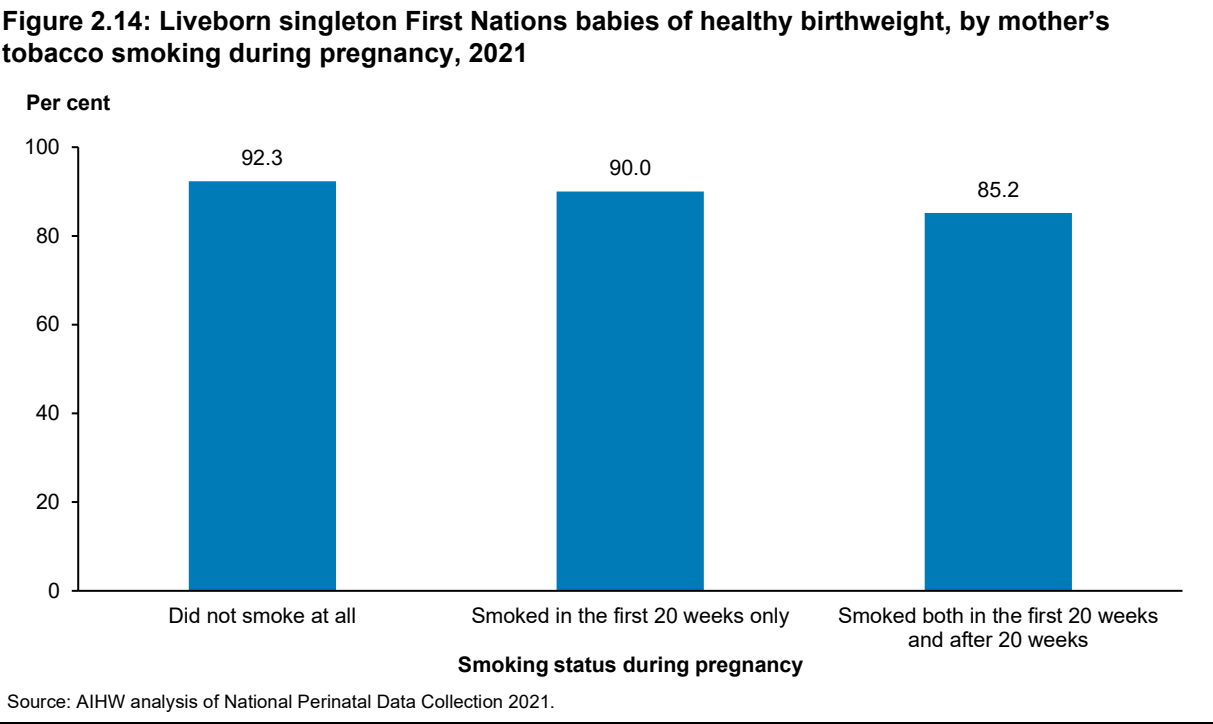
Figure 2.13: Distribution of mothers of First Nations babies smoking, by timing in pregnancy, 2021



Source: AIHW analysis of National Perinatal Data Collection 2021.

The distribution of healthy birthweight outcome by mother's tobacco smoking during pregnancy in 2021 shows that the proportion of First Nations babies with healthy birthweight is lowest if the mother smoked both in the first 20 weeks and after 20 weeks of pregnancy

(85%) (Figure 2.14; Table S2.12). The proportion of healthy birthweight First Nations babies was over 92% where the mother did not smoke during pregnancy, which is above the 91% national target set for 2031. Notably, the rate of healthy birthweight outcome was also considerably higher (90%) where the mother smoked in the first 20 weeks of pregnancy but discontinued after that.



Antenatal care visits

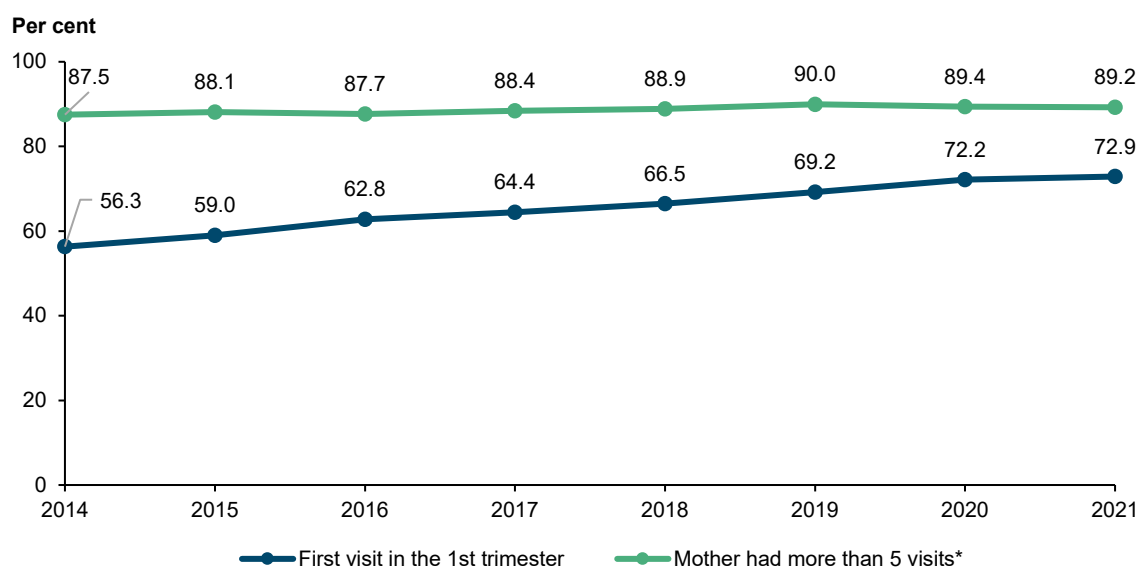
Both timely and regular antenatal visits are important for healthy birth outcomes. The Australian Pregnancy Care Guidelines (Department of Health 2024) recommend that 10 visits are adequate for first pregnancies without complications, and 7 visits for subsequent uncomplicated pregnancies. However, the evidence cited in these guidelines suggest that the number of preterm and low birthweight births are not different between women receiving reduced number of antenatal visits compared to standard care, but some differences were found for perinatal mortality in low- and middle-income countries.

The 2020 National Agreement on Closing the Gap indicates two measures of antenatal care visits as drivers of healthy birthweight outcome. The first measure is having at least one antenatal care visit in the first trimester, and the second is having 5 or more antenatal visits (Productivity Commission 2024).

In 2021, over 99% of mothers of liveborn singleton First Nations babies had at least one antenatal visit during pregnancy, of which 73% had their first antenatal visit in the first 13 weeks (first trimester) of pregnancy. The proportion of First Nations births where the mother had her first antenatal visit in the first trimester of pregnancy has increased on average by about 2.4 pp annually, from about 56% in 2014 to 73% in 2021 (Figure 2.15; Table S2.13).

The proportion of mothers who had 5 or more antenatal visits during pregnancy is reported only for births at the gestational age of 32 weeks or more. In 2021, the proportion of liveborn singleton First Nations births where the mother attended 5 or more antenatal care visits was about 89%. This figure has been relatively consistent over time (Figure 2.15).

Figure 2.15: Liveborn singleton First Nations babies by mother's antenatal care visit number and timing, 2014–2021

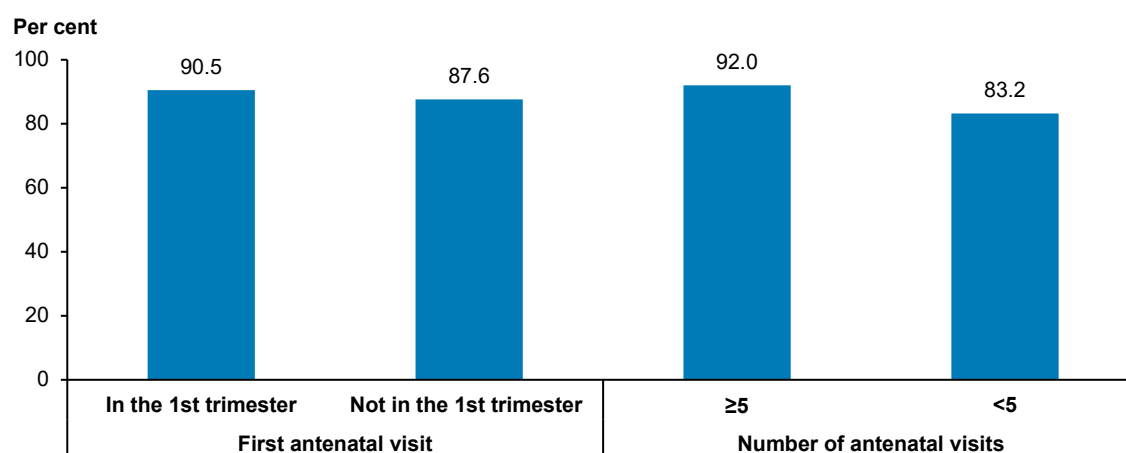


* Includes only mothers of live singleton babies born at 32 weeks of gestational age or more.

Source: AIHW analysis of National Perinatal Data Collection 2014–2021.

The distribution of healthy birthweight babies by the number and timing of the mother's antenatal visits is presented in Figure 2.16 (Table S2.14). It shows that the proportion of First Nations babies of healthy birthweight is higher among those whose mother attended antenatal care in the first trimester than among those mothers who did not – a difference of about 3 pp. The distribution by the number of antenatal visits shows that the proportion of healthy birthweight First Nations babies is considerably higher among those whose mother attended 5 or more antenatal care services throughout the pregnancy (92%) than among those whose mother attended fewer than 5 visits (83%).

Figure 2.16: Liveborn singleton First Nations babies of healthy birthweight, by the mother's antenatal visits, 2021



Source: AIHW analysis of National Perinatal Data Collection 2021.

2.3 Literature review

Birthweight is a key indicator of infant health that determines a baby's chance of survival and good health. Birthweight is the first weight of the baby obtained after birth. Birthweight is reported in 3 categories:

- low birthweight (birthweight less than 2,500 grams)
- healthy birthweight (birthweight between 2,500 and 4,499 grams)
- high birthweight (birthweight of 4,500 grams or more) (AIHW 2023).

Babies with birthweights outside the healthy range are at greater risk of illness, poor development, perinatal death and poorer health in adulthood. The literature on the risk factors and outcomes of birthweight focuses on low or high birthweight separately, as the causes and risk factors associated with them are different. There is a wider range of short-term and long-term adverse health outcomes associated with low birthweight, compared to high birthweight. Low birthweight is also much more prevalent than high birthweight (AIHW 2022). As such, there is less focus on factors for, and outcomes of, high birthweight in the literature.

Babies with a low birthweight are more likely to experience illness or die in infancy, have poorer development of their mental functioning abilities, and have an increased risk of chronic diseases in adulthood (AIHW and NIAA 2022; Barreto et al. 2019). The Barker hypothesis proposes that early life adversity, including poor nutrition and low birthweight, predisposes adults to metabolic abnormalities, non-communicable diseases (such as diabetes, cardiovascular disease, kidney disease) and higher mortality rates (Batchelor et al. 2021). Low birthweight is also associated with poorer cognitive development (WHO 2014).

A high birthweight is associated with an increased risk of adverse maternal outcomes, such as emergency Caesarean section and postpartum haemorrhage; impairment and injury of the newborn; and hypertension, obesity and type 2 diabetes in later life (AIHW and NIAA 2022).

The international literature has identified that birthweight of a baby is influenced by a wide range of factors, including biological, socioeconomic and cultural. The drivers of low birthweight can include:

- factors associated with birth, mother's background, health, and health behaviour such as:
 - preterm births (births at less than 37 weeks of gestation) (WHO 2014) and nulliparity (Shah 2010)
 - maternal smoking, alcohol consumption and drug use during pregnancy (Batchelor et al. 2021; Pereira et al. 2017; see also Patra et al. 2011)
 - timely and regular antenatal visits (which is protective against having a low birthweight baby)
 - maternal pre-pregnancy underweight status (March of Dimes et al. 2012)
 - maternal infections and chronic conditions (WHO 2014)
 - extremes of maternal age (especially mothers younger than 16 years or older than 40) (Batchelor et al. 2021; Lean et al. 2017)
 - exposure to environmental factors (for example, indoor air pollution) (Amegah et al. 2014)
- community risk factors associated with neighbourhood disadvantage, measured by poverty, crime and racial segregation (Ncube et al. 2016).

Having a high birthweight baby has been shown to be associated with factors including:

- maternal diabetes
- pre-pregnancy overweight and obesity
- education level of the mother (higher education level is protective against having a high birthweight baby)
- mother having had a previous pregnancy (Ng et al. 2010).

Many First Nations women have healthy pregnancies that result in healthy birth outcomes. The holistic view of wellbeing in Indigenous cultures contribute to the health, wellbeing and resilience of First Nations women and their families. However, there is a wide range of factors that can increase the risk of adverse outcomes during pregnancy and birth. These factors include the social determinants of health, health behaviours, biomedical risks and poor access to appropriate services. In the next sections, some of the common factors associated with low and high birthweight among First Nations babies are discussed in more detail.

2.3.1 Factors associated with low birthweight

Maternal factors

While most (87%) First Nations babies are born with a healthy birthweight, low birthweight and prematurity are more prevalent among First Nations babies than among non-Indigenous babies (AIHW 2023).

According to a 2022 AIHW report, the most important factors contributing to low birthweight among First Nations babies are the following:

- maternal smoking during pregnancy
- the mother being underweight pre-pregnancy (BMI of less than 18.5)
- the mother's not attending antenatal care in the first trimester (before 14 weeks gestational age) (AIHW 2022).

Smoking and substance use

Maternal smoking during pregnancy (and to a lesser extent, exposure of the mother to second-hand smoke) is associated with increased risk of a range of poor birth outcomes, and health effects on the child in infancy and later life (Colonna et al. 2020). Smoking can compromise the foetal nutrient supply leading to restricted in utero growth (Batchelor et al. 2021).

Analysis of key factors contributing to birthweight among liveborn singleton First Nations births for the period 2017–19 showed that, compared with not smoking, controlling for other factors, smoking:

- throughout pregnancy was associated with 2.5 times higher odds of a low birthweight outcome
- only in the first 20 weeks increased the odds 1.6 times
- only in the second 20 weeks of pregnancy increased the odds 3 times.

The population attributable fraction of smoking during pregnancy based on this analysis was 37%, meaning that an estimated 37% of low birthweight births among First Nations babies can be attributed to smoking during pregnancy (AIHW 2022). A large study of over 18,000 babies born to First Nations mothers in New South Wales between 2010 and 2014

suggested that around 27% of perinatal deaths, 26% of preterm births and 48% of small for gestational age outcomes could be attributed to smoking in pregnancy (McInerney et al. 2019 cited in Colonna et al. 2020).

Smoking during pregnancy was found to increase the risk of preterm birth, small for gestational age and intra-uterine growth restriction in a dose-dependent manner. However, the risks were reduced for those women who quit smoking during pregnancy. While smoking during pregnancy increased the risk of poor perinatal outcomes for both First Nations and non-Indigenous mothers, there was a higher incidence of poor outcomes among First Nations mothers, even after adjusting for confounders (Hodyl et al. 2014).

It has been suggested that reduction in smoking rates would likely be the single most effective intervention for reducing rates of low birthweight (Barreto et al. 2019; Hodyl et al. 2014; see also Batchelor et al. 2021). And while this can be challenging for a number of reasons (Hodyl et al. 2014), tobacco smoking during pregnancy has declined substantially among First Nations women. Of the First Nations women who gave birth in 2009 it was estimated that 52% had smoked during their pregnancy. This proportion had dropped to 44% in 2017 (Colonna et al. 2020). Smoking rates have continued to decline in non-remote areas, with 42% of First Nations mothers smoking during pregnancy in 2019 (AIHW 2022). However, there has not been a statistically significant reduction in smoking rates in remote areas, with 52% of First Nations mothers smoking during pregnancy in 2019 (AIHW 2022).

Similarly, pregnant women consuming cannabis with or without cigarettes have a greater chance of delivering a low birthweight baby (Brown et al. 2016).

Weight status of the mother

Maternal weight is an important predictor of a newborn's healthy weight. The literature suggests that underweight mothers have higher risks of having preterm, low birthweight and small for gestational age births (Barreto et al. 2019; Goto 2017; Liu et al. 2016; Liu et al. 2019). The analyses of 2017–2019 First Nations births suggested that underweight mothers had 1.9 times higher odds of a low birthweight outcome than healthy weight mothers, and that 8% of low birthweight births among First Nations babies were attributable to maternal underweight (AIHW 2022).

Consumption of whole foods, such as fruit, vegetables, low-fat dairy and lean meats, through pregnancy is beneficial in having babies with healthy birthweight. However, there is insufficient evidence that adequate diets, including taking supplements, reduce the risk of low birthweight (Grieger and Clifton 2015).

McDonald et al. (2010) conducted a systematic review and meta-analysis to examine the relation between overweight and obesity in mothers and preterm birth and low birthweight babies. The review included 84 studies (64 cohort studies and 24 case-control studies). The review suggested that overweight and obese women have a lower risk of having a low birthweight baby, with only 3 cohort studies showing that overweight and obese women had an increased risk of having an infant of very low birthweight (<1,500 grams) or an extremely low birthweight (<1,000 grams). However, women with a higher BMI had an increased risk of several other adverse obstetric outcomes.

Antenatal care

Improved access to, and uptake of, First Nations community controlled, culturally safe and appropriate antenatal care services are critical to manage the factors associated with low birthweight outcomes among the First Nations population. A study of First Nations births between 2017–2019 suggested that attending antenatal care in the first trimester was associated with lower odds of a low birthweight outcome and that 4% of low birthweight

outcomes among First Nations births would be eliminated if all mothers attended antenatal care in the first trimester (AIHW 2022). First Nations mothers who attended 5 or more antenatal visits during pregnancy were less likely to have a low birthweight baby (7.2%) than those who attended 2 to 4 antenatal visits (16.9%) or one antenatal visit (24.2%) (AIHW 2022).

Despite the benefits of antenatal visits, First Nations mothers access antenatal care later than non-Indigenous mothers, and access fewer antenatal visits across their pregnancy. Research has found that poorer access to culturally safe primary health care services with maternal/antenatal services was associated with higher rates of smoking and low birthweight. The First Nations women in *Remote and very remote* areas, compared with other remoteness areas, had the lowest levels of access to maternal health services (AIHW and NIAA 2022).

To improve outcomes for First Nations mothers and babies, First Nations women need to have access to antenatal care programs specifically designed by and for First Nations people. Culturally sensitive and holistic antenatal care services also tackle various risk factors, including maternal smoking and alcohol consumption during pregnancy, which, in turn, contribute to reducing the rate of low birthweight, preterm births and child mortality.

The Australian Pregnancy Care Guidelines (Department of Health 2024) provide examples of successful programs of antenatal care implemented throughout Australia that have been shown to improve uptake of care early in pregnancy and throughout pregnancy among First Nations women. These are:

- Midwifery group practice
- Midwifery continuity of care
- Aboriginal Maternity Group Practice Program
- Aboriginal Family Birthing Program
- Aboriginal Maternal and Infant Health Service.

The core elements underpinning these models of antenatal care are culturally appropriate and safe care, continuity of care, collaboration between midwives and First Nations health workers and the involvement of senior family members such as grandmothers in the care of pregnant women.

Another example of a successful model of antenatal care is Birthing on Country, designed by and delivered for First Nations women. The characteristics of services based on Birthing on Country model, essential for successful implementation of the program, include culturally competent service and staff, community-based services integrated within local community health services location intended specifically for women and children, designated ongoing funding, welcoming and safe environment, respect for First Nations people, evidence based high quality care, education and employment for First Nations community members, and a strength-based approach (Kildea et al. 2016a).

The evaluation of these programs have shown that continuity of care and culturally appropriate care help improve health outcomes for First Nations mothers and babies (Kildea et al. 2016b, Massi 2024). For example, the evaluation of the Mums and Babies Program, developed in collaboration with the First Nations community in Townsville, North Queensland in 1999, has shown that the improved access and initial reduction in preterm births over time also translated into a statistically significant decrease in perinatal deaths in this community (Panaretto et al. 2007). The success of this program underscores the importance of perinatal care services that are community based and focused in improving obstetric outcomes, particularly among First Nations populations.

However, many First Nations women rely on mainstream health services, due to a lack of access to such programs. Thus, the importance of integrating cultural competence into ongoing quality improvement efforts within mainstream services are also emphasised (AIHW and NIAA 2022). Improved primary care services, along with ongoing enhancements and increased access to First Nations-led and culturally appropriate antenatal care, have the potential to contribute to maternal and infant health. This underscores the pivotal role that Aboriginal Controlled Community Health Services (ACCHS), operated and governed by the local community, play in guiding culturally secure and responsive health care within their communities.

Social and community factors

Socioeconomic inequality and material deprivation have been suggested to affect health directly or indirectly – for example, through access to medical services and diet (Kogan 1995). Kramer et al. (2001) suggest that the influence of socioeconomic inequality on preterm birth is indirect as it is linked with factors such as education and income which, in turn, are linked to mediators such as nutrition, cigarette smoking and stress that contribute to birth outcomes.

For First Nations people, the social determinants of health also include cultural identity, family support, participation in cultural activities and access to traditional lands (AIHW 2024). All these can contribute to differences in health outcomes between First Nations people and non-Indigenous Australians, including differences in low birthweight and prematurity. First Nations women are at an increased risk for low birthweight and premature births, due to factors that include intergenerational trauma, colonisation, stigma and racism (Gibberd et al. 2019).

Domestic and family violence

Intimate partner violence has a serious impact on women's health, including contributing to complications resulting from babies being born too early or having a low birthweight (Webster 2016). Moreover, intimate partner violence and poor mental health, particularly depression, are strong risk factors for low birthweight (March of Dimes et al. 2012). Murphy and colleagues (2001) conducted a meta-analysis and reported statistically significant associations between women who faced physical, emotional or sexual abuse during pregnancy and low birthweight babies.

Racism and discrimination

Brown and colleagues (2019) describe how cumulative exposure to racism and discrimination increases chronic stress or 'allostatic load', with consequences for health across the life course. Long-term stress causes changes in physiology and the activity of the immune system, and stressed individuals may engage in negative health behaviours (Malat et al. 2017). Racism also affects access to social resources such as education, employment, and stable housing and these factors may moderate or mediate associations between racism and birth outcomes (Brown et al. 2019). A review by Alhusen and colleagues (2016) reported that the majority of studies they reviewed found statistically significant associations between perceived discrimination and the likelihood of low birthweight babies.

Environmental factors

Barreto and colleagues (2019) note there are factors associated with low birthweight that are specific to – or may disproportionately affect – First Nations environmental contexts, such as:

- inadequate waste disposal – which could increase water and soil contamination or inhalation of toxic smoke by expectant mothers when communities dispose of trash by burning it
- rainy season (versus dry season) – which may give rise to food scarcity and higher risks of environmental contamination and infection
- residing in rural and remote areas – for example, Graham and colleagues (2007) – cited in Barreto et al. 2019 – noted there was a higher risk of low birthweight in remote areas due to greater difficulty in access to health services, such as prenatal care.

2.3.2 Factors associated with high birthweight

Maternal factors

Maternal morbidity

The health of women before and during pregnancy is a strong indicator of a healthy birth outcome and the health of the baby.

A large population-based study of First Nations pregnant women during the period 1987 to 2016 found that the rates of gestational diabetes (3.4% in 1987 versus 13% in 2016) and pre-existing diabetes (0.6% in 1987 versus 5.7% in 2016) have increased (Hare et al. 2020). Trends in diabetes were strongly associated with high birthweight and large for gestational age babies. The study could not assess the role of maternal overweight and obesity as these data were not collected in the NPDC. However, Hare and colleagues (2020) noted that another study has shown that maternal hyperglycaemia, independent of obesity, was associated with the risk of having a large for gestational age baby (Maple-Brown et al. 2020, cited in Hare et al. 2020).

Wang and colleagues (2018) in a meta-analysis of 46 publications, explored the relationship between maternal dyslipidaemia (the imbalance of lipids, such as cholesterol, low-density lipoprotein cholesterol, triglycerides, and high-density lipoprotein) and neonatal health outcomes – namely, birthweight, metabolic factors and inflammatory parameters. Dyslipidaemia can result from diet, tobacco exposure or genetics and can lead to cardiovascular disease with severe complications. Studies suggested that maternal high triglycerides and low high-density lipoprotein cholesterol levels throughout pregnancy were associated with large for gestational age births and macrosomia (defined in different ways, including a birthweight greater than 4,000 grams) and lower risk of small for gestational age births. The findings were consistent across study populations, but stronger associations were seen in women who were overweight or obese before pregnancy.

Weight status of the mother

Maternal overweight and obesity has been shown to be associated with having babies that were large for gestational age (birthweight greater than 4,000 grams) and high birthweight (birthweight greater than 4,500 grams) (Grieger and Clifton 2015).

A study of 1,440 babies of mothers who gave birth at one of 3 maternity hospitals in Queensland between 2006 and 2008 found an increased likelihood of a large for gestational age baby if the mother was obese during pre-pregnancy, after adjusting for gestational age and gender (Ng et al. 2010). Ng and colleagues (2010) also note that other studies have shown associations between high birthweight and weight gain during pregnancy in women with maternal diabetes.

Social and community factors

The social and community factors associated with the main risks for having a large for gestational age baby, such as maternal diabetes, obesity or weight gain during pregnancy, include access to culturally safe primary health and antenatal services that can monitor and help manage the risks. Receiving early, regular and culturally safe antenatal care is associated with better health outcomes for First Nations women and their babies. Clinical and non-clinical programs can influence participation in antenatal care services (AIHW 2022).

2.4 Modelling factors affecting healthy birthweight

2.4.1 Multivariate logistic regression results

Model specifications

To assess whether the factors associated with low and high birthweight identified in the literature review are also the factors associated with healthy birthweight in the context of the First Nations Australian population, we conducted logistic regression analysis using the NPDC for the 4-year period between 2018 and 2021. For more information about logistic regression analysis see Appendix A. Data and methods.

The modelled outcome was a binary variable, coded as 1 if the baby was born with a healthy birthweight and as 0 otherwise. While the latter category includes births of both low and high birthweight, the results of the logistic regression mainly represent the odds of being of healthy birthweight versus of being of low birthweight, due to the small number of births in the high birthweight category (slightly over 1%).

The main predictors included the factors associated with healthy birthweight identified in the literature review – such as maternal pre-existing health conditions (including gestational and pre-existing diabetes, hypertension and pre-pregnancy BMI), and factors related to maternal health behaviours (including maternal smoking, and the number and timing of antenatal care visits). While we acknowledge the importance of maternal alcohol consumption for birth outcomes, data on the mother's alcohol consumption during pregnancy are not available for all the years and states in the NPDC and could not be included in the model.

The logistic regression model also controlled for the year in which the baby was born (to control for any unobserved differences between the years), baby's sex, gestational age and parity, maternal age, and whether or not the mother identified as Aboriginal and/or Torres Strait Islander. Community-level controls included state/territory of residence of the mother, remoteness, and socioeconomic index for areas. The analysis was limited to live singleton births, born 20 weeks of gestational age or more to mothers with Australian citizenship and residing in Australia. It was also limited to First Nations babies only, that is babies identified as Aboriginal and/or Torres Strait Islander in NPDC, irrespective of the Indigenous status of their mothers. Some of these babies may therefore have First Nations fathers but non-Indigenous mothers. It is also important to indicate that there is often Indigenous misidentification in data, with the quality of Indigenous identification varying between jurisdictions and over time. The NPDC has not been evaluated for Indigenous misidentification.

The full list of variables included in the model and their distribution by year of collection is presented in Table S2.15.

Model outcomes

The results of the logistic regression are presented in Table 2.1. The odds ratio (OR) values above 1 indicate a positive association with healthy birthweight, and the values below 1, a negative association. Where the test statistic associated with the OR estimate shows a probability value (p) less than 0.05, the effect associated with that OR is considered statistically significant.

The effect of maternal health factors

The outcomes of the logistic regression analysis add to existing evidence that maternal pre-existing health conditions, smoking and the timing of antenatal visits are statistically significantly associated with healthy birthweight outcome.

Compared with not having diabetes, a mother's having gestational diabetes was found to be associated with 1.2 times higher odds, and a mother's pre-existing diabetes was associated with 1.5 times higher odds of being born with healthy birthweight at a statistically significant level ($p < 0.001$), controlling for other factors. While the association is positive in mathematical sense, it must be noted that the observed protective role of gestational and pre-existing diabetes is a false one.

A number of studies have indicated that both pre-existing and gestational diabetes significantly elevate the risk of pregnancy complications and negative outcomes for infants (Eletri and Mitanchez 2022; Heckbert et al. 1988; Wahabi et al. 2014; Weindling 2009; Yessoufou and Moutairou 2011). These studies suggest that women with these conditions are more likely to experience pre-eclampsia and face an increased likelihood of requiring Caesarean delivery. Infants born to mothers with pre-existing diabetes have a greater risk of congenital anomalies compared to those of non-diabetic mothers, and are at higher risk of mortality within the first four weeks and the first year of life. Other complications include macrosomia, alongside metabolic abnormalities, impaired antioxidant status, obesity, diabetes, a disrupted immune system, potential metabolic syndrome in adulthood, and cardiovascular disease (Eletri and Mitanchez 2022; Weindling 2009; Yessoufou and Moutairou 2011).

While infants of women with pre-existing or gestational diabetes may have birthweights within a healthy range due to intrauterine exposure to hyperglycaemia, the latter is widely recognized to increase the risk of, and predispose offspring to, diabetes and/or obesity in adulthood (Weindling 2009).

Maternal hypertension is also found to be statistically significantly negatively associated with healthy birthweight, lowering the odds of a birth of healthy birthweight by about 40% ($OR = 0.59$; $p < 0.0001$) compared with having a mother without hypertension.

It must be acknowledged that some data limitations apply to the measures of maternal diabetes and hypertension in the state of Victoria. In 2019, data on maternal diabetes during pregnancy was available only for about 52% of mothers and data on hypertension was available for about 49% of mothers in Victoria. In order to assess whether these limitations affect the results of the regression analysis, alternative models where the analysis excluded mothers residing in Victoria, or the births in 2019 were assessed. The outcome of these alternative models were very similar to the main model presented here. Since there was no evidence to suggest that mothers with missing diabetes and hypertension data were systematically different from the rest of the sample, it was decided to exclude cases with missing data.

The regression results indicate that maternal pre-pregnancy BMI is strongly associated with infant birthweight, controlling for other factors. A mother being underweight is negatively

associated with the odds of a healthy birthweight outcome (OR=0.54; $p<0.0001$), while a mother being overweight and obese is positively associated with the odds of a birth of healthy weight by about 35–45% (OR=1.35 for overweight and OR=1.45 for obese categories, $p<0.0001$).

It must be noted, however, that the evidence found in literature suggest that maternal obesity poses significant risks for both the mother and foetus, with the level of risk increasing with the severity of obesity and remaining elevated even after accounting for other demographic factors. Many complications are likely linked to the altered metabolic state associated with morbid obesity (Sebire et al. 2001).

For mothers, these adverse outcomes include a higher likelihood of developing gestational diabetes mellitus, hypertensive disorders during pregnancy, urinary and genital tract infections, postpartum haemorrhage, labour induction, and emergency Caesarean delivery. For the baby, the risks include prematurity, stillbirth, macrosomia, birth trauma, respiratory distress, hypoglycaemia, and admission to the neonatal intensive care unit (NICU) (D'Souza et al. 2019; Khashan & Kenny 2009; Sebire et al. 2001; Melchor et al. 2019).

Overweight and obese women are less likely to give birth to underweight infants and more likely to deliver larger babies. While some of these babies may fall within the “healthy birthweight” range, others may exceed the upper limit, placing these women at a higher risk of macrosomia and requiring Caesarean delivery compared to women with a healthy pre-pregnancy BMI. Thus, the positive association found between overweight and obesity and healthy birthweight outcome in this analysis should not be interpreted as a protective factor.

The effect of maternal health behaviours

The number and timing of antenatal visits are found to be strongly associated with a healthy birthweight outcome at a statistically significant level. Compared with the reference category (no antenatal visits or fewer than 5 visits, where the first visit was not in the first trimester), attending 5 or more antenatal visits, where the first visit was either in the first trimester or after the first trimester, statistically significantly increases the odds of a birth of healthy weight by 33–45%, controlling for other factors (OR=1.32 for 5 or more visits with the first visit not in the first trimester, and OR=1.44 for more than 5 visits with the first visit in the first trimester). The association with the outcome of attending first antenatal care in the first trimester (but having fewer than 5 visits) is not statistically significant. Note that the results must be interpreted with caution due to the low number of mothers in this category.

Smoking during pregnancy is negatively associated with a healthy birthweight outcome at a statistically significant level, controlling for other factors. The association is the strongest when the mother smoked throughout the whole pregnancy, reducing the odds of healthy birthweight by 42% (OR=0.58; $p<0.001$), compared with mothers who did not smoke at all. Smoking only in the first 20 weeks of pregnancy decreases the odds of a birth with healthy birthweight by 32%, compared with not smoking, controlling for other factors (OR=0.68; $p<0.001$).

The effect of birth and infant related factors

Preterm birth had a strong inverse association with healthy birthweight. The odds ratio of a healthy birthweight outcome was 0.047 ($p<0.0001$) if the birth occurred at less than 37 weeks of gestational age. This means that a birth at 37 or more weeks of gestational age is associated with 21 times higher odds of a birth of healthy weight compared to a preterm birth. While this was an expected outcome, the association is very strong and may raise questions about whether this association may bias the effect of other variables. An alternative model where the analysis was limited to only full-term births showed very similar results for all variables (results not presented in this chapter).

Female gender and being the first born were also statistically significantly negatively associated with healthy birthweight outcome, each decreasing the odds of a birth of healthy birthweight by about 20% (OR=0.8 for both).

The effect of a mother's demographic characteristics

Whether or not a mother identified as Aboriginal and/or Torres Strait Islander was statistically significantly associated with healthy birthweight outcome. First Nations mothers had 11% lower odds of having a healthy birthweight birth compared to non-Indigenous mothers (OR=0.89). It is important to note that Indigenous status of the mother in this context should not be interpreted as a risk factor in itself. The Indigenous status variable is often a proxy for unobserved differences between First Nations and non-Indigenous mothers in important factors associated with healthy birthweight outcome. These unobserved differences may include factors associated with socioeconomic disadvantage, access to and availability of culturally safe antenatal care services, the quality of the care received, racism and discrimination, and other factors that may systematically vary between First Nations and non-Indigenous mothers but are not available in the data to be included in the model.

Older age of the mother was also negatively associated with the outcome at a statistically significant level, controlling for other factors. Mothers aged 35 or older at time of birth had 0.82 times lower odds of having a birth of healthy birthweight compared to mothers aged 25 or below.

The effect of geographic factors

Compared with New South Wales, no statistically significant differences were observed between states and territories.

Mother's usual place of residence in *Remote* and *Very remote* areas, compared with *Major cities*, was associated with statistically significantly lower odds of a healthy birthweight outcome (OR=0.78 for *Remote* and OR=0.85 for *Very remote* areas).

Compared with the most disadvantaged areas (first to third decile of the SEIFA IRSD), living in the least disadvantaged areas (eighth to tenth decile of SEIFA IRSD) was associated with 20% higher odds of a healthy birthweight outcome (OR=1.20; $p<0.01$), controlling for other factors.

Table 2.1: Logistic regression predicting the odds ratios of a birth with a healthy weight among liveborn, singleton First Nations babies, 2018–2021

Independent variables	Odds ratio	p-value
Year (Ref. 2018)		
2019	1.019	0.655
2020	0.967	0.422
2021	1.012	0.776
Born at less than 37 weeks of gestational age (preterm) (Ref. full term)	0.047	<.0001
Female (Ref. male)	0.804	<.0001
Parity: First born (Ref. not first born)	0.804	<.0001
Mother identifies as Aboriginal and/or Torres Strait Islander (Ref. Does not identify)	0.889	0.002
Mother's age (Ref. below 25 years)		
25–29 years	0.942	0.118
30–34 years	0.921	0.062
35 plus years	0.818	0.000
Mother's diabetes status during pregnancy (Ref. no diabetes)		
Had gestational diabetes	1.169	0.001
Had pre-existing diabetes	1.461	<.0001
Mother had hypertension during pregnancy (Ref. no hypertension)	0.589	<.0001
Mother's pre-pregnancy BMI (Ref. 18.5–24.9)		
Less than 18.5	0.542	<.0001
25.0–29.9	1.352	<.0001
30.0+	1.450	<.0001
Mother's antenatal visit timing and frequency (Ref. 1st visit not in the 1st trimester and fewer than 5 visits or no visits)		
1st visit in 1st trimester and more than 5 visits	1.444	<.0001
1st visit not in 1st trimester but more than 5 visits	1.323	<.0001
1st visit in 1st trimester but fewer than 5 visits	0.898	0.138
Mother's smoking during pregnancy (Ref. did not smoke)		
Smoked only in the first 20 weeks	0.677	<.0001
Smoked both in the first 20 weeks and after 20 weeks	0.578	<.0001
Mother's state/territory of usual residence (Ref. New South Wales)		
Victoria	1.037	0.547
Queensland	1.070	0.082
Western Australia	1.067	0.221
South Australia	1.016	0.811
Tasmania	1.047	0.688
Australian Capital Territory	0.769	0.107
Northern Territory	1.069	0.339

(continued)

Table 2.1 (continued): Logistic regression predicting the odds ratios of a birth with a healthy weight among liveborn, singleton First Nations babies, 2018–2021

Independent variables	Odds ratio	p-value
Remoteness area of mother's usual residence (Ref. Major cities)		
Inner regional areas	0.930	0.074
Outer regional areas	0.943	0.168
Remote areas	0.776	<.0001
Very remote areas	0.850	0.010
SEIFA IRSD deciles of mother's usual residence (Ref. deciles 1–3)		
SEIFA IRSD deciles 4–7	0.998	0.944
SEIFA IRSD deciles 8–10	1.203	0.004

Notes

1. Data relate to live births. Data exclude stillbirths and births of less than 20 weeks gestation. Births both less than 20 weeks gestation and less than 400 grams birthweight are not included in the NPDC.
2. Based on Indigenous status of the baby. The number of Indigenous babies includes babies who are identified as Indigenous and whose mother's Indigenous status is non-Indigenous or not stated. This includes, for example, babies identified as Indigenous born to a non-Indigenous mother and an Indigenous father.
3. Includes singleton births only.
4. Data are by geographic area of usual residence of the mother, for mothers usually resident in Australia, whose state/territory of residence was stated.
5. BMI is a ratio of weight and height (kg/m²). It includes not stated category, the effect is not statistically significant, not presented here.
6. Mother's tobacco smoking status during pregnancy is self-reported. It includes not stated category, the effect is not statistically significant, not presented here.
7. The first antenatal visit refers to the first contact with a midwife, medical practitioner or other registered health professional where antenatal care was provided. It does not include a contact if it was to confirm the pregnancy only or those contacts that occurred during the pregnancy that related to other non-pregnancy issues. It does not include a first contact after the onset of labour.
8. Antenatal visits relate to care provided by skilled birth attendants for reasons related to pregnancy. Data recorded about antenatal visits are based on visits recorded in the woman's clinical record and may not include all antenatal visits outside the hospital setting, such as with a general practitioner or private obstetrician. Therefore, caution should be used when interpreting these numbers.
9. Remoteness area is classified according to the ABS 2016 ASGS using Statistical Area level 2 (SA2) as the building block. Remoteness area only calculated where geographic area of usual residence was provided.
10. Socioeconomic status derived by applying the SEIFA Index of Relative Socioeconomic Disadvantage to the area of mother's usual residence. Socioeconomic status of the locality is classified according to the SEIFA: IRSD, 2016 using SA2 as the building block.
11. In 2018 and 2019, 'Not stated' is included with 'No diabetes during pregnancy'. From 2020 onwards, the rates for 'not stated' were able to be reported separately.
12. In 2018 and 2019, 'Not stated' is included with 'No hypertensive disorder during pregnancy'. From 2020 onwards, the rates for 'not stated' were able to be reported separately.

Source: National Perinatal Data Collection.

2.4.2 Random forest analysis

The results of random forest analysis for the regression model are shown in Figure 2.17. For more information about random forest analysis see Appendix A. Data and methods.

These analyses identified preterm birth, which was negatively associated with healthy birthweight, was the most important factor explaining the largest amount of variation in healthy birthweight outcome. The scoring of the rest of the variables were considerably lower compared to the preterm variable and showed only small variation. Based on Method A, a mother's health related factors scored only slightly higher compared to the rest of the variables, while Method B showed state of residency, smoking status and BMI to have slightly higher scores of relative importance compared to the rest of the variables. However, the differences in the scoring of the variables in the two less important groups were very small.

The results of the random forest analysis of the alternative logistic regression analysis – limited only to full-term births and excluding preterm status as a predictor – showed only small differences in relative importance scores of the variables and did not allow hierarchical ordering of the variables (these results are not presented here).

Figure 2.17: Relative importance groupings of variables predicting healthy birthweight, First Nations children, NPDC 2018–2021

Method A	Method B	
Gestational age at birth (preterm status)	Gestational age at birth (preterm status)	More important
Mother's pre-pregnancy BMI	State of residence	
Mother's smoking during pregnancy	Mother's smoking during pregnancy	
Mother's hypertension status	Mother's pre-pregnancy BMI	
Mother's diabetes status		Less important
Gender	Gender	
Parity	Parity	
Mother's age	Mother's age	
Mother identifies as Aboriginal and/or Torres Strait Islander	Mother identifies as Aboriginal and/or Torres Strait Islander	
First antenatal visit in the 1st trimester	Mother's diabetes status	
State of residence	Mother's hypertension status	
Remoteness	First antenatal visit in the 1st trimester	
SEIFA deciles	Remoteness	
	SEIFA deciles	

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: National Perinatal Data Collection 2021.

2.5 Policy implications

One of the outcomes of the 2020 National Agreement on Closing the Gap is that First Nations children are born healthy and strong, and the aim is to increase the proportion of First Nations babies of a healthy birthweight to 91% by 2031. About 89.6% of First Nations babies were born with a healthy birthweight in 2021. There has been a 5 pp gap in the proportion of babies of healthy birthweight between First Nations and non-Indigenous population, and this gap has remained relatively consistent over time.

This chapter examined healthy birthweight trends at the national level and disaggregated by jurisdiction, remoteness, and area-level socioeconomic disadvantage, by mothers' pre-existing health conditions and behavioural factors to identify the largest gaps and areas of advantage.

Large variation in the proportion of First Nations babies of healthy birthweight was found by state and territory, and remoteness. Some states have rates at or above the 2031 national target of 91%, while others are slightly behind. The lowest proportion of babies of healthy birthweight in 2021 was observed in the Northern Territory. Meanwhile, the proportion of babies of healthy birthweight was at or above the projected 2021 national trajectory in *Major Cities*, *Inner regional* and *Outer regional* areas, but below the 2021 national projections in *Remote and very remote* areas. Similarly, the proportion of births of healthy birthweight were above the projected 2021 national trajectory in socioeconomically less disadvantaged areas, but below that in the most disadvantaged areas, where there is a larger concentration of the First Nations population.

Key factors associated with healthy birthweight

The literature review identified that a wide range of factors can increase the risk of adverse outcomes during pregnancy and birth. These include the social determinants of health, health behaviours, biomedical risks and poor access to appropriate services. A mother's pre-existing health conditions (such as diabetes, hypertension and overweight or obesity) as well as health behaviours during pregnancy (such as smoking and antenatal care visits) are important factors associated with healthy birthweight. Our analysis of the NPDC supported the existing evidence on these associations.

The outcomes of the analysis in this chapter show that, controlling for other factors, tobacco smoking during pregnancy was among the strongest predictors of healthy birthweight outcome, particularly when the mother smoked both in the first 20 weeks of pregnancy and after. Comparable results were reported for low birthweight outcomes in a recent AIHW article (AIHW 2022) which suggested the population attributable fraction of smoking during pregnancy was 37%, meaning that if smoking during pregnancy were eliminated, an estimated 37% of low birthweight births among First Nations babies could be prevented. Previous AIHW research indicates that eliminating smoking during pregnancy among First Nations women could prevent 1 in 6 preterm births.

While the prevalence of smoking during pregnancy has been declining nationally, little change in smoking rates during pregnancy has been seen in *Remote and very remote* areas. Moreover, most of the expecting mothers of First Nations babies who smoke during pregnancy, smoke throughout the whole duration of pregnancy. Meanwhile, the lowest proportion of births of healthy birthweight were observed where the mother smoked both in the first 20 weeks of pregnancy and after 20 weeks. The higher prevalence of smoking during pregnancy in remote areas compared with non-remote areas may explain the lower rate of healthy birthweight outcome in remote areas.

The results of the current analysis also add to the evidence suggesting that receiving timely and regular antenatal care is a statistically significant and strong factor positively associated with healthy birthweight outcome among First Nations babies. Previous AIHW research (AIHW 2022) suggests that around 4% of low birthweight births could be prevented if all First Nations mothers attended antenatal care in the first trimester.

There has been a sharp increase in the proportion of mothers of First Nations babies attending first antenatal care in the first trimester; however, the proportion of those who had 5 or more antenatal visits has remained relatively consistent over time. In 2021, the proportion of First Nations births of healthy birthweight was the highest where the mother had 5 or more antenatal visits.

The findings in this chapter also provide evidence that a mother's health and morbidity are significant predictors of baby's birthweight. Maternal hypertension and underweight are associated with lower odds of a healthy birthweight outcome. Meanwhile, maternal gestational and pre-existing diabetes, and overweight and obesity were found to increase the odds of a healthy birthweight outcome. However, these associations should not be interpreted as protective factors. Intrauterine exposure to hyperglycaemia due to maternal diabetes is likely to result in higher birthweight but is also widely known to increase the risk of diabetes and/or obesity in adulthood for the offspring and cause pregnancy complications. Similarly, overweight and obese women are less likely to have underweight babies. However, the adverse outcomes of obesity include higher likelihood of developing gestational diabetes mellitus, hypertensive disorders during pregnancy for women and increase the risk of prematurity, stillbirth, macrosomia and other complications for the baby.

Therefore, the associations between maternal morbidity and birthweight need to be interpreted with caution. In addition, the data used in this chapter did not contain information on whether or not these health conditions are managed or being treated. Further research using linked data could help fill this gap and explore the associations between maternal morbidity and birthweight further.

Strategies for improvement

This chapter showed that despite considerable improvements in major risk factors, such as smoking during pregnancy and early and regular antenatal visits nationwide, there has been little progress in the healthy birthweight outcome set out in the 2020 National Agreement. The progress has been particularly slow in *Remote and very remote* areas and in areas with the highest socioeconomic disadvantage. These findings indicate a need for considerable policy change and intervention to achieve the 2031 target for healthy birthweight.

The Australian Pregnancy Care Guidelines (Department of Health 2024) recommend a number of strategies and approaches to improve the health and wellbeing of First Nations women and their babies. These include:

- systematic approaches to mitigate socioeconomic disadvantage, improve education and health literacy
- family-based approaches to improve social and lifestyle factors, such as prevention and cessation of tobacco and alcohol use, supporting social and emotional wellbeing and nutrition
- better access to and improvement in culturally safe and trusted services both in community-controlled and mainstream sectors
- particular support to women in rural and remote communities for accessing care
- continuous improvement of clinical guidelines aimed at meeting the needs of First Nations pregnant women.

Among these, improved access to culturally safe and holistic antenatal care and programs in rural and remote areas is imperative for driving success in healthy birthweight outcome. There are examples of successful models of care, implemented nationally, that have been shown to improve the uptake of care and pregnancy outcomes among First Nations women. However, many First Nations women do not have access to such programs and rely on mainstream services. Therefore, it is also important to integrate cultural competence into ongoing quality improvement efforts within mainstream services.

To support Closing the Gap efforts, the Commonwealth Closing the Gap Implementation Plan (<https://www.health.gov.au/topics/aboriginal-and-torres-strait-islander-health/how-we-support-health/closing-the-gap-health-measures>) includes a measure aimed at improving the health of First Nations women and babies – the Healthy Mums, Healthy Bubs package, for which the Australian Government is investing \$45 million over 4 years (2021–2025). The package targets:

- growing the maternal health workforce
- redesigning maternity services to reach more pregnant women and support them for longer
- supporting an expansion of the First Nations maternal health workforce, including midwives, maternal health nurses, obstetricians and birth doulas
- supporting training for local First Nations health workers and community members to provide culturally safe childbirth support
- expanding the Australian Nurse–Family Partnership Program from 13 to 15 sites to help to support more women pregnant with a First Nations baby from pregnancy to toddlerhood.

These initiatives are aimed at improving access to, and the availability of, high-quality and culturally safe antenatal care for First Nations women, along with targeted programs to reduce tobacco smoking and improve maternal health. However, they need to focus particularly on remote and most disadvantaged areas in order to improve birthweight outcomes among First Nations babies and achieve the 2031 target.

Health services operated and governed by the First Nations community, such as ACCHS, play an important role in providing culturally appropriate antenatal care to First Nations women. Investing in and expanding services like ACCHS will help progress towards the healthy birthweight outcome, but also support Priority Reforms set in the 2020 National Agreement on Closing the Gap, particularly Priority Reform 2 aimed at increasing funding for First Nations programs and services through community-controlled organisations.

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Early childhood education

3

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Summary

Target

The target associated with Outcome 3 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95% by 2025.

Background

- Aboriginal and Torres Strait Islander (First Nations) children who attend preschool are more likely to be developmentally on track. Participation in preschool programs has shown benefits for children, parents/families and the broader society. It is also amenable to policy interventions.
- High-quality play-based preschool programs provide opportunities for children to develop and practise a range of fundamental skills, such as listening to others, taking turns, sharing, making up games and stories, problem solving, and learning socially acceptable ways of dealing with conflict to help them to transition to primary school and beyond.
- Children who attend a preschool program have better language, literacy, cognitive and problem-solving skills when they enter primary school than their peers who do not; these skills are linked to later academic achievement.
- There is evidence that children from disadvantaged backgrounds may benefit from preschool programs, but the extent and type of benefits depend on the quality and intensity of the programs themselves.

Current status

- The estimated total number of First Nations children enrolled in preschool in the state-specific YBFS cohort increased from 14,573 in 2016 to 18,920 in 2022. This increase is likely due to a combination of 3 factors:
 - an increasing number of First Nations children in the population
 - an increasing likelihood of children identifying as First Nations in the data
 - an increase in the likelihood of being enrolled in preschool.
- According to the official estimates, the proportion of First Nations children enrolled in preschool increased from 77% in 2016 to 99% in 2022 and the target is reported to be on track to be met in 2025. However, caution must be used when interpreting these rates as there is uncertainty in both the numerator and denominator, which means that the true rates may be higher or lower than estimated.
- The estimated proportion of First Nations children enrolled in preschool in the YBFS cohort increased between 2016 and 2022 for every state and territory except the Northern Territory.
- The proportion of services which met or exceeded the quality standards increased from 61% in 2016 to 84% in 2022. A higher proportion of stand-alone preschools than long day care centres met or exceeded the quality standards, although the gap has narrowed since 2016.
- Two of the 3 states with the lowest estimated enrolment rates are those with non-government/mixed models of preschool delivery (New South Wales and Queensland).

Key findings

- While some preschool programs are free, one of the biggest barriers to preschool enrolment is the financial cost involved. The fees are only one component – there are also associated costs, such as transport, food and clothing. Families have to balance the cost of preschool with all their other expenses, including housing.
- Cross-sectional analysis showed that, compared to their counterparts, children were more likely to be enrolled in preschool if they were:
 - older
 - without developmental difficulties
 - spoke only English at home
 - from areas of least disadvantage
 - from areas of lower mobility
 - with a parent who had completed year 10 or above
 - with a parent who had some post-school qualification, and was working.
- The regression analysis in this chapter highlighted the importance of parental education and employment status on First Nations preschool attendance, net of other factors. The findings also showed that children with developmental difficulties were less likely to attend preschool. Further, they demonstrated that preschool attendance varies between states and territories at a statistically significant level, net of child and family characteristics, which reinforces the importance of policy and funding arrangements in affecting this target outcome.

Key factors

- Policy and program interventions can improve preschool enrolments by increasing capacity in geographic areas that have service gaps, promoting the benefits of preschool participation, cutting back costs, and improving cultural safety and engagement with families and communities.
- Considering the role of parental education and employment, improving employment and educational opportunities for First Nations people is likely to improve total preschool participation rates in the long term.
- The statistically significant effect of developmental difficulties on preschool enrolment highlights the need for targeted social policy to support children with developmental difficulties to improve their preschool attendance.
- Preschool enrolment is essentially a service use indicator that is affected by the interaction between ‘supply’ and ‘demand’. Supply factors are, in turn, directly affected by government policy and funding arrangements experienced at local community levels, as well by the availability of a trained workforce. Children can attend preschool only if there is an available place near them. Other relevant supply factors are accessibility, cultural safety, affordability, workforce availability and suitability for an individual child and their family.
- Future research in this area would benefit from data that allowed not only modelling of both supply and demand factors at the individual level but also granular spatial analyses that could rapidly identify areas with service gaps.

3.1 Introduction

Outcome 3 of the 2020 National Agreement on Closing the Gap (National Agreement) is that Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years.

The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95% by 2025.

Outcome	Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years.
Target	By 2025, increase the proportion of Aboriginal and Torres Strait Islander children enrolled in Year Before Full-time Schooling (YBFS) early childhood education to 95%.
Indicator	The proportion of Aboriginal and Torres Strait Islander children in the state-specific YBFS age cohort who are enrolled in a preschool program.
Measure	<i>Numerator</i> – the estimated number of children in the state-specific YBFS age cohort enrolled in a preschool program. <i>Denominator</i> – the estimated number of children in the state-specific YBFS potential population. This proportion is presented as a percentage.

The first 5 years of a child's life (including the antenatal period) are critical for their development across a range of domains. These domains include physical and emotional health, cognitive skills, fine and gross motor skills, ability to self-care and to self-regulate emotions, language and communication, social skills, and the development of safe and secure interpersonal relationships – all of which are associated with positive outcomes across the life course (Centre for Adolescent Health, Murdoch Children's Research Institute 2018; Guhn et al. 2016).

Ensuring that Aboriginal and Torres Strait Islander (First Nations) children get the best start in life is a goal shared by families, communities and governments (NIAA and SNAICC 2021), and has been one of the core elements of the Closing the Gap agenda since the first Council of Australian Governments (COAG) agreement in 2008 (COAG 2012; Australian Government 2020).

The early childhood period (0–5 years) was the focus of 2 main targets in 2008:

- halve the gap in mortality rates for First Nations children under 5 (aged 0–4) (by 2018) – though rates improved over the period, this target was not met (NIAA 2020)
- ensure all First Nations 4-year-olds in remote communities have access to early childhood education within 5 years (by 2013).

In the 2020 National Agreement, the original child mortality target was replaced with a focus on increasing the proportion of First Nations babies born with a healthy birthweight, and a new target for a child development outcome measure was added.

Increasing the proportion of First Nations children participating in early childhood education has remained a key focus throughout, however. The original COAG target expired unmet in 2013. In December 2015, the target was expanded to 95% of all First Nations children enrolled in early education in the YBFS by 2025 (which was also included in the 2020 National Agreement).

3.1.1 What is preschool and why does it matter?

The Closing the Gap outcome 3 refers to children's participation in high-quality, culturally appropriate early childhood education; however, the specific indicator is focused on one key component of the early childhood education and care system: preschool programs.

Box 3.1: What is preschool?

In Australia, a preschool program is defined as a structured, play-based learning program:

- delivered by a qualified teacher
- aimed at children in the year or two before they start full-time schooling.

This definition is the same for all types of institutions that provide a preschool program – whether government funded or privately provided – and for all service settings. Preschool programs are often called early childhood education, early learning or kindergarten (SCRGSP 2022).

The range of services that preschools offer differs across states and territories and between service providers. The entry age also varies slightly across jurisdictions but is generally around 4 years of age.

Preschool curriculums are guided by the Early Years Learning Framework (EYLF), which focuses on the developmental needs, interests and experiences of each child, while considering individual differences. Fundamental to the curriculum is a view that children's lives are characterised by belonging, being and becoming.

Introduced in 2009, the EYLF was being reviewed/updated at the time of writing of this report to ensure it reflected best practice. Potential areas for updating included strengthening First Nations perspectives throughout the framework (including in its vision, principles, practices and outcomes) and replacing cultural competence with cultural responsiveness. One goal was to strengthen the link between the EYLF and the National Quality Framework (NQF) in respect to the importance of First Nations ways of being, knowing and doing, and inclusion (see <https://www.acecqa.gov.au/nqf/national-law-regulations/approved-learning-frameworks> for more information).

Participation in preschool programs has shown benefits for children, parents/families and broader society (AIHW 2015; Phillips 2017; PWC 2014) and is amenable to policy interventions (Nous Group 2020). (In this chapter, 'parents' refers to biological parents [including single parents], social parents and carers.)

Preschool benefits for children

High-quality play-based preschool programs can enhance children's development through a mix of structured individual and group activities and unstructured free play. These provide opportunities to develop and practise a range of fundamental skills, such as listening to others, taking turns, sharing, making up games and stories, problem solving, and learning socially acceptable ways of dealing with conflict to help children transition to primary school and beyond (Sylva et al. 2010; Warren et al. 2016).

The short- and long-term benefits of preschool are well established in the research literature, both in Australia and overseas (for comprehensive reviews, see Productivity Commission 2014 and Warren et al. 2016). In general, children who attended a preschool program were more likely than their peers who did not to have better language, literacy, cognitive and problem-solving skills when they entered primary school, which are then linked to later academic achievement (Harrison et al. 2009; Schweinhart et al. 2005; Sylva et al. 2010; Yoshikawa et al. 2013).

For First Nations children, having attended preschool has been associated with an increased likelihood of being developmentally 'on-track' in the first year of full-time school in all rounds of the Australian Early Development Census (AEDC) (previously the Australian Early Development Index, or AEDI) – even after controlling for other child-, family- and area-level characteristics (for example, AIHW 2018; Biddle and Bath, 2013; Falster et al. 2021; Jorgensen et al. 2017). For more information, see Chapter 4 on the early child development outcome.

While the AEDC provides cross-sectional estimates of the impact of preschool on child development, longitudinal data from the Footprints in Time study (otherwise known as the Longitudinal Survey of Indigenous Children, or the LSIC) shows benefits of preschool attendance on positive cognitive and developmental outcomes for children aged 5 and 7. Longer term effects associated with preschool attendance were also seen, with reduced social-emotional difficulties and increased reading and abstract reasoning skills at later ages (Arcos Holzinger and Biddle 2015).

There is evidence that children from disadvantaged backgrounds may benefit from preschool programs, but the extent and type of benefits depend on the quality and intensity of the programs themselves (Lynch 2005; Magnuson et al. 2004; Pascoe and Brennan 2017; Sylva et al. 2010).

- For example, the Perry Preschool Project is often cited as evidence of the long-term benefits of preschool attendance. However, the program's founders and staff have been clear that the success of the program is due to a high level of investment in a specific curriculum (with an intensive 2-year program, which included home visits) and would not be generally applicable for all preschool programs (Schweinhart et al. 2005).

Preschool benefits for parents/families and broader society

Having their children participate in preschool can provide parents with increased social networks and decreased isolation, connections to other services and resources, and increased time with other children if they have them. Preschool programs (and wrap-around child-care services) also support parents' engagement in employment, education and/or volunteer work (Kellard and Paddon 2016; The Smith Family 2021).

Preschool attendance in Australia is not compulsory. However, the Australian Government and state and territory governments all recognise its benefits. Since 2008, they have committed to increase participation of all children in high-quality education and care under a series of National Partnership Agreements on Universal Access to Early Childhood Education and Care (UANP) (since replaced by the Preschool Reform Agreement, in effect for 2022–2025). Universal access means that every child, in the year before they start full-time schooling, has access to, and participates in a quality early childhood education program.

This program is one that is presented by a qualified early childhood teacher in accordance with the EYLF and the NQF, and delivered:

- for at least 600 hours per year
- in a form that meets the needs of children, parents and community
- at a cost that does not present a barrier to participation.

The estimated number and rates of First Nations children enrolled in preschool have increased since the first Closing the Gap Agreement, but not all eligible children attend preschool in the YBFS. Understanding the factors underpinning the increase and identifying areas where improvements are needed are essential to ensure all First Nations children have access.

This target outcome focuses on the factors associated with, and progress towards, the goal of having 95% of First Nations children enrolled in preschool in the YBFS. It begins with an overview of the preschool system itself, then presents the most recent data on progress towards the target, including variations by state and territory. Attention then turns to the factors that affect preschool enrolment, referencing the results of an analysis of 2021 AEDC data on the child, location and parent variables associated with preschool enrolment. A discussion of additional factors that either enable or hinder preschool enrolment follows.

3.1.2 Preschool system in Australia

State and territory governments are responsible for the delivery of preschool in Australia, but the system itself is complex and rapidly changing. There are variations in the settings in which preschool programs are delivered, how those services are managed and funded, whether children are guaranteed a spot in a preschool in the YBFS, costs to families, and age at entry into (and exit out of) preschool and into primary school (see Appendix 3B for more information).

Preschool programs are delivered within 3 primary types of settings, each of which may be government or non-government (and may be First Nations controlled or mainstream):

- stand-alone preschools
- preschools attached to primary schools
- long day care centres (LDCs – also known as centre-based care), where the program is offered within a broader context of child-care provision. As the main purpose of LDCs is to support parental employment and study, they are open for longer hours and more weeks a year than stand-alone/school-based preschools, which generally follow school hours/school terms. LDCs also generally provide meals. Some children will attend both a stand-alone/school-based preschool and a LDC in the YBFS.

A small number of programs are also delivered in community settings through mobile preschool services or, more recently, through non-face-to-face (for example, video-based) delivery.

States and territories are commonly categorised into 2 groups, based on their predominant models of preschool service delivery:

- government model – where most preschool services are owned, funded and delivered by the state or territory government (Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory). Children may also access preschool programs through an LDC instead of, or as well as, preschool services

- non-government or mixed model – where the state may provide some services, but more often provides support to non-government stand-alone preschools, and where a large number of preschool programs are run within LDCs (New South Wales, Victoria and Queensland). In 2022, New South Wales and Victoria committed to a future change in their models, where they will provide a fully funded extra year of school (for example, preschool) to all children in the YBFS (by 2025 for Victoria, and 2030 for NSW).

For more information on how individual states and territories structure their systems see Nous Group (2020), while information on current and previous funding arrangements can be found at Preschool - Department of Education, Australian Government (<https://www.education.gov.au/early-childhood/preschool>).

Regardless of where they are provided, all preschool programs are governed by a regulatory framework (Appendix 3A).

Preschool providers

In 2022, there were about 13,000 providers of preschool programs across Australia. Of those, one-third were stand-alone preschool services, and the rest were LDCs. There is a great deal of variation across states and territories, reflecting whether there is a predominantly government or non-government model of preschool provision in that jurisdiction. Table 3.1 presents the distribution of the number of preschool services by management type in 2022.

Table 3.1: Preschool services^(a), by management type and setting, 2022

Setting	Management type	State/territory								Total
		NSW	Vic	Qld ^(b)	WA	SA	Tas ^(c)	ACT	NT	
Stand-alone preschool	Government	156	237	194	687	338	151	80	124	1,967
	Non-government	654	919	431	254	22	56	4	7	2,347
Centre based care ^(d)	Government	218	108	23	16	61	12	4	15	457
	Non-government	3,131	1,807	1,727	754	415	121	178	95	8,228
Total		4,159	3,071	2,375	1,711	836	340	266	241	12,999

(a) Includes preschool programs delivered to children aged 3–6. Preschool programs may be delivered by stand-alone preschools, preschools attached to a school or LDCs.

(b) Queensland data include a small number of centre-based day care services providing a preschool program.

(c) In Tasmania, preschool services are not delivered in a centre-based day care setting, but in a school setting.

(d) School-based preschools that provide supplementary centre-based day care services are included in the centre-based day care with preschool category. Some preschools are reclassified to centre-based day care due to collection methodologies.

Source: Productivity Commission 2023 (Report on Government Services Table 3A10).

Fees

Non-government providers set their own fees based on their running costs (and whether they are for-profit or non-profit). They then receive a range of subsidies depending on:

- whether they are LDCs or stand-alone preschools
- their state/territory
- their location
- the number of children they have in the YBFS cohort

- the number of children they have who receive additional equity funding (usually including First Nations children, children from families with low income or from disadvantaged areas, children with disability or additional needs and children with English language needs).

Stand-alone preschools — including those managed by non-government organisations and those managed by government departments (such as those attached to primary schools) – are funded primarily by state/territory governments, with parents sometimes paying additional fees where required. During COVID-19, state/territory governments increased their funding to support both parents and providers.

Under the National Partnership Agreements on Universal Access to Early Childhood Education and care (UANP), the Australian Government provided states/territories with a set amount of funding per child in the YBFS that they could use flexibly to promote universal access and reduce costs. With the new Preschool Reform Agreement in 2022, states/territories will receive a per child funding amount of \$1,340, and the money now must go directly to the preschool provider to reduce fees for each child's family.

How much each individual family pays is then based on their circumstances and number of days/sessions. The bulk of subsidies for families using LDCs is through the child-care subsidy system.

3.1.3 Measuring preschool enrolment – issues and considerations

The indicator used to support this target is defined as the proportion of First Nations children in the state-specific YBFS age cohort who are enrolled in a preschool program.

Calculating the indicator thus requires yearly data on:

- the number of First Nations children in each state and territory currently enrolled in preschool who are in their 'last year' of preschool (that is, YBFS)
- the population of First Nations children in each state and territory who are in the YBFS age cohort. This population is made up of those already in preschool who are in the YBFS, and those not in either preschool or primary school, but who are expected to enter primary school the next year.

In practice, however, it is unknown which individual children (either in preschool or in the population) intend to go to school in the next calendar year (except when they are at the maximum age by which they are required by law to enter primary school).

- For example, when a child has the option of entering school the next year or staying home/in preschool, it is the parents' decision to make. Previous research (Hanly et al. 2019) has shown that, for New South Wales (which has the biggest potential age range for starting school), the children most likely to delay school entry are boys, those from more advantaged families/areas and those with developmental difficulties.

At a collective level, this creates uncertainty in both the numerator and denominator, which, in turn, means that the true rates may be higher or lower than estimated.

This section presents the official estimates of the indicator, noting the cautions discussed earlier, as well as estimates from an alternative approach for comparison.

Official estimates

At the time of writing of this report, the data on the numerator come from the National Early Childhood Education and Care Collection (NECECC), which is incorporated into the Australian Bureau of Statistics' (ABS's) *Preschool education, Australia* publications and data set (ABS 2023a). The denominators are estimates by the ABS, based on a combination of Census data, births data, schools data, and state-based age cut-offs. (More details on how the numerator and denominator are defined and measured are presented in Appendix 3B. See Productivity Commission (2024) for target data specifications.)

As noted in the *Closing the Gap Annual Data Compilation Report July 2023* (Productivity Commission 2023) and the *Closing the Gap Dashboard* (Productivity Commission 2024), caution must be used when interpreting the statistics on the target indicator because:

- the coverage and methodologies in the NECECC differ over time and between states and territories
- the levels of Indigenous identification differ between the data collections, between states and territories, and within data collections over time
- the accuracy of population estimates tend to diminish the further away they are from the Census on which they are based. The denominator estimates use population data based on the ABS 2016 Census of Population and Housing. There are plans to readjust the denominators in the future, using data from the 2021 Census, which would also require back-casting the previous rates (Productivity Commission 2024).

These factors led to an increasing number of states and territories having estimated enrolment rates above 100%, including:

- in 2017, South Australia
- in 2018, Victoria, South Australia, the Australian Capital Territory
- in 2019, Victoria, South Australia, Tasmania, the Australian Capital Territory
- from 2020 onwards, Victoria, Western Australia, South Australia, Tasmania, the Australian Capital Territory.

Enrolment rates over 100% are implausible and as such it is not possible to measure progress towards the goal or to identify areas where there are gaps in either the supply of preschool places or where First Nations children are less likely to be enrolled in preschool.

Alternative estimates

An alternative specification of preschool enrolment rates is also presented for comparison. It keeps the same numerator, but uses a different denominator by taking the number of children who are in their first year of primary school in each calendar year and assigning them as the YBFS cohort in the previous calendar year (Schools denominator). In other words, the number of children in their first year of school in 2023 are assumed to be the YBFS cohort for 2022 (see Appendix 3B for more detail).

The 2 specifications lead to similar denominators in the first year (2016), after which they start to diverge, with the Schools denominator yielding a higher number of First Nations children in the YBFS cohort than in the current specification and a lower number of non-Indigenous children. This leads, in turn, to lower estimated enrolment rates for First Nations children and higher enrolment rates for non-Indigenous children than in the official estimates.

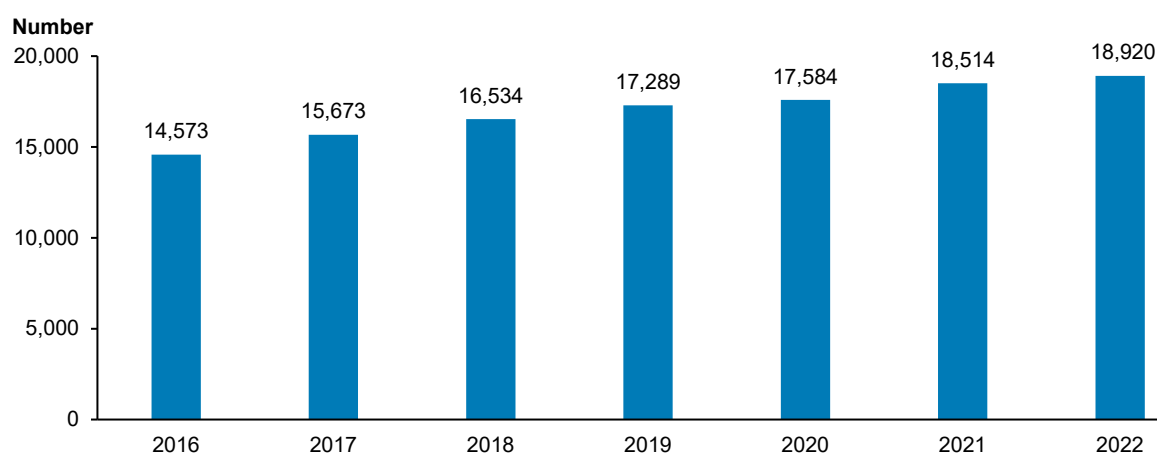
3.2 Early childhood education target: current picture and time trends

3.2.1 National trend

Number of First Nations children enrolled in preschool

The estimated total number of First Nations children enrolled in preschool in the state-specific YBFS cohort increased from 14,573 in 2016 to 18,920 in 2022 (Figure 3.1; supplementary Table S3.1).

Figure 3.1: Number of First Nations children enrolled in preschool in the YBFS, 2016–2022



Source: ABS, cited in Productivity Commission 2023.

The increase in the number of First Nations children enrolled in preschool is likely due to a combination of 3 factors:

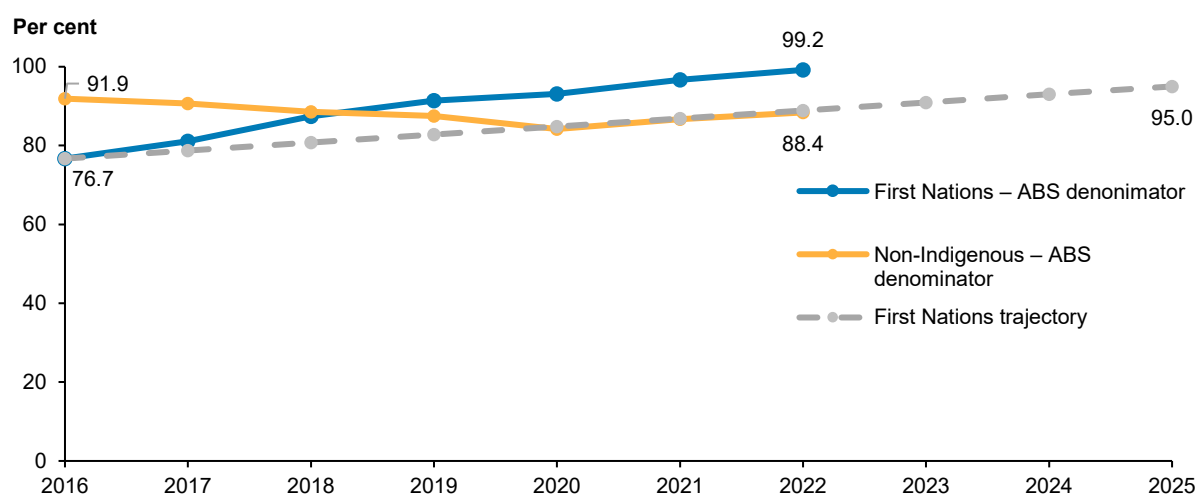
- an increasing number of First Nations children in the population (population growth)
- an increasing likelihood of children identifying as First Nations in the data
- an increase in the likelihood of being enrolled in preschool.

Enrolment rates

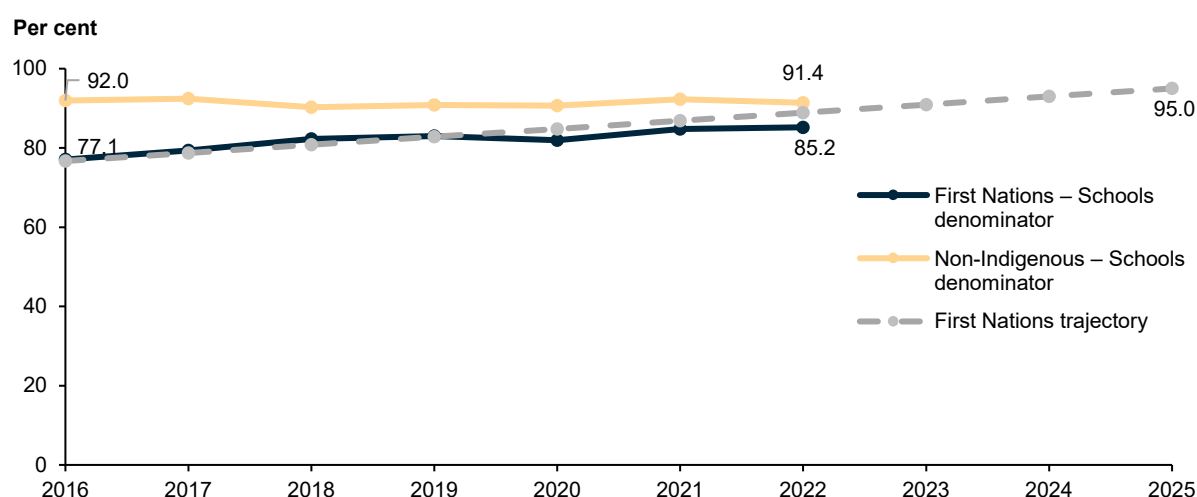
Figure 3.2 presents the yearly estimated enrolment rates for both First Nations and non-Indigenous children for each of the 2 specifications (Table S3.2). Each figure also includes the straight-line trajectory of yearly growth needed to reach the goal of 95% enrolment by 2025 (Productivity Commission 2024).

Figure 3.2: Estimated percentage of children in the YBFS cohort enrolled in preschool, by Indigenous status, trajectory towards the 95% goal, and denominator specification, 2016–2022

(a) Official estimates



(b) Alternative estimates



Sources: Figure (a): ABS, cited in Productivity Commission 2024; Figure (b): numerators from ABS, cited in Productivity Commission 2024; AIHW estimate of denominator from ABS Schools data using TableBuilder.

According to the official estimates (Figure 3.2(a)), the proportion of First Nations children enrolled in preschool increased from 77% in 2016 to 99% in 2022, having surpassed the 95% national target between 2020 and 2021. The pattern for non-Indigenous children differed, with the estimated proportion enrolled in preschool dropping from 92% in 2016 to 88% in 2022 (Productivity Commission 2024).

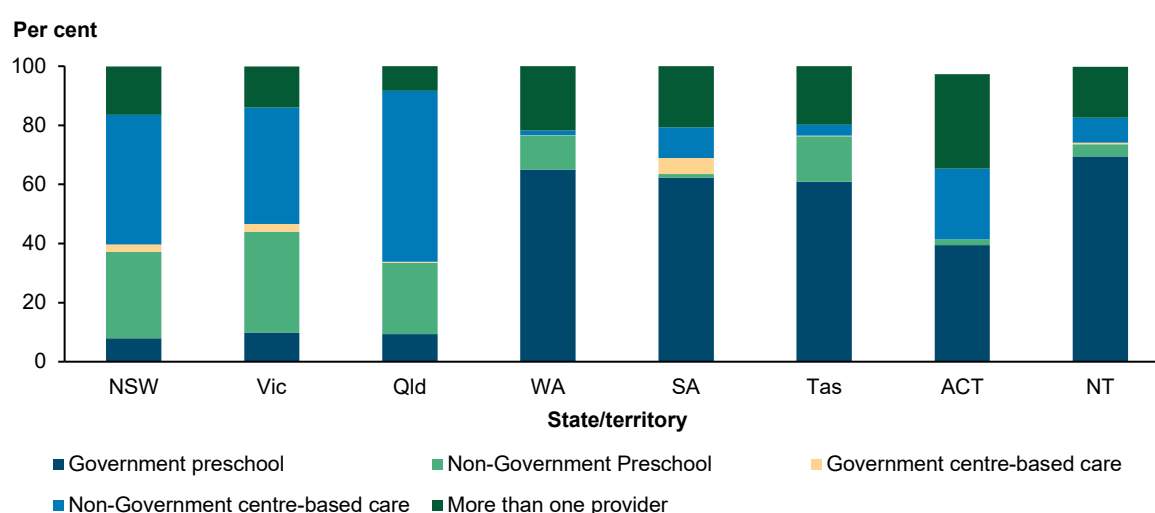
However, the alternative estimates (Figure 3.2(b)) present a different picture, with First Nations enrolment rates rising steadily from 77% in 2016 to 85% in 2022 – below the national trajectory point of 89%. This specification suggests that an additional 753 First Nations children in the YBFS would need to have been enrolled in 2022 for the national trajectory target point of 89% to be met, and an additional 2,175 First Nations children would need to have been enrolled in 2022 for the 95% national target to be met.

The estimated enrolment rates for non-Indigenous children show some small yearly fluctuations and are slightly lower in 2022 than in 2016 (91% compared with 92%).

3.2.2 State and territory

While the national picture is important, it is essential to examine variations by state and territory. As discussed in Section 3.1.2, there are considerable jurisdictional differences in how preschool programs are provided, managed and funded. These differences are evident in Figure 3.3 and Table S3.3, with non-government centre-based care the predominant setting for First Nations children in the YBFS enrolled in preschools in New South Wales, Victoria and Queensland in 2022, and government preschool the predominant setting for those in the remaining states and territories.

Figure 3.3: Percentage distribution of First Nations children in preschool in the state/territory-specific YBFS cohort, by provider setting and management type and jurisdiction, 2022



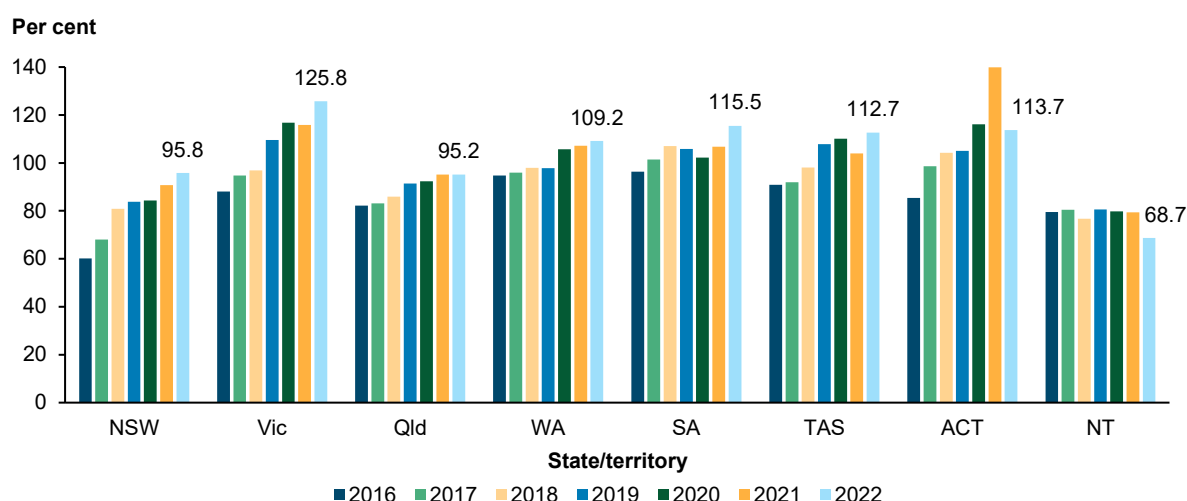
Source: AIHW analysis of ABS preschools collection [TableBuilder].

Figure 3.4 presents time trends in the estimated preschool enrolment rates for First Nations children in the YBFS by state and territory with both sets of denominators. It is important to note that once data are disaggregated by jurisdiction, the numbers for both numerator and denominator in some jurisdictions, particularly Tasmania and the Australian Capital Territory, are relatively small, which means that small changes (or errors) in either the numerator or denominator can lead to large changes in the overall rates.

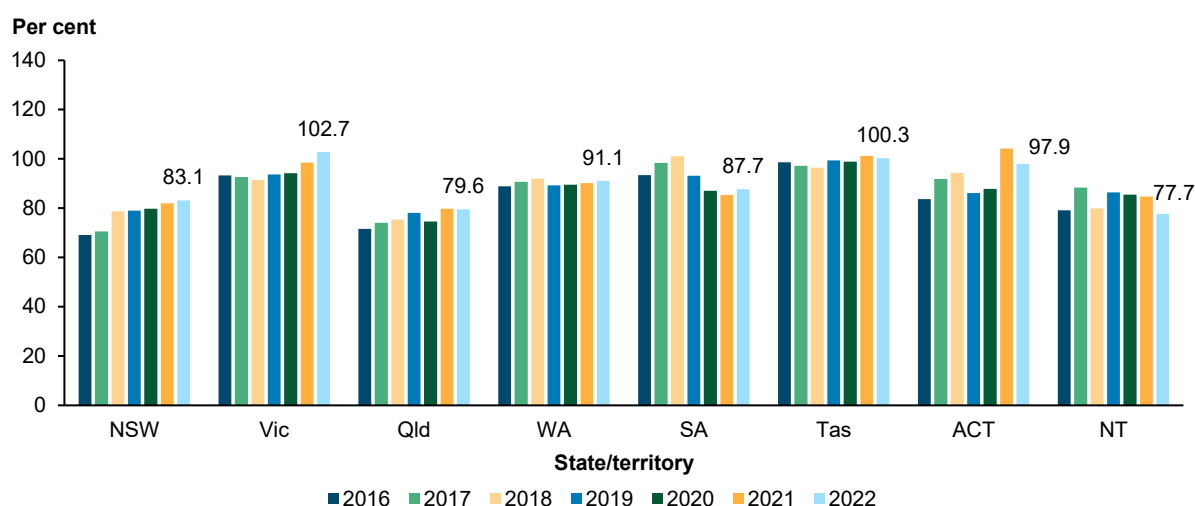
According to the official rates (Figure 3.4(a)), well over 100% of First Nations children in the YBFS in 5 states and territories in 2022 were enrolled in preschool, with the highest rates in Victoria and South Australia. The only jurisdiction that had an estimated rate under the national target goal of 95% enrolment was the Northern Territory, where an estimated 69% of First Nations children in the YBFS were enrolled in preschool in 2022 (a considerable drop from the estimated 79% in 2021). It is not known whether this a real decline or a reflection of underlying data quality issues. The Australian Capital Territory was an extreme outlier in 2021 (with an estimated 140% enrolment rate), but, again, the small numbers and data quality issues need to be taken into consideration.

Figure 3.4: Estimated percentage of First Nations children in the YBFS cohort enrolled in preschool, by state and territory and denominator specification, 2016–2022

(a) Official estimates



(b) Alternative estimates



Sources: Figure (a): ABS, cited in Productivity Commission 2024; Figure (b): numerators from ABS, cited in Productivity Commission 2024; AIHW estimate of denominator from ABS Schools data using TableBuilder.

As with the national rates, the different denominator specifications lead to different patterns at the state and territory level. According to the data using the Schools denominator (Figure 3.4(b)):

- 3 states/territories had enrolment rates already above the national target goal of 95% enrolment (Victoria, Tasmania and the Australian Capital Territory)
- the estimated rates for Victoria and Tasmania are just over 100%, which suggests that there are still data quality or specification issues
- the estimated rates for the Northern Territory are higher than the official rates (78% compared with 69%) and are closer to those of Queensland and New South Wales (which are lower than in the official rates).

In both sets of estimates, 2 of the 3 states with the lowest estimated enrolment rates are those with non-government/mixed models of preschool delivery (New South Wales (95.8%) and Queensland (95.2%)).

To understand the reasons for lower preschool enrolment and attendance rates in the Northern Territory – and improve them, the Northern Territory Government engaged the Nous Group to conduct a review. A discussion paper was released for consultation in mid-2023, and a final report with 14 recommendations for making system level changes has been published (Nous Group 2023).

3.2.3 Enrolment for 600 hours or more

One of the criteria for universal preschool access is that every child in the YBFS cohort has access to and participates in at least 600 hours of preschool per year. Attendance data were not available for all of NSW and Victoria in 2021, Victoria in 2020, and for a large proportion of Queensland services, thus attendance data are not presented here. However, we acknowledge the importance of attendance and the fact that it has already been identified as a data development priority in the Closing the Gap Agreement and the Preschool Reform Agreement. The data on hours of enrolment come from the ABS preschools collection and apply only to those children already in preschool.

In 2016, 93% of First Nations children enrolled in preschool in the YBFS were enrolled for at least 600 hours a year (which equates to 1,033 enrolled for fewer than 600 hours). Since 2017, 97% have been enrolled for at least 600 hours a year. In 2022, 511 First Nations children in preschool were enrolled for fewer than 600 hours (AIHW analysis of ABS preschools data).

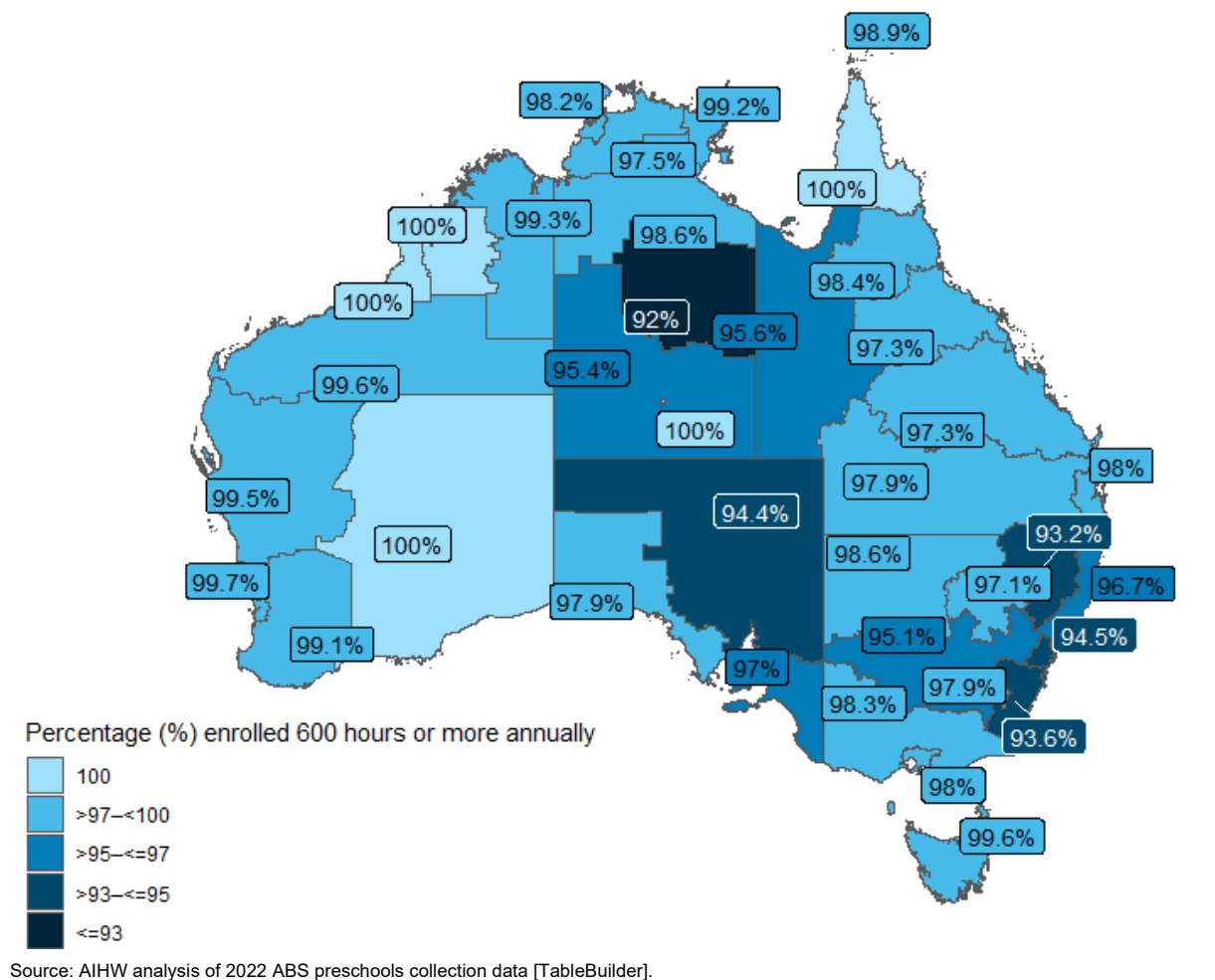
Indigenous Regions

The ABS preschools collection data can be disaggregated to smaller geographic areas, such as IREGs. Figure 3.5 presents the proportion of First Nations children in the YBFS cohort in 2022 who were enrolled for at least 600 hours by IREG (see Table S3.4).

There were 5 IREGs where every First Nations child in the YBFS in preschool was enrolled for at least 600 hours (all in Queensland, Western Australia and the Northern Territory):

- Kalgoorlie (169 First Nations children in the YBFS enrolled in preschool)
- Cape York (155 First Nations children in the YBFS enrolled in preschool)
- Broome (116 First Nations children in the YBFS enrolled in preschool).
- Alice Springs (115 First Nations children in the YBFS enrolled in preschool)
- West Kimberley (94 First Nations children in the YBFS enrolled in preschool)

Figure 3.5: Proportion of First Nations children in YBFS enrolled in preschool for 600 hours or more annually, by IREG, 2022



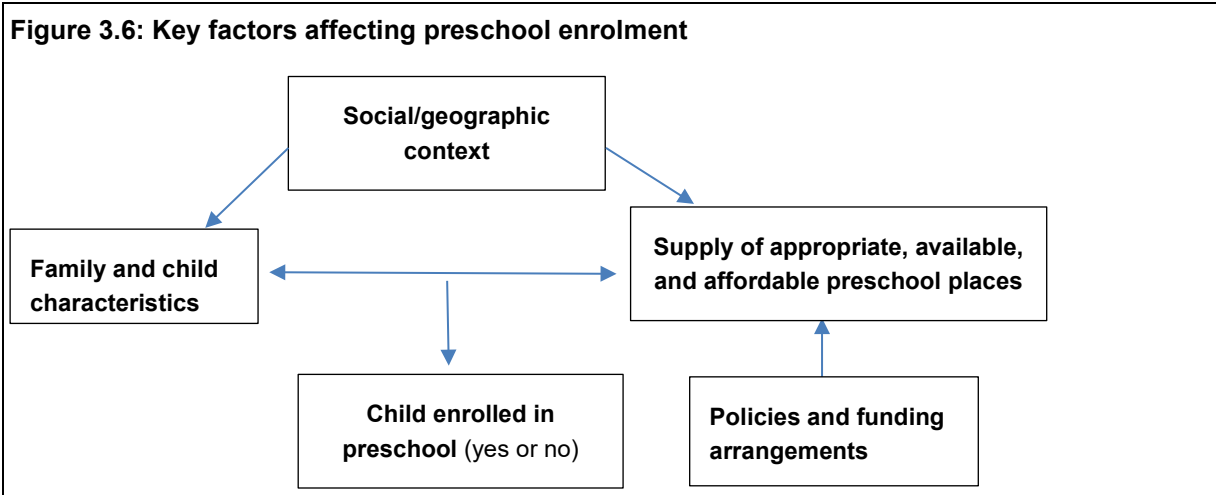
The 5 IREGs with the lowest proportion of First Nations children in the YBFS cohort enrolled in at least 600 hours of preschool annually included:

- Tennant Creek: 92.0% (46 First Nations children in the YBFS cohort enrolled in preschool)
- North-Eastern New South Wales: 93.2% (560 First Nations children in the YBFS cohort enrolled in preschool)
- South-Eastern New South Wales: 93.6% (363 First Nations children in the YBFS cohort enrolled in preschool)
- Port Augusta: 94.4% (220 First Nations children in the YBFS cohort enrolled in preschool)
- Sydney–Wollongong: 94.5% (1558 First Nations children in the YBFS cohort enrolled in preschool).

The potential factors that underpin the variation in preschool enrolment are discussed in Section 3.3.

3.3 Literature review

Unlike most other Closing the Gap targets, preschool enrolment is essentially a service use indicator that is affected by the interaction between ‘supply’ and ‘demand’ factors (Figure 3.6).



3.3.1 Importance of logistical factors

At an individual level, whether a child is enrolled in preschool in the YBFS depends on both whether:

- there is an available spot in a local preschool program that is affordable, convenient, has hours/days that fit the family’s schedule and is culturally appropriate
- and
- the parents/carers are aware of the place, want their child to attend, and have not only the resources to navigate the system and enrol the child but also the transport to get them to preschool (O’Connell et al. 2016; The Smith Family 2021).

Factors such as distance and availability of services are often cited as the reason for lower estimated enrolment rates in *Remote and very remote* areas than in urban and regional areas – as measured by the number of First Nations children in the YBFS cohort per 100 4-year-olds in the community (Productivity Commission 2024).

Supply factors are directly affected by government policy and funding arrangements, which are experienced at local community levels, as well as by the availability of a trained workforce (with the supply of private providers at the local level also being affected by market forces). Research has shown that policy and program interventions can improve preschool enrolments by:

- increasing capacity in geographic areas that have service gaps
- promoting the benefits of preschool participation
- cutting back costs
- improving cultural safety and engagement with families and communities (NIAA 2021; Nous Group 2020; SNAICC 2019).

The process of finding a place and enrolling in a preschool program can be complicated. In qualitative studies including both First Nations and non-Indigenous parents, some respondents reported feeling overwhelmed and discouraged by the process; some were

wary about the amount and types of information required and worried whether it would be kept private or turned over to other government departments. Parents with lower literacy levels or for whom English was a second language found the process particularly daunting, and some felt embarrassment or shame about having to ask for help (Beatson et al. 2022; Kellard and Paddon 2016; The Smith Family 2021). It is important to note that these are systemic issues.

3.3.2 Importance of culturally safe/culturally responsive preschool services

As stated in the Outcome 3 of the Closing the Gap Agreement (see Section 3.1), it is important that First Nations children participate in preschool programs that are of high quality and culturally appropriate. Parents' own experiences with the education system and other government services and the legacies of colonisation may affect their decisions about whether and where to send their children to preschool – cultural inclusion is vital (Brennan et al. 2014; Kellard and Paddon 2016; Krakouer 2016; NIAA and SNAICC 2021; The Smith Family 2021). Families need reassurance that the early learning environment is respectful of their culture and language to fulfil their need for cultural safety in preschool services (Beatson et al. 2022; Harrison et al. 2010).

Often, there is little information available about a preschool's cultural responsiveness. Often, too, there are no First Nations staff at individual services to help parents in their decision-making (although there are often community perceptions about individual services that influence decisions).

The *2021 Early Childhood Education and Care National Workforce Census* (Social Research Centre 2022) collected data from all approved child-care services (Western Australia and South Australia did not participate but provided high-level data) during the reference week of 10–16 May 2021. The final data included nearly 147,000 centre-based day care (CBDC) staff in just over 8000 CBDC services. The findings show that:

- 3% of the CBDC workforce identified as First Nations people
- 60% of CBDCs had at least one First Nations child attend in the reference period
- 22% of CBDCs had at least one First Nations paid contact staff member
- 46% of First Nations children in CBDCs had access to at least one First Nations paid contact staff member.

Dedicated (stand-alone) preschools were invited to participate in the data collection for the Census, but it was not mandatory to do so. Data are presented separately for child-care services and for dedicated preschools, but it is not possible to disaggregate the CBDC data into preschool program/child-care staffing.

Data from the dedicated preschools who participated showed that the proportion of preschool staff who were First Nations ranged from 0.1% in Victoria to 37% in the Northern Territory (excluding Western Australia and South Australia).

Supporting indicator (Indicator SE3b) for the Closing the Gap Agreement is the number of Aboriginal and Torres Strait Islander early childhood education and care service providers. In 2022, there were 108 Aboriginal community controlled First Nations-focused integrated early years services (Table 3.2). There are also other First Nations-specific preschools run by states and territories (and other non-government organisations), as well as First Nations-focused preschools (<https://education.nsw.gov.au/teaching-and-learning/curriculum/early-learning/public-preschools>).

Table 3.2: Aboriginal and Torres Strait Islander community controlled First Nations-focused integrated early years services, by state and territory

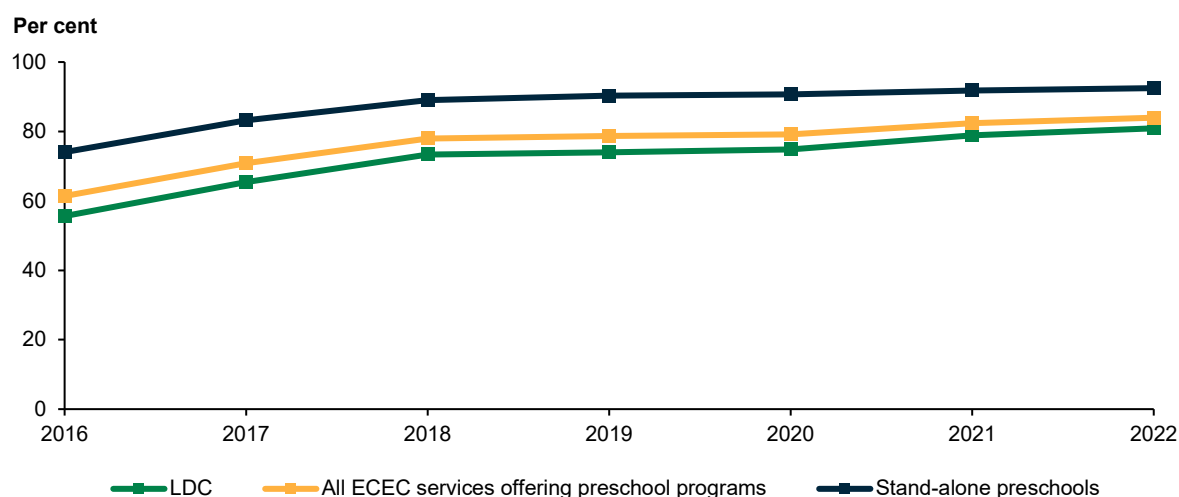
Year	State/territory								Total
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
2016	41	9	20	6	4	2	1	3	86
2017	41	9	21	6	4	2	1	3	87
2018	41	9	22	6	4	2	1	4	89
2019	43	9	22	6	4	2	1	6	93
2020	44	9	22	6	4	2	1	8	96
2021	44	10	22	6	4	2	1	10	99
2022	45	11	26	7	4	2	1	12	108

Source: SNAICC unpublished register; Productivity Commission 2024.

3.3.3 Quality learning environment

The quality of the programs being delivered – and of the service as a whole – is another determining factor for families. These ratings are publicly available and early childhood and education services are required to display them. Under the NQF, the proportion of services that meet or exceed the quality standards rose from 61% in 2016 to 84% in 2022 (Figure 3.7; Table S3.5). A higher proportion of stand-alone preschools than LDCs met or exceeded the quality standards, although the gap has narrowed since 2016. In 2022, about 81% of LDCs met or exceeded the quality standards compared to about 94% of stand-alone preschools.

Figure 3.7: Proportion of services offering preschool programs that met or exceeded quality standards, by service type, 2016–2022



Source: AIHW analysis of Australian Children's Education and Care Quality Authority data. Note that these do not include government provided services in Tasmania or Western Australia.

Additional analyses found that the proportion of services that met or exceeded quality standards in 2022 ranged from:

- 72% in the Australian Capital Territory to 89% in South Australia
- 82% in the most disadvantaged areas to 86% in the least disadvantaged areas (using the ABS derived Index of Relative Socioeconomic Disadvantage, or IRSD)

- 67% in Very remote and 78% in Remote areas to 85% in Inner and outer regional areas and Major cities.

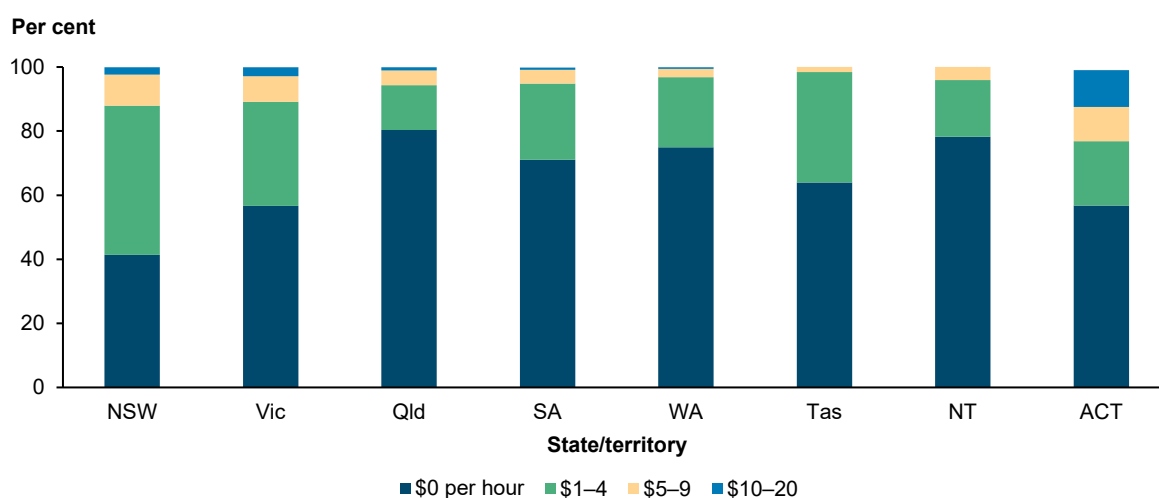
Nearly 100% of programs were delivered by a qualified preschool teacher (Productivity Commission 2022). The exception was the Northern Territory, where the proportion was 75%.

3.3.4 Financial costs

One of the biggest barriers to preschool enrolment is the financial cost. The fees are only one component – there are also associated costs, such as for transport, food and clothing. The cost of preschool needs to be balanced among all family expenses, including housing.

One indicator of the financial cost to families is the breakdown of the per-hour fee that they pay after subsidies have been received (out-of-pocket cost). Nationally, the percentage of families of First Nations children in preschool in the YBFS cohort who pay no fees has slightly increased, from 60% in 2016 to 63% in 2022 (ABS 2023a). This proportion varies between states and territories – in New South Wales in 2022, it was 41% compared with 80% in Queensland. Relatively few First Nations families paid more than \$10 an hour (after subsidies) – 12% of the YBFS cohort in the Australian Capital Territory, 2.8% in Victoria and 2.4% in New South Wales (Figure 3.8; Table S3.6).

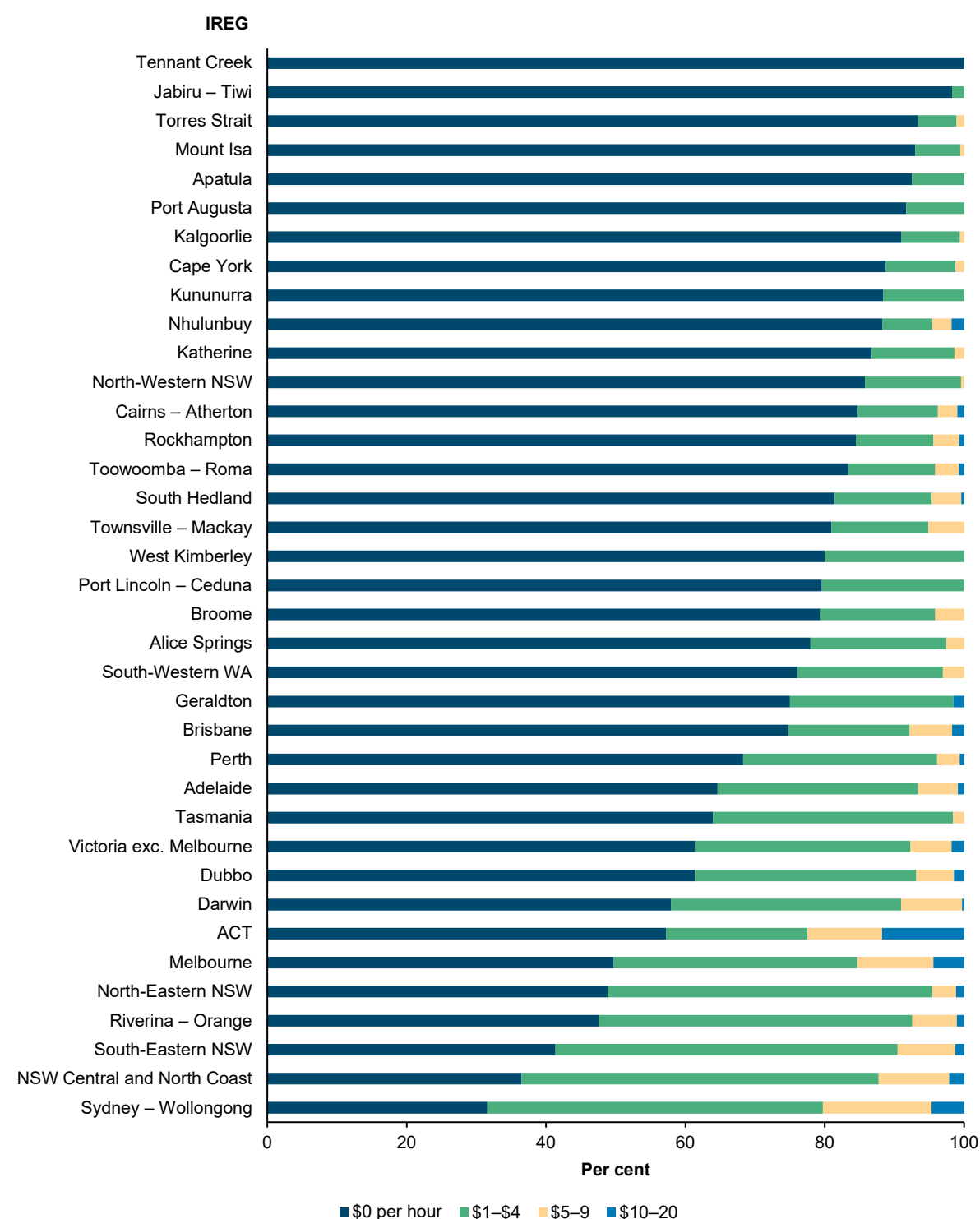
Figure 3.8: Distribution of fees paid by families of First Nations children in the YBFS cohort, by state/territory, 2022



Source: AIHW analysis of ABS preschools collection data.

Fees paid by families vary considerably by geographic location (Figure 3.9; Table 3.7). Less than a third of those in the Sydney – Wollongong IREG paid no fees (31%), compared with 100% of those in the Tennant Creek IREG. Just over 1% of First Nations families paid \$10 or more an hour (306 families) and no family paid \$20 or more.

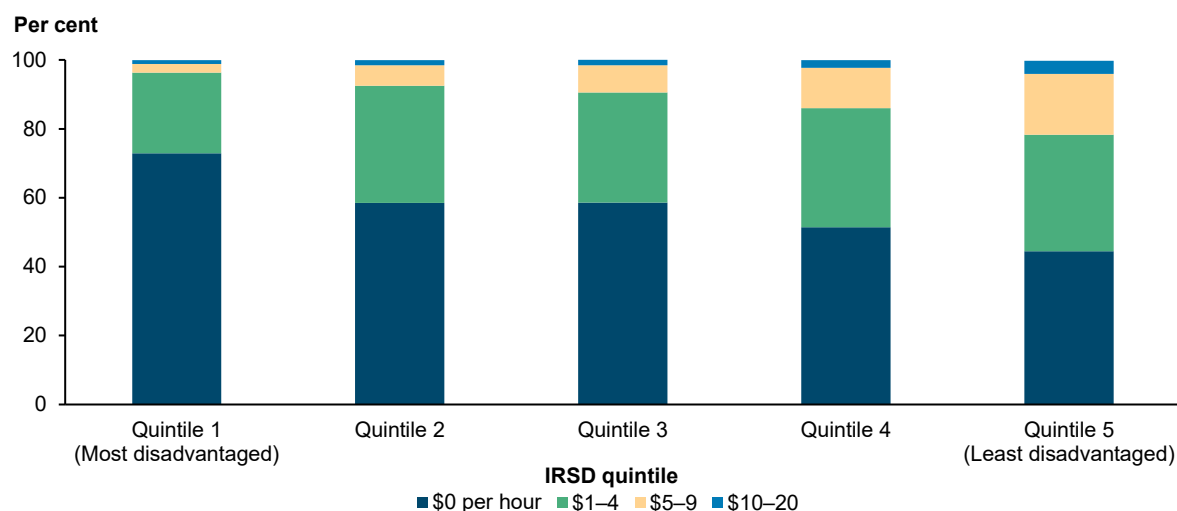
Figure 3.9: Distribution of fees paid by families of First Nations children in the YBFS cohort, by IREG, 2022



Source: AIHW analysis of ABS preschools collection data.

The proportion paying no fees is also highest among those First Nations families living in the most disadvantaged areas (73%) and lowest among those living in the least disadvantaged areas (44%) (Figure 3.10; Table S3.8).

Figure 3.10: Distribution of fees paid by families of First Nations children in the YBFS cohort, by IRSD, 2022



Source: AIHW analysis of ABS preschools collection data.

3.3.5 Parental/household characteristics

Using data from the 2016 Census, Crawford and Biddle (2018) found that preschool enrolment among First Nations children was higher for those living in households where a parent was employed, or in higher income households. Using LSIC data, the AIHW (2018) found that having a main carer who was employed, living in a household with mid-level or high income, having a primary carer with post-school qualifications, and living in less disadvantaged areas significantly increased preschool enrolment.

Employment status may affect preschool enrolment (for example, those already employed may need to place their child in some form of formal care and/or may be better able to afford the cost of preschool), but preschool enrolment can also directly affect employment (by providing parents with care that allows them to work) (AIHW 2018; Crawford and Biddle 2018). These findings suggest that improving employment opportunities and residential stability for First Nations people will also improve total preschool enrolment rates in the long term.

Hewitt and Walter (2014), also using LSIC data, found that it is not only the size but also the main source of the household income that is strongly associated with preschool attendance. When all income measures were included in the model, children in households with benefits as the main source of income, which were also more likely to be low income households, were statistically significantly less likely to be attending preschool. In households where the main source of household income was not government benefits, First Nations children were statistically significantly more likely to attend preschool. Hewitt and Walter (2014) also found that the longer a child had lived in the same house, the higher was the likelihood of their being enrolled in preschool.

When Crawford and Biddle (2018) compared First Nations and non-Indigenous rates of preschool participation within family type/employment classifications, they found that, in every grouping, First Nations rates of preschool participation were higher than non-Indigenous rates.

Higher levels of parents' own educational attainment may be linked to higher financial resources; they may be more likely to have had positive school experiences themselves or may have higher levels of literacy and the resources to navigate the complex preschool enrolment and funding system (Beatson et al. 2022; Kellard and Paddon 2016; The Smith Family 2021).

3.3.6 Children's characteristics

One of the child-level factors associated with higher likelihoods of preschool enrolment was being in the older age groups (for example, 5- and 6-year-olds) within the preschool eligible age group (Hewitt and Walter 2014). The likelihood of enrolment was lower if parents were concerned about the child's learning and development and if parents reported that the child was in poor health (compared with excellent health), with qualitative studies showing that parents expressed concerns about whether children with disability or additional needs would receive proper support (Kellard and Paddon 2016; Warren et al. 2016).

In contrast, the AIHW (2018) found no statistically significant association between either the child's reported health status or whether the child had a long-term health condition on being enrolled in preschool.

An initially counterintuitive finding in Hewitt and Walter's (2014) study was that children who had ear or hearing health issues were more likely to be in preschool. The authors hypothesised that this may be due to the fact that ear/hearing health screening programs are often conducted in preschools – meaning that the issue may have been picked up more consistently among children at preschool (and not that this hearing health issue may independently have affected the likelihood of attending preschool).

3.4 Modelling factors affecting preschool enrolment

This section presents the findings from a series of multivariate regression analyses on the factors affecting preschool enrolment among First Nations children in the YBFS, using the latest AEDC collection for 2021 (Department of Education, Skills and Employment 2022). For more information about logistic regression analysis see Appendix A.

The AEDC is a national assessment conducted every 3 years to examine how children have developed by the time they enrol in the first year of full-time schooling, when most children are aged 5 or 6. Teachers collect data on children in their first year of school, responding to around 100 questions that measure early childhood development across 5 key areas known as domains. Children are allocated a score against the domains to determine whether they are developmentally on track, developmentally at risk or developmentally vulnerable.

The 5 domains are physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school based), and communication skills and general knowledge. As well as detailed information on child development, the AEDC contains information on whether the child was known to have attended a preschool in the year before the AEDC assessment. Preschool enrolment status was unknown for 12% of First Nations children in the 2021 collection, and for 13% in the 2018 collection. Unknown preschool status was not randomly distributed but varied by IREG, ranging from 3.2–27% (see supplementary Figure S3.1)

This information on preschool attendance in the YBFS from the AEDC data is used in this section for modelling the factors associated with preschool attendance. The rich set of other

information collected in the AEDC on the characteristics of the child, on the parents (labelled as Parent 1 and Parent 2, where Parent 1 is the main carer and usually the mother) and on the local-area characteristics of where the child lives gives a wide range of factors to consider in this analysis.

The 2021 AEDC included data for 20,646 First Nations children, representing 6.8% of all children in the collection, up slightly from 6.2% in the 2018 AEDC collection. (Only children with a known preschool status were included in the modelling analyses.) Of the 18,190 First Nations children with known preschool status in 2021, the vast majority (87%) had attended preschool in the YBFS, the same percentage as in the 2018 collection.

Specific variables selected under 3 broad categories of factors were as follows:

- child's characteristics:
 - sex, age, whether they were identified as having a developmental difficulty, and whether they spoke a language other than/as well as English at home. Note that developmental difficulties is the term used in the AEDC collection and includes physical disability, visual impairment, hearing impairment, speech impairment, learning disability, emotional problem, behavioural problem, chronic illness (e.g. Otitis Media), neurodevelopmental disorder, and others.
- parent characteristics:
 - highest level of high school completed, post-school qualifications, occupation/employment status – for Parent 1 and Parent 2
- location characteristics:
 - state/territory
 - remoteness (for more details, see <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/remoteness-structure/remoteness-areas>)
 - SEIFA IRSD for the local community
 - residential stability in the local community. Child-level data on residential stability (Hewitt and Walter 2014) were unavailable, so an area-level measure of residential stability was included (proportion of the population who changed address within the past year).

Nearly 20% of the First Nations children spoke a language other than/as well as English at home, and 65% had no identified developmental difficulties. The majority lived in *Major cities* (40%), followed by *Inner and outer regional areas* (47%), with 13% in *Remote and very remote* areas. Twenty per cent lived in areas termed as having 'high mobility,' where 20% or more people had moved house in the previous year. Forty-four per cent of First Nations children lived in the most disadvantaged areas, with another 25% in the next most disadvantaged quintile (see tables S3.9 to S3.12).

Cross-sectional analysis of the child, location and parent variables with preschool status suggest that children with the following characteristics were more likely to have been enrolled in preschool than their counterparts (see tables S3.9 to S3.12):

- older children
- those without developmental difficulties
- those who spoke only English at home
- those from areas of least disadvantage
- those from areas of lower mobility

- those with a parent who had completed year 10 or above, had some post-school qualification, and was working.

These results are generally in line with previous research, noting that with any cross-sectional analysis there is the potential for reverse causality (for example, attending preschool is associated with lower developmental vulnerability or risks on some of the other AEDC indicators).

Exploratory multivariate logistic regression analyses on having attended preschool suggested that several of the parent variables could be condensed into smaller groups – for example, the key variable within the employment/occupation category was whether the parent was currently employed, not the specific occupation. Similarly, the key variable for post-school qualifications was whether the parent had any qualifications (not which ones). All models that include parent variables also included a separate category for missing data.

Four final models were run sequentially:

- Model I: included only the child characteristics
- Model II: added the location variables to the variables included in Model I
- Model III: added Parent 1 variables to those included in Model II
- Model IV: added Parent 2 variables to those included in Model III.

The full set of results are presented in Table 3.3 and the key findings by type of characteristic are summarised below. The results from these logistic regressions are also presented as marginal effects in Table S3.13. It is important to note that the results from individual variables are the effects controlling for all other variables in the model, and may differ from the findings of the cross-tabulations.

The enrolment outcome was also modelled separately for aggregated remoteness categories (*Major cities, Inner and outer regional areas, Remote and very remote areas*). While there were differences in the effects of some variables (for example, child characteristics were no longer statistically significant in *Remote and very remote* areas and residential stability was stronger), for the most part the results were the same (and the statistical significance of states and territories did not change). Results are not presented here.

3.4.1 Multivariate logistic regression results

Child characteristics

- First Nations children aged 5 or 6 and above in their first year of full-time school were more likely to have attended preschool than their younger counterparts. This finding needs to be investigated further; a possible explanation could be the absence of a nearby preschool or the costs associated with preschool.
- Children who spoke only English at home were more likely to have attended preschool.
- There was a negative association between developmental difficulties and having attended preschool – that is, the estimated odds ratio of having attended preschool were 0.7 to 0.8 times as low for children with a recorded developmental difficulty as those without.
- These child characteristic effects did not change a great deal with the addition of the other variables to the model. For instance, the effect of gender is never statistically significant in any of the models; but the age effect is very strong and persistent in all models.

Location characteristics

- Children in *Inner regional* areas were slightly more likely to have attended preschool than those in *Major cities*; but First Nations children in *Remote* and *Very remote* areas do not have a lower likelihood of preschool enrolment than those in *Major cities*.
- Area-level socioeconomic disadvantage (as measured by SEIFA IRSD quintile ranking of the neighbourhood the child lives in) is statistically significant only in Model II before parents' characteristics are added to the model (when they are no longer statistically significant).
- Children in areas where 10% or fewer people had changed addresses in the previous year (areas of low mobility) were more likely to have gone to preschool than those in areas where more than 20% of the population had changed addresses.
- Children living in Victoria, Western Australia, South Australia, Tasmania, the Australian Capital Territory, and the Northern Territory were all more likely than children living in New South Wales to have attended preschool, even after controlling for child-level, other location factors, and parental characteristics. (Enrolment rates in the AEDC are higher for First Nations children in the Northern Territory than for those in New South Wales (91% and 87%, respectively), but these are only for children with known preschool status.) Children living in Queensland were less likely than those in New South Wales (and the other states and territories) to have attended preschool.

Parental characteristics

- Parents' high school attainment and post-high school qualifications are positively associated with the child's having gone to preschool. Several of these effects are quite strong.
 - For instance, year 12 completion by Parent 1 alone doubles the odds of preschool enrolment in Model III results (and is 1.9 times the odds of preschool enrolment in Model IV) compared with children whose Parent 1 had a year 9 or below level of education. Even year 10 or 11 completion by Parent 1 increases the odds of preschool attendance by their children (about 1.3 times compared with children whose Parent 1 had a year 9 or below level of education).
- Having an employed Parent 1 also roughly doubles the odds of preschool enrolment, and this effect persists even when the employment status of Parent 2 is taken into account. The introduction of Parent 2 variables into the model did not change the direction or statistical significance of the Parent 1 variables.
 - One example is the effect of Parent 2 employment. In the Model IV results, the employment of Parent 2 (the father usually) increases the odds of the child's preschool enrolment 1.4 times compared with when Parent 2 is not employed. But this does not reduce the importance of the Parent 1 employment status on preschool enrolment, which is still associated with 2 times higher odds in both models IV and III.

The results from these multivariate regressions are not only useful for identifying which variables or factors are statistically significantly associated with preschool enrolment. Some of the results can also be used to identify groups of children who may be missing out (such as those with developmental difficulties) so that policies and programs can be targeted at those groups. Other results show the potential future impact of the other Closing the Gap socioeconomic targets (such as increasing educational attainment and employment) on preschool enrolment, but those are longer term effects.

Table 3.3: Multivariate logistic regression results (odds ratios) for preschool attendance, First Nations children in the 2021 AEDC (with variable reference categories in parentheses)

Variable definition		Variable effects modelled	Model			
			I	II	III	IV
Child characteristics	Sex (male)	Female	1.08	1.05	1.08	1.08
	Age (<5 years)	5 years	1.54***	1.35***	1.36***	1.37***
		6+ years	1.71***	1.24*	1.29*	1.30*
	Developmental difficulties (none)	Developmental difficulties recorded	0.74***	0.71***	0.82***	0.84***
	Language(s) at home (languages other than, or in addition to English)	English is the only language at home	1.21***	1.30***	1.17*	1.16*
Location characteristics	Remoteness (Major cities)	<i>Inner regional</i>		1.12*	1.16*	1.16*
		<i>Outer regional</i>		1.01	1.06	1.07
		<i>Remote</i>		0.99	1.07	1.10
		<i>Very remote</i>		1.07	1.16	1.18
	State/territory (NSW)	Vic		2.54***	2.63***	2.67***
		Qld		0.64***	0.62***	0.61***
		WA		1.82***	2.18***	2.18***
		SA		3.00***	3.07***	3.07***
		Tas		8.46***	8.21***	8.11***
		ACT		2.17*	2.46*	2.53*
		NT		1.81***	2.08***	2.14***
	SEIFA (IRSD) 1st quintile (most disadvantaged)	2nd quintile		1.15**	1.03	1.01
		3rd quintile		1.35***	1.10	1.07
		4th quintile		1.54***	1.13	1.07
		5th quintile – most advantaged		2.06***	1.36	1.28
	Residential stability (20%+ of population at a different address 12 months ago)	<=10% in a different address		1.39***	1.50***	1.50***
		>10%–<20% in a different address		1.09	1.10	1.10
Parent 1	Highest grade of high school completed (year 9 or below)	Year 12			2.07***	1.87***
		Year 10 or 11			1.29***	1.25**
		Unknown			1.18	1.24
	Post school qualifications (none)	Any post high school qualifications			1.59***	1.44***
		Unknown			0.97	0.90
	Employment status (not employed)	Currently employed			2.13***	2.00***
		Employment status unknown			1.25***	1.25***
Parent 2	Highest grade of high school completed (year 9 or below)	Year 12				1.23*
		Year 10 or 11				1.01
		Unknown				0.91
	Post school qualifications (none)	Any post high school qualification				1.24**
		Unknown				1.21**
	Employment status (not employed)	Currently employed				1.28**
		Employment status unknown				1.12

*** = $p < 0.001$; ** = $p < 0.01$; * = $p < 0.05$.

Source: AIHW analysis of 2021 AEDC (excludes records with 'unknown' or 'missing' preschool status).

3.4.2 Random forest analysis

The results of random forest analyses are shown in Figure 3.11. For more information about random forest analysis see Appendix A.

Both methods A (the Gini method) and B (the permutation method) emphasised the educational attainment (post-school qualifications and highest level of school) and employment status of Parent 1 as being among the most important factors associated with preschool attendance among First Nations children.

State or territory, remoteness area and speaking a language other than English at home were also estimated to be relatively important variables, appearing in either the most important or next (medium) importance group across both methods. These findings were broadly consistent with the statistically significant odds ratios estimated for these variables in the logistic regression model (see Table 3.3).

Figure 3.11: Relative importance groupings of variables predicting preschool attendance, First Nations children in the 2021 AEDC with known preschool status

Method A	Method B	
Parent 1 post-school qualifications Parent 1 employment status Parent 1 highest level of high school completed Age group English is the only language at home	Parent 1 post-school qualifications State or territory Parent 1 highest level of high school completed Parent 2 post-school qualifications Parent 2 highest level of high school completed	More important
Remoteness area State or territory	Remoteness area Parent 1 employment status Area level mobility English is the only language at home SEIFA (IRSD) quintile Parent 2 employment status	
Area level mobility Sex Parent 2 post-school qualifications Parent 2 employment status Developmental difficulty status Parent 2 highest level of high school completed SEIFA (IRSD) quintile	Developmental difficulty status Age group Sex	Less important

Notes

1. Based on a random forest model estimated in the R language using the ranger package (R Core Team 2022; Wright and Ziegler 2017).
2. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values.
3. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017).
4. Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.

Source: AIHW analysis of 2021 AEDC.

These variables are also likely related to the overall availability (supply) and cost of preschool in local areas, as well as to the difficulties that families whose language is other than English may have in accessing and enrolling their children in preschool if the preschool does not provide information in community languages. Previous research has also shown that families of children with a developmental difficulty have challenges in finding appropriate preschool services.

Compared with the findings of the logistic regression model, however, developmental difficulties, the age group of the child and the education or employment characteristics of Parent 2 were ranked as being less important. This is likely due to the differences in methodology between the random forest approach and logistic regression.

3.5 Policy implications

The immediate and long-term benefits of quality early childhood education for children, their families and for society are considerable (AIHW 2015; Phillips 2017; PWC 2014; Productivity Commission 2014; Warren et al. 2016) and First Nations children who attend preschool are more likely to be developmentally on track, even after controlling for other variables (AIHW 2018; Biddle and Bath 2013; Falster et al. 2021; Jorgensen et al. 2017).

Outcome 3 of the 2020 National Agreement on Closing the Gap is that Aboriginal and Torres Strait Islander children are engaged in high-quality, culturally appropriate early childhood education in their early years, with a national target goal of 95% enrolment in preschool by 2025.

The extent to which the target is on track is difficult to measure because of methodological issues around how best to capture the YBFS population and the different sources of data for the numerator and the denominator. The official estimates suggest that, in 2022, the percentage of First Nations children enrolled in preschool in the YBFS in 5 states and territories has exceeded 100% (were above the national target) and that only the Northern Territory is below the national target.

Estimates with an alternative specification of the denominator yield a different picture, however, with only Victoria, Tasmania, and the Australian Capital Territory having rates exceeding the national target. Those estimates find that while the national enrolment rate has been rising it was slightly below the national target trajectory point in 2022. This is more in line with estimates from the AEDC data collection. The logistic regression results from the AEDC data showed that children in all states (other than Queensland) were more likely than those in NSW to have attended preschool.

Unlike most other Closing the Gap targets, preschool enrolment is essentially a service use indicator, affected by the interaction between 'supply' and 'demand'. The literature review underscored the importance of both these elements. On the supply side, children can attend preschool only if there is an available place near them. Other relevant supply side factors encompass accessibility, cultural safety, affordability, workforce availability and suitability for an individual child and their family.

Most quantitative research on preschool enrolment at the individual level is unable to take these structural factors into account and focuses on the child, family and broader locational factors that help explain the observed variation in preschool attendance. The analysis of the 2021 AEDC carried out for this chapter is of that nature, using the limited range of variables collected in the AEDC to explain the variation in First Nations children's preschool attendance in the YBFS.

Strategies for improving preschool attendance

This analysis highlighted the importance of parental education and employment status on First Nations preschool attendance. It suggests that improving employment and education opportunities and residential stability for First Nations people is likely to improve total preschool participation rates in the long term.

Findings also showed that children with developmental difficulties (i.e. physical disability, visual impairment, hearing impairment, speech impairment, learning disability, emotional

problem, behavioural problem, chronic illness, or neurodevelopmental disorder) were less likely to attend preschool, net of other factors. This highlights the need for targeted social policy to ensure that appropriate and culturally safe preschool places are available to support children with developmental difficulties.

The analysis also revealed the statistically significant variation in preschool attendance between states and territories, net of child and family characteristics, reinforcing the importance of policy and funding arrangements for this target outcome.

As noted previously, the preschool system itself varies considerably across states and territories, and is in a period of rapid change, with states such as New South Wales and Victoria committing to providing access to free preschool places in the YBFS (which would align their models with those of the majority of other states and territories). Future research in this area would benefit from data that would allow not only the modelling of both supply and demand factors at the individual level, but also granular spatial analyses that could rapidly identify areas with service gaps.

Appendix 3A: Regulatory framework

Since 1 January 2012, most long day care, preschool, family day care and outside hours school care services fall within the scope of the COAG endorsed National Quality Framework for Early Childhood Education and Care (NQF). Tasmania and Western Australia regulate their state-provided kindergartens (preschools) under relevant state education legislation but commit to aligning with the NQF.

The NQF aims to create a uniform national approach to the regulation and quality assessment of early education and care (ECEC) services and replaces separate licensing and quality assurance processes in each jurisdiction. It was established in response to concerns about inconsistent quality standards across jurisdictions, and overlap between Australian Government and state and territory government regulatory arrangements. In 2022, Education Ministers agreed to changes to the NQF based on findings from the 2019 NQF Review (<https://www.acecqa.gov.au/national-quality-framework>).

The NQF has 4 key components:

- a national legislative framework (the National Law and National Regulations)
- a national body, the Australian Children's Education and Care Quality Authority (ACECQA), responsible for establishing consistent and efficient procedures for the operation of the NQF
- a National Quality Standard (NQS) with 7 assessable quality areas
- a national quality rating and assessment process to complement the NQS (Productivity Commission 2014).

Key elements of the NQF include:

- specified educator-to-child ratios so that each child receives the individual time and attention they need
- an approved learning framework to support each child's learning and development
- educator qualification requirements so that educators are better able to lead activities that inspire children and help them learn and develop.

Individual providers are authorised only for a specific number of places each day.

Appendix 3B: Measuring preschool enrolment

3B.1: Numerator (number of children enrolled in preschool in the YBFS)

Data source

Data on the number of children enrolled in preschools are sourced from the yearly Early childhood education and care collection (ECECC).

The ECECC collects data from all service providers delivering a preschool program to children aged 3 to 6 years (inclusive) enrolled during the reference period. A service provider is considered in-scope if it was providing a structured, play-based learning program, delivered by a degree qualified teacher, aimed at children in the year or two before they start full-time schooling (a preschool program) during the reference period.

Children as of 1 July in the collection year who were aged 3 to 6 and enrolled in a preschool program during the reference period are included in the collection. To be considered enrolled, the child must have attended the preschool program for at least 1 hour during the reference period (including attended an early childhood education program online or remotely due to COVID-19 impacts) or be absent due to illness, extended holiday leave or COVID-19 impacts, and expected to return. Note that the ECECC contains information only on children currently enrolled in preschool – there is no information available from this collection on preschool-aged children in the community who are not enrolled.

The ABS publishes the yearly data in its *Preschool education, Australia* publications, and makes the child/episode level data available through TableBuilder and in DataLab. For more details, see ABS 2023a.

State/territory variation in terminology and entry requirements by age

Table 3B.1: Preschool program terminology and age entry requirements, by state/territory

State/territory	Preschool		Transition to primary school Foundation year (Year before year 1)	
	Program name	Age of entry	School year	Age of entry
NSW ^(a)	Preschool	Generally 4- and 5-year-olds	Kindergarten	5 by 31 July
Vic ^(b)	Kindergarten	4 by 30 April	Preparatory (Prep)	5 by 30 April
Qld	Kindergarten	4 by 30 June	Preparatory (Prep)	5 by 30 June
WA	Kindergarten	4 by 30 June	Pre-primary	5 by 30 June
SA ^(c)	Preschool	4 by 1 May	Reception	5 by 1 May
Tas	Kindergarten	4 by 1 January	Preparatory (Prep)	5 by 1 January
ACT	Preschool	4 by 30 April	Kindergarten	5 by 30 April
NT ^(d)	Preschool	4 by 30 June	Transition	5 by 30 June

(a) New South Wales subsidises early access to community preschool for 3-year-old First Nations children and 3-year-old children from low-income families. In New South Wales, all licensed children's services for children aged under 6 (who have not started kindergarten) are required to offer programs that meet children's educational and developmental needs.

(b) In Victoria, First Nations children and children known to child protection are eligible for free kindergarten through Early Start Kindergarten funding if they are aged 3 by 30 April of the year in which they are enrolled.

(c) South Australia provides early access to department-funded preschool for children who are Aboriginal and Torres Strait Islander or under the Guardianship of the Minister after their third birthday. The compulsory school starting age in South Australia is 6 at the oldest.

(d) In the Northern Territory, children living in *Very remote* areas can attend preschool from the age of 3, provided a parent/guardian accompanies the child and remains with them at each session until they reach the age of 3 years and 6 months.

Source: ABS 2023b.

As shown in Table 3B.1, there are differences between states/territories in the ages at which children enter preschool and are permitted to enrol in primary school.

Assigning Year Before Full-time School status to children

Based on the information in Table 3B.1, the ABS uses a combination of birth dates and adjustment factors to determine for individual children already in preschool whether they are in a Year Before Full-time School (YBFS) cohort or not (Table 3B.2 presents the guidelines for the 2022 data). The YBFS flag is available in the data in TableBuilder.

Table 3B.2: State/territory-specific YBFS age cohorts based on months and years of birth, 2022^(a)

State/ territory	Age cohorts by month and year of birth
NSW	All children born between 2 July 2016 and 31 December 2017 and adjusted counts for children born between 1 January 2018 and 31 July 2018 (56%)
Vic	All children born between 2 July 2016 and 31 December 2017 and adjusted counts for children born in January 2018 (74%), February 2018 (63%), March 2018 (52%) and April 2018 (41%)
Qld, WA, NT	All children born between 1 July 2017 and 30 June 2018
SA and ACT	All children born between 1 May 2017 and 30 April 2018
Tas	All children born between 1 January 2017 and 31 December 2017

(a) The adjustment factors used by the Australian Bureau of Statistics (ABS) for New South Wales and Victoria account for the rates at which children are expected to proceed from preschool to primary school, based on advice from the state/territory education departments.

Source: ABS 2023b

First Nations status

Each child's record contains an Indigenous status flag (Indigenous, non-Indigenous, Not stated).

The estimated number of First Nations children enrolled in preschool in the YBFS includes those with known Indigenous status plus, an adjustment to include a share of children enrolled in preschool with a 'Not stated' Indigenous status (in proportion to the ratio of children enrolled with known Indigenous status). In 2022, of the 1,292 children enrolled in preschool with a 'Not stated' Indigenous status, 86 were considered to be First Nations children (Productivity Commission 2023, Table CtG3.A2).

Distribution of children in the ECECC by YBFS cohort and First Nations status

According to the 2022 ECECC data, around 33,100 First Nations and 519,000 non-Indigenous children aged 3–6 were enrolled in preschool programs across Australia (ABS 2023a).

Of those, 57% of the First Nations children and 51% of the non-Indigenous children were assigned by the ABS to the state-specific YBFS cohort (that is, they were expected to make the transition to primary school in 2023).

New South Wales and Queensland had both the highest numbers of First Nations children in preschool overall, and the highest numbers in the state-specific YBFS cohorts (Table 3B.3). In Victoria and South Australia, roughly half the enrolled First Nations preschoolers were expected to transition to school in 2023, compared with nearly three-quarters of those in Western Australia.

Table 3B.3: Distribution of First Nations children enrolled in preschool in 2022, by state/territory

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Not in YBFS cohort	5,527	1,890	3,809	877	938	423	169	555	14,189
In the adjusted YBFS cohort	6,369	1,798	5,349	2,498	1,065	690	189	957	18,917
Total	11,896	3,688	9,158	3,375	2,003	1,113	358	1,512	33,106
Proportion YBFS (%)	53.5	48.8	58.4	74.0	53.2	62.0	52.8	63.3	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6. Numbers may vary between tables in this appendix because of the introduction of random error in TableBuilder.

The likelihood that a First Nations child in a preschool program in 2022 was in the YBFS cohort increased by remoteness (Table 3B.4): in *Major cities*, 55% of First Nations preschoolers were expected to transition to primary school in 2023, compared with 72% of those in *Very remote* areas. This pattern may be related to the overall availability of preschool places (because First Nations children and children in the YBFS have priority for places, if the overall number of places is limited, they will make up a higher proportion of the total number of preschoolers). There was much less difference between areas based on their SEIFA scores (Table 3B.5).

Table 3B.4: Distribution of First Nations children enrolled in preschool in 2022, by remoteness

	Major cities	Inner regional	Outer regional	Remote	Very remote	Total
Not in YBFS cohort	6,242	4,308	2,638	496	506	14,191
In the adjusted YBFS cohort	7,565	5,156	3,859	1,047	1,292	18,920
Total	13,807	9,464	6,497	1,543	1,798	33,111
Proportion YBFS (%)	54.8	54.5	59.4	67.9	71.9	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6 with data on remoteness.

Table 3B.5: Distribution of First Nations children enrolled in preschool in 2022, by SEIFA IRSD

	Most disadvantaged	Quintile 2	Quintile 3	Quintile 4	Least disadvantaged	Total
Not in YBFS cohort	5,415	3,363	2,511	1,876	1,014	14,181
In the adjusted YBFS cohort	7,907	4,350	3,145	2,334	1,176	18,912
Total	13,322	7,713	5,656	4,210	2,190	33,093
Proportion YBFS (%)	59.4	56.4	55.6	55.4	53.7	57.1

Source: AIHW analysis of ABS preschools collection data, using TableBuilder. Includes all First Nations children aged 3–6 with data on SEIFA.

Numerators for the official Closing the Gap target calculations

Table 3B.6 presents the estimated number of First Nations children enrolled in preschool in the YBFS between 2016 and 2022, by state/territory. These are the numerators used in the official calculations of the target indicator (they are also used in the Report on Government Services [ROGS] reports).

The accuracy of the data depends on the extent to which the methodology captures the YBFS cohort in each year. However, assessing this would require linking data from the ECECC to schools data.

Table 3B.6: Estimated number of First Nations children in the state-specific YBFS age cohort enrolled in a preschool program, 2022

Year	State/territory								Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	
2016	4,271	1,217	4,200	2,086	962	523	137	1,171	14,573
2017	4,752	1,395	4,451	2,195	984	561	191	1,146	15,673
2018	5,353	1,450	4,577	2,279	1,059	559	182	1,072	16,534
2019	5,531	1,523	4,997	2,231	1,041	645	186	1,142	17,289
2020	5,739	1,594	4,945	2,394	1,010	622	180	1,094	17,584
2021	6,234	1,614	5,209	2,422	1,009	676	248	1,097	18,514
2022	6,369	1,798	5,349	2,498	1,065	690	189	957	18,920

Source: ABS estimates, presented in Productivity Commission 2024.

3B.2: Denominator – potential population of children in the YBFS cohort

Estimating the number of children in the population in the YBFS cohort, particularly at low geographic levels, is difficult both because of the uncertainty around which children will transition to primary school the next year and because of the necessity for reliable population data by age and Indigenous status.

Methodology used to calculate the denominators for the official Closing the Gap reporting

Data for the Closing the Gap reporting uses state/territory-specific YBFS population estimates calculated by the ABS as the denominator.

The ABS calculates the state-specific YBFS population estimates by:

- distributing each state/territory's estimated resident population for children aged 3 to 6 across individual months of birth according to birth statistics for the same time interval (the data used in these calculations were sourced from national, state and territory population and births, Australia)
- aggregating the distributed estimated resident population according to the state/territory-specific YBFS cohort age ranges in each jurisdiction. The same adjustment factors were applied for New South Wales and Victoria as highlighted in Table 3B.2
- deducting the number of children aged 4 and 5 in the state/territory-specific YBFS cohorts that were attending school in each jurisdiction, based on counts reported in Schools, Australia.

The estimates for First Nations children used the same process but with population projections from *Estimates and Projections, Aboriginal and Torres Strait Islander Australians* (ABS 2021b) instead of estimated resident population. This is because data on the estimated resident population for 30 June 2021 by single year of age are not available for this population at the time of writing of this report.

The estimated denominators are presented in Table 3B.7.

Table 3B.7: Potential population of First Nations children aged 4 and 5 in the state/territory-specific YBFS cohort, ABS estimates

Year	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Australia
2016	7,125	1,392	5,110	2,225	1,011	614	1,480	162	19,119
2017	6,992	1,472	5,355	2,307	979	643	1,431	194	19,373
2018	6,631	1,497	5,329	2,348	1,001	594	1,400	175	18,975
2019	6,602	1,389	5,469	2,301	995	617	1,426	177	18,976
2020	6,812	1,365	5,355	2,274	998	589	1,373	155	18,921
2021	6,880	1,392	5,477	2,268	966	669	1,381	179	19,212
2022	6,656	1,429	5,621	2,296	963	641	1,394	168	19,168

Source: ABS (unpublished) cited in Productivity Commission 2023 (Table CtG 3A.2).

The quality of the estimated denominators depends on the accuracy of the underlying population projections (for example, whether they over- or underestimate the number of First Nations children in each age group), the quality of Indigenous identification in the births data, and the adjustment factors for assigning children to the YBFS cohort. The accuracy of population estimates tends to diminish the further away is the year from the Census upon which they are based, and there is no ability to take into account the changes in levels of identification over time (Productivity Commission 2023).

Alternative methodology for estimating the number of First Nations children in the YBFS cohort

Another option for estimating the number of First Nations children in the YBFS cohort would be to use data from the ABS' National Schools Statistics Collection (Schools) (ABS 2023c).

The National Schools Statistics Collection (Schools data) is a collection of data on students, schools and staff involved in the provision or administration of primary and secondary education (in government and non-government schools) for all Australian states and territories (ABS 2023c). Data on the number of Full-time Equivalent Students by affiliation, sex, grade, Indigenous status, states and territories for 2006–2023 is available in Table 43a of this collection.

Information is available yearly on the number of children by First Nations status in each state/territory who were in 'a Pre-year 1 (Foundation Year)' (in other words, their first year of full-time primary school). Theoretically, then, the children who were in their first year of primary school in 2023 would have been in their YBFS in 2022.

Table 3B.8: Potential population of First Nations children aged in the state/territory-specific YBFS cohort, ABS Schools data

Year	NSW	Vic	Qld	WA	SA	Tas	NT	ACT	Australia
2016	6,181	1,305	5,870	2,348	1,030	530	1,481	164	18,909
2017	6,728	1,506	6,006	2,421	1,000	577	1,298	208	19,744
2018	6,800	1,584	6,075	2,476	1,047	580	1,341	193	20,096
2019	7,005	1,626	6,396	2,499	1,118	649	1,322	216	20,831
2020	7,194	1,692	6,624	2,672	1,160	629	1,280	205	21,457
2021	7,601	1,639	6,529	2,687	1,181	668	1,294	238	21,837
2022	7,664	1,750	6,721	2,743	1,215	688	1,232	193	22,205

Source: ABS (2023c), Table 43a. Data for children in the Pre-year 1 (Foundation Year) for each calendar year were assigned to the previous calendar year as the YBFS cohort (for example, those in their first year of school in 2023 were assigned to the 2022 YBFS cohort).

This approach would provide a potentially more accurate count and the data could also be disaggregated to lower geographic levels (which is not possible with the current specification), allowing areas with lower rates of enrolment to be identified. However, it would also have the disadvantage of having to wait an additional year for the data to be released (for example, 2023 rates could not be calculated until the 2024 Schools data were released), and children may have moved areas in the YBFS and when they entered primary school.

Comparing data from the 2 sources for 2022 shows that, for every jurisdiction (except for the Northern Territory), the Schools data suggest a higher number of children in the YBFS than in the official estimates. In 2016, however, the ABS estimates were higher than the data from the Schools collection.

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Children thriving

4

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Summary

Target

The target associated with Outcome 4 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all 5 domains of the Australian Early Development Census (AEDC) to 55% by 2031.

Background

- Investing time, effort and resources in children's early years to ensure they are developmentally on track yields lifelong benefits for children and the whole community.
- The direct factors of early child development include personal characteristics of the child and their socioeconomic, educational and/or psychosocial environment, such as:
 - physical disability, such as vision and hearing impairments
 - emotional or social developmental difficulties
 - preschool attendance, school absences
 - stress in the home environment
 - parental/carers' education and occupation.
- The intermediate factors of early child development include community infrastructure, cultural continuity, health-care systems, racism, social exclusion, social inequality, forced separation from parents, self-determination and impacts of colonialism.

Current status

- In 2021, about 34% of Aboriginal and Torres Strait Islander children (First Nations) children were assessed as developmentally on track compared with 56% of non-Indigenous children. However, the gap in developmental outcomes between First Nations and non-Indigenous children has been closing over time.
- To meet the 2031 target, it was projected that the proportion of First Nations children developmentally on track needed to be 39.8% in 2021; however, the actual proportion in 2021 was 5.5 percentage points (pp) lower than this.
- In 2021, the highest proportion of First Nations children developmentally on track in all 5 AEDC domains was seen in New South Wales (39%), Tasmania (38%) and Victoria (36%), and the lowest in the Northern Territory (16%) and the Australian Capital Territory (27%). The proportion of First Nations children developmentally on track has been increasing over time in most jurisdictions except for Tasmania, the Australian Capital Territory and the Northern Territory.
- The proportion of First Nations children developmentally on track was highest in *Major cities* (38%), followed by *Inner* (35%) and *Outer* (34%) *regional* areas; the corresponding proportions were 28% in *Remote* areas and only about 16% in *Very remote* areas (with no increase since 2012).
- In less disadvantaged areas (top 3 quintiles of the Australian Bureau of Statistics derived Socioeconomic Indexes for Areas [SEIFA] Index of Relative Socioeconomic Disadvantage [IRSD]), the proportion of First Nations children developmentally on track ranged from 40% to 47% – above the national 39.8% projected for 2021. In the most disadvantaged areas (the bottom SEIFA IRSD quintile), the proportion developmentally on track was 28%.

Key findings

- One in 3 First Nations children were reported as having at least one type of developmental difficulty that affected their learning (such as physical disability, including visual, hearing or speech impairment; psychological stress; problems at home; trauma; behavioural issues). In the presence of any developmental difficulties, the proportion of First Nations children developmentally on track was 11% compared with 44% in their absence.
- Among First Nations children who attended preschool, 37% were reported as developmentally on track, compared with 21% among First Nations children who did not attend preschool.
- The proportion of First Nations children developmentally on track decreased with increasing number of days absent from school (from 47% for those absent for 0–1 day to 23% for those absent for more than 10 days). About 45% of First Nations children were reported absent for more than 10 days since the start of the school year, and another 23% were absent for 6–10 days.
- The regression analysis shows that, controlling for other factors, statistically significant predictors of being developmentally on track for First Nations children were:
 - having attended preschool in the year before starting school (positive association)
 - absence from school (size of the negative effect increasing with increasing number of absent days)
 - presence of any developmental difficulties (negative association)
 - parental education and employment (positive association)
 - having problems at home or trauma related to isolation (negative association).

Key factors

- To drive progress towards this target, the main factors found as significant predictors of early child development in this analysis and literature review need to be managed through social policy and programs.
- As well as increasing the physical and financial availability of preschool services, the attendance of First Nations children at preschool may be improved by providing incentives for culturally sensitive early childhood education programs, engaging First Nations preschool workers, and building trust with First Nations communities.
- For early detection and management of health issues to counter First Nations childhood disability and to maximise participation in the education system, it is critical to:
 - increase access to culturally appropriate, accessible and acceptable health and social services
 - ensure that the services are led and controlled by First Nations people
 - increase workforce participation of First Nations people in health, education, and social services.
- As well as improving parental/carers' education outcomes and mitigating household socioeconomic disadvantage, consistent school attendance could benefit from providing programs at school – particularly early in First Nations children's schooling – that support and treat emotional and behavioural difficulties.
- Improving parental education depends on a range of broader systemic and structural factors, such as health, housing, transportation and social welfare. Parents would benefit

from support to access further education and to find employment, as well as to deal with the social determinants of health (including inadequate housing).

- Factors likely to reduce the stress and trauma that First Nations families experience – and the resulting social and emotional problems that children experience – include providing postnatal home visiting programs, early education, and day care and parenting programs for preschoolers and early school age children.
- Communities whose AEDC scores have improved over time have been those with strong links between schools, child-care services, and community organisations such as health services.

4.1 Introduction

Outcome 4 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander children thriving in their early years.

The target associated with this outcome is increasing the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all 5 domains of the Australian Early Development Census (AEDC) to 55% by 2031.

Outcome	Aboriginal and Torres Strait Islander children thrive in their early years.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all 5 domains of the Australian Early Development Census (AEDC) to 55%.
Indicator	The proportion of Aboriginal and Torres Strait Islander children assessed as developmentally on track in all 5 domains of the AEDC.
Measure	Numerator – number of Aboriginal and Torres Strait Islander children in the first year of full-time schooling who scored above the cut off score for developmentally on track in all 5 domains of the AEDC. Denominator – total number of Aboriginal and Torres Strait Islander children in the first year of full-time schooling.

Investing early – benefits and consequences

Investing time, effort and resources in children's early years (when their brains are rapidly developing) to ensure they are developmentally on track, yields lifelong benefits for children and the whole community (for more information, see <https://www.aedc.gov.au/about-the-aedc/why-the-aedc-is-important>). Skills developed when children are young can be particularly important as they can have long-term implications for children's subsequent development and quality of life. This is because early skill development supports subsequent skill attainment and means later investments in skill development are more productive (Cunha et al. 2006).

Children who are not developmentally on track, either cognitively or non-cognitively, are more likely to suffer disparities in academic outcomes, employment outcomes and socioeconomic outcomes, as well as in social outcomes such as involvement in crime, incarceration, substance abuse and poorer physical and mental health (Collier et al. 2020).

Investing in the early years can reduce expenditure on special education, criminal justice and welfare, and can increase national productivity by improving the skills of the workforce, reducing inequality and strengthening the global competitiveness of the economy (see <https://www.aedc.gov.au/about-the-aedc/why-the-aedc-is-important>).

Cunah and Heckman (2007) note that gaps in children's developmental outcomes form early. Once children reach the age of 8, these gaps generally persist so that children remain behind. This is, in part, because skills build on one another, so a deficit in one skill detracts from the development of higher level skills (Cunha and Heckman 2007) and the efficiency with which later skills are obtained (Heckman and Mosso 2014; <https://www.aedc.gov.au/about-the-aedc/why-the-aedc-is-important>).

Measuring progress

The agreed indicator to measure progress towards Aboriginal and Torres Strait Islander (First Nations) children's thriving in their early years is the proportion of First Nations children assessed as developmentally on track in all 5 domains of the AEDC (see Box 4.1 for more information). The 2021 AEDC included about 96% of Australian children in their first year of full-time schooling, with an average age of 5 years and 7 months (Department of Education, Skills and Employment 2022a). Of these, almost 7% (20,646) were First Nations children and around 93% (284,369) were non-Indigenous children (supplementary Table S4.1). The highest participation rate was recorded in Western Australia (99.7%), and the lowest in Victoria (89.7%) (Department of Education, Skills and Employment 2022a).

On-track assessment is based on the eligible population of children who do not have special needs, are over 3 years old and with at least four valid domain scores. In 2021, 89.7% (about 18,500 out of 20,650) First Nations children in the AEDC were eligible for on-track assessment (Table S4.1).

The structure of the rest of this chapter is as follows:

- Section 4.2 presents the current picture and time trends in early child development within the specific context of First Nations children in the AEDC disaggregated by geographic and demographic characteristics and other target indicators.
- Section 4.3 presents broad findings of the literature review.
- Section 4.4 presents the results from the regression modelling and random forest analysis of the factors associated with being developmentally on track using 2021 AEDC data.
- The chapter concludes with a discussion of policy implications in Section 4.5.

Box 4.1: What is the Australian Early Development Census?

The AEDC is adapted from the Canadian Early Development Instrument (Janus and Offord 2007) and was first used nationally in Australia in 2009. The AEDC has been tested and found to be appropriate for assessing the development of First Nations Australian children (Silburn et al. 2009). It is conducted every 3 years and provides a national population measure of how children have developed by the time they start their first year of full-time school. The latest cycle was conducted in 2021. Information is collected through a 96-item teacher-completed Australian version of the Early Development Instrument (AvEDI) in children's first year of full-time schooling. Five important areas or domains of early childhood development are measured:

- Physical health and wellbeing – physical independence, motor skills, energy levels, ability to physically cope with the school day
- Social competence – self-control and self-confidence, ability to work and play well with others, respect for others, responsibility, ability to follow instructions
- Emotional maturity – absence of anxious and fearful behaviour, ability to concentrate, ability to provide assistance to other children
- Language and cognitive skills – interest and ability relating to literacy, numeracy, memory
- Communication skills and general knowledge – communication with children and adults, articulation, ability to tell a story (Department of Education and Training 2016).

Each child receives a score on each domain from 0 (low ability) to 10 (high ability) based on teacher responses to the relevant domain questions. Domain cut-offs are created based on the data from all children who participated in the initial collection of the AEDC in 2009, and take into account the age variations in the population of children in their first year of full-time schooling (Department of Employment, Skills and Employment 2022b). Using these cut-off points, AEDC results are reported as the number and proportion of children:

- 'developmentally on track' (above the 25th percentile)
- 'developmentally at risk' (between the 10th and 25th percentiles)
- 'developmentally vulnerable' (below the 10th percentile) (Table S4.1).

There is also a summary indicator – developmentally on track on 5 domains (OT5) – which is the number and proportion of children assessed as being developmentally on track in all 5 domains of the AEDC (Table S4.1). Information about children with special needs is not included in the AEDC results as this group is already identified as having substantial developmental needs.

4.2 Children thriving target: current picture and time trends

4.2.1 National

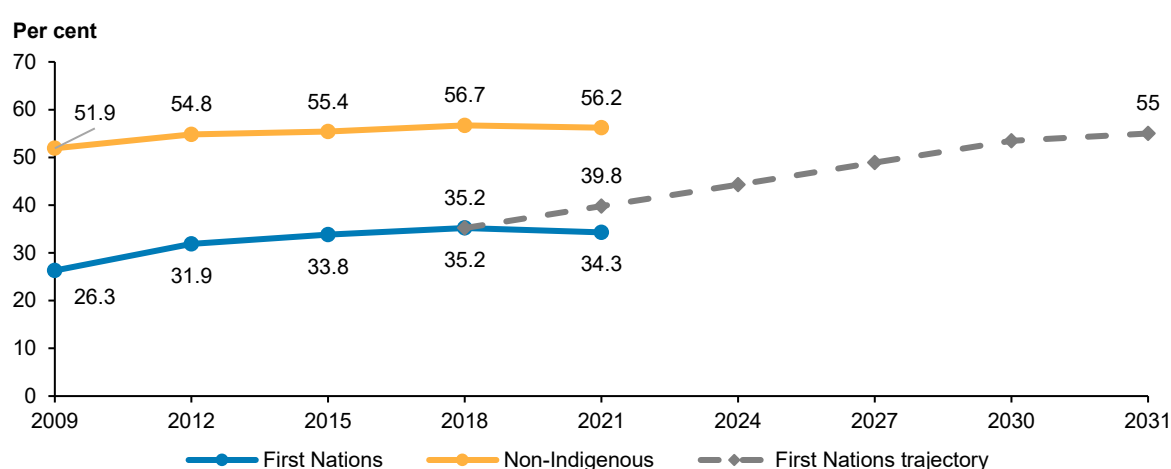
In 2021, 34% of about 18,500 First Nations children were assessed as being developmentally on track in all 5 domains of the AEDC compared with 56% of non-Indigenous children. These proportions were a drop from 35% for First Nations children and from 57% for non-Indigenous children since 2018, the baseline year, despite the steady increase seen over AEDC cycles since 2009 (Figure 4.1). The 2021 AEDC National Report suggests that this decline was a result of major disruptions caused to the households' socioeconomic lives and children's early learning due to the COVID-19 pandemic (Department of Education, Skills and Training 2022a).

To meet the 2031 target, the proportion of First Nations children projected to be developmentally on track in 2021 was set at 39.8%; however, the actual proportion in 2021 was 5.5 pp lower than this. It has been reported that the target is not on track to be met and is worsening; however, the assessment should be used with caution due to the limited number of data points used (Productivity Commission 2021).

In order to achieve the 2031 national target of 55% it is estimated that over 6,350 more First Nations children will need to be developmentally on track in 2031 than in 2021 – equal to a 6.9 pp increase in the proportion of First Nations children developmentally on track for each of the next 3 AEDC cycles. This number is estimated by applying the national 2031 target of 55% to the number of projected 5-year-old First Nations children in 2031 (about 24,900) (ABS 2011-to-2031). This equates to about 13,700 children developmentally on track in 2031. The estimated number of First Nations children developmentally on track in 2021 (about 7,350) is then subtracted from the estimated number in 2031.

The proportion of First Nations children developmentally on track by individual AEDC domains varied from 59% to 64%. The highest proportion developmentally on track was seen for the 'Emotional maturity' domain, and the highest proportion of developmentally vulnerable children for the 'Language and cognitive skills (school-based)' domain (Table S4.1).

Figure 4.1: Children developmentally on track in all 5 AEDC domains, by Indigenous status and AEDC cycle, 2009 to 2021



Note: For more details, see Table S4.2.

Source: AIHW analysis of AEDC data.

4.2.2 State and territory

Disaggregation of the proportion of children developmentally on track by jurisdiction shows considerable differences between the states and territories. In 2021, the highest rates of First Nations children developmentally on track in all 5 domains were seen in New South Wales (39%), Tasmania (38%) and Victoria (36%) and the lowest in the Australian Capital Territory (27%) and the Northern Territory (16%) (Figure 4.2).

The distribution of children developmentally on track by jurisdiction over time shows that the proportion of First Nations children developmentally on track has been rising over time in most states, although at different rates. The exceptions are Tasmania, the Australian Capital Territory and the Northern Territory (Figure 4.2). In the Australian Capital Territory, the proportion of children developmentally on track has been falling since the first 2009 AEDC cycle.

In the Northern Territory, the proportion of First Nations children developmentally on track has been the lowest compared with other jurisdictions (below 20%), and this figure has not changed considerably since the 2012 cycle (Figure 4.2).

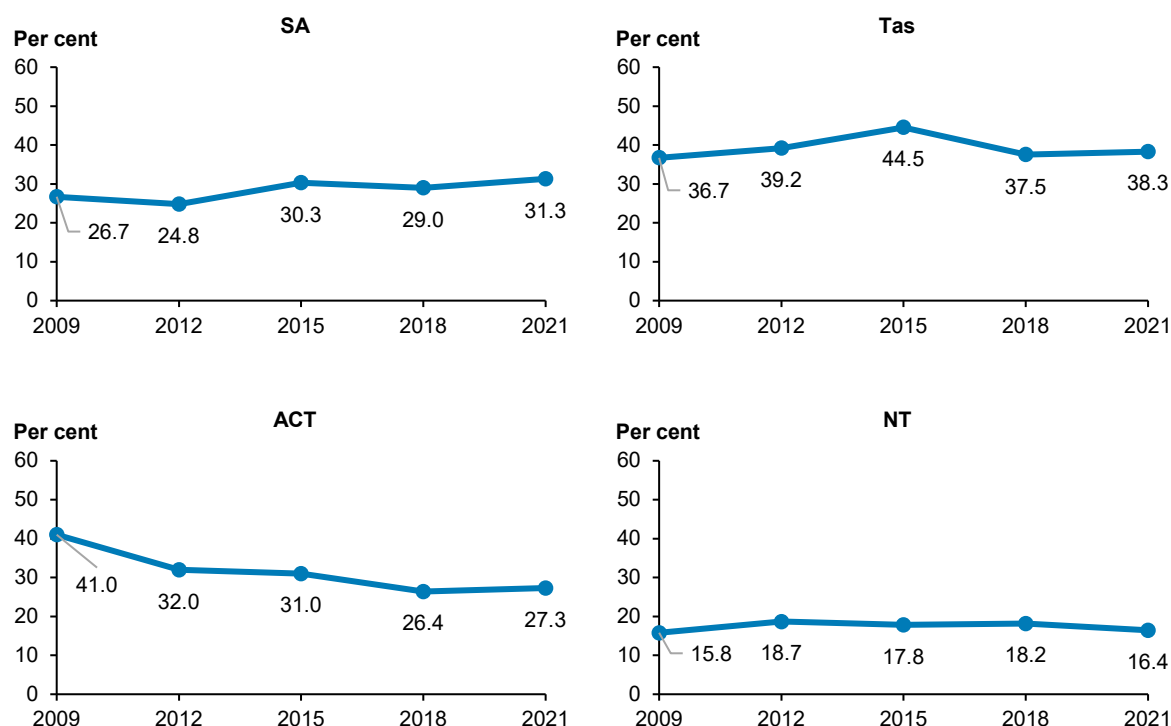
The highest proportion of First Nations children developmentally on track ever recorded was in Tasmania in the 2015 cycle – at 45%; however, it has been falling since then.

Figure 4.2: First Nations children developmentally on track in all 5 AEDC domains, by jurisdiction and AEDC cycle, 2009 to 2021



(continued)

Figure 4.2 (continued): First Nations children developmentally on track in all 5 AEDC domains, by jurisdiction and AEDC cycle, 2009 to 2021



Note: For more details see Table S4.4.
Source: AIHW analysis of AEDC data.

4.2.3 Remoteness area

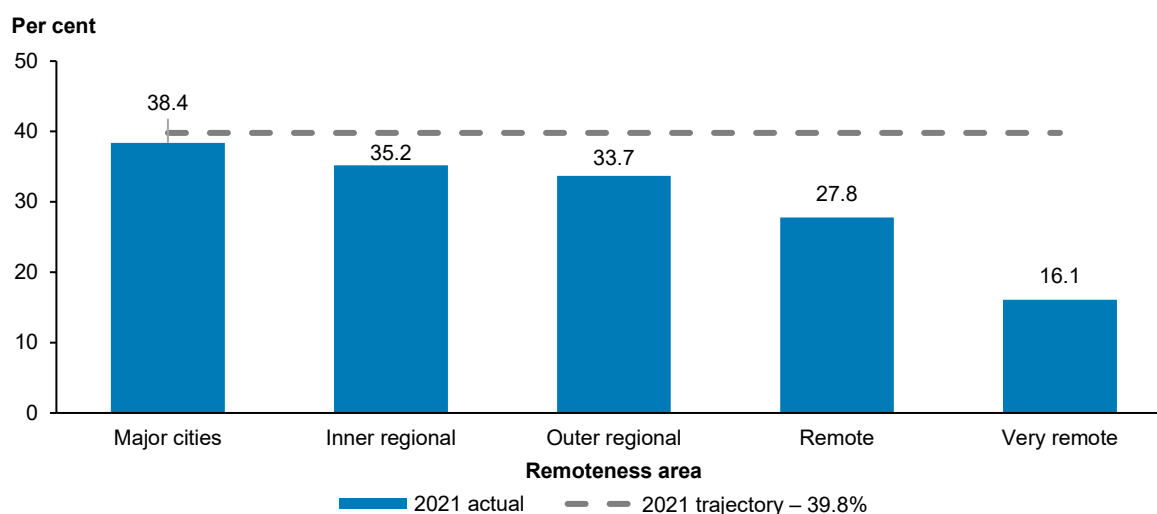
Analysis of the proportion of children developmentally on track in all 5 domains by remoteness shows that, in 2021, the proportion of First Nations children developmentally on track was highest in *Major cities* (38%), and decreased by increasing remoteness to 28% in *Remote* areas and about 16% in *Very remote* areas (Figure 4.3). Over 2,400 (13%) First Nations children eligible for assessment in the AEDC lived in *Remote* and *Very remote* areas, where the proportions developmentally on track were the lowest in Australia.

Gaps between remoteness areas

Further disaggregation by jurisdiction showed that the gaps in the proportion of First Nations children developmentally on track between remoteness areas were particularly large in South Australia (36% in *Major cities* versus 5% in *Very Remote* areas), New South Wales (42% in *Major cities* versus 17% in *Very Remote* areas), followed by the Northern Territory (28% in *Outer regional areas* versus 6% in *Very Remote* areas) (Table S4.5).

Analysis of trends by remoteness over time reveals that, for First Nations children living in *Very remote* areas, the proportion of children developmentally on track has been the lowest across all AEDC cycles, with no increase seen since 2012. At the same time, the gap between *Very remote* and other remoteness categories has been very large. Between 2018 and 2021, the falls in the proportion of First Nations children developmentally on track (most likely due to disruptions related to the COVID-19 pandemic) were larger in *Remote* and *Inner Regional* areas than in other remoteness areas (Table S4.6).

Figure 4.3: First Nations children developmentally on track in all 5 AEDC domains, by remoteness, 2021



Note: For more details, see Table S4.6.

Source: AIHW analysis of AEDC data.

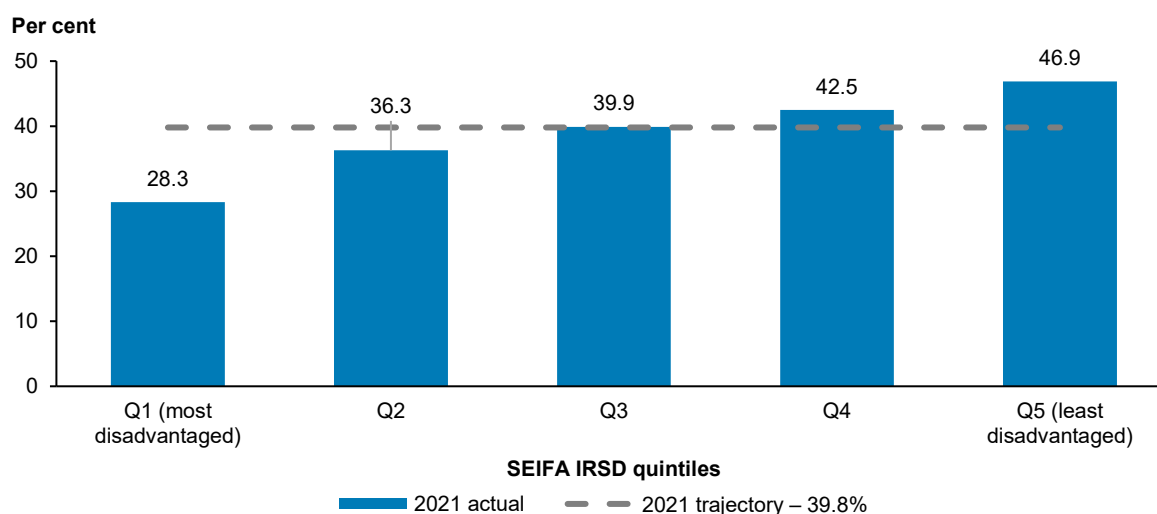
4.2.4 Socioeconomic index

Disaggregation of the child development outcome can also be done by the level of socioeconomic disadvantage of areas the children live in, using the SEIFA IRSD, developed by the ABS (ABS 2021). For this section, the SEIFA IRSD scores are grouped into 5 categories (quintiles), where the lowest quintile (Q1) represents the areas with the lowest 20% of scores and reflects the highest level of disadvantage; the highest quintile (Q5) contains the highest 20% of scores and reflects the lowest level of socioeconomic disadvantage.

Figure 4.4 shows that the proportion of First Nations children developmentally on track is higher for higher SEIFA IRSD quintiles. It ranges from 28% in the most disadvantaged areas to about 47% in the least disadvantaged areas. In the top 3 quintiles (Q3–Q5), the proportion developmentally on track was above the national 39.8% projected for 2021 if the national target were to be met in 2031, and not too far below it in Q2 (36%). Meanwhile, over 8,300 (46%) First Nations children eligible for assessment in the AEDC lived in the most disadvantaged areas (Q1), where about 28% of them were developmentally on track.

Similar trends by SEIFA IRSD quintile were observed across all states and territories (see Table S4.9). Trends over time show that the gaps between SEIFA IRSD quintiles have been consistent over time (see Table S4.10).

Figure 4.4: First Nations children developmentally on track in all AEDC 5 domains, by SEIFA IRSD quintiles, 2021



Note: For more details, see Table S4.8.

Source: AIHW analysis of AEDC data.

4.2.5 Child characteristics

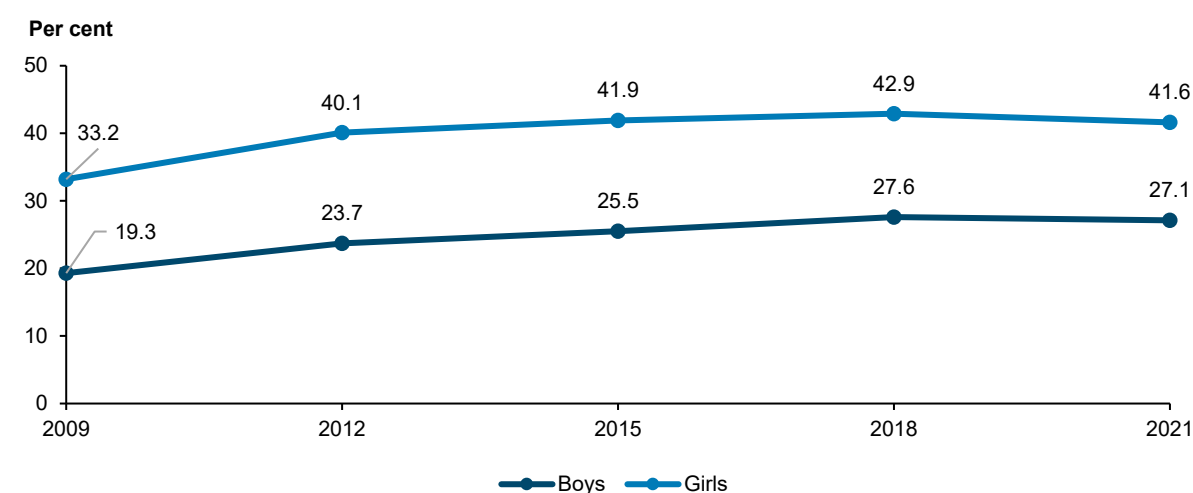
Sex

The 2021 AEDC National Report indicates a large gender gap in child development seen in AEDC results and that it has been consistent for all children over time. The proportion of First Nations children developmentally on track in all 5 AEDC domains is considerably higher among girls than boys (42% versus 27%), though the gap has slightly narrowed over time (Figure 4.5).

That report implied that such a gap is to be expected, based on a number of differences between boys and girls in health, social and emotional development and language and cognitive skills (school-based). A research snapshot looked at the gender gap further into the school years, suggesting that the effect of gender on academic outcomes became negligible once students reached high school (see <https://www.aedc.gov.au/resources/detail/gender-differences-in-the-aedc-and-into-the-school-years>).

Nationally, more girls than boys stay in school until year 12. Between 2013 and 2023, the year 7/8 to 12 apparent retention rate for females has been higher than for males by about 8 pp on average (ABS 2023). Females are also more likely to go to university. There are also sex differences in educational outcomes, such as PISA scores. For example, in 2022 there were more male low performers in reading literacy than females with no sex differences based on this metric for scientific or mathematical literacy (De Bortoli et al. 2023). Sex differences were also observed in National Assessment Program – Literacy and Numeracy (NAPLAN) test scores with female students scoring better than males (Biddle and Meehl 2016). Thus, more evidence is needed to further understand the sex gap in academic, social and emotional development outcomes over time.

Figure 4.5: First Nations children developmentally on track in all 5 AEDC domains, by sex and the AEDC cycle, 2009 to 2021



Note: For more details, see Table S4.11.

Source: AIHW analysis of AEDC data.

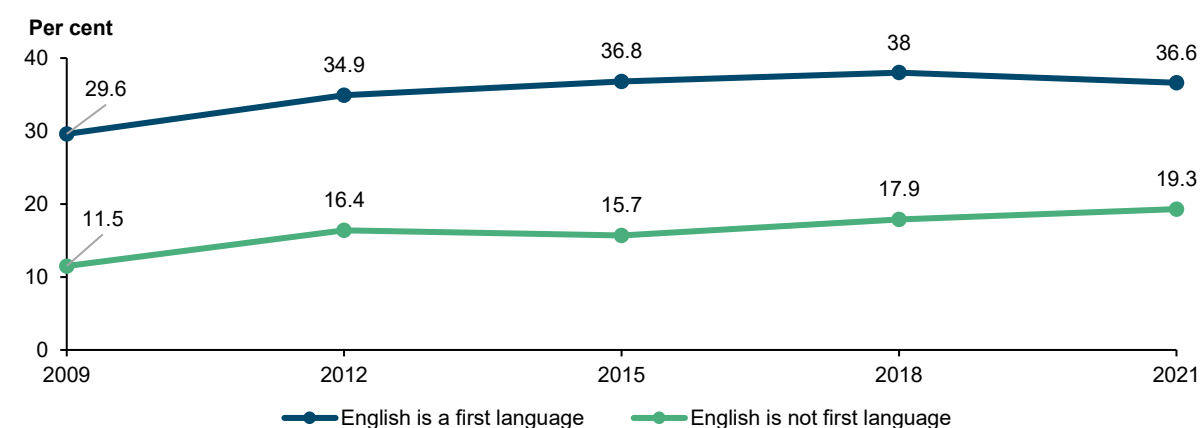
English language background

As noted in the 2021 AEDC National Report, the proportion of children having a background other than English has been steadily increasing in the AEDC over time. It is important, therefore, to understand whether there is a gap in the proportion of First Nations children developmentally on track by English language background. In the 2021 AEDC, about 13% (2,800 out of 20,650) of First Nations children considered English as a second language (Table S4.25).

Figure 4.6 shows that the proportion of First Nations children developmentally on track in all 5 AEDC domains is considerably lower for those whose first language is not English (19%) than for those whose first language is English (37%). This large gap may be partially explained by the fact that more than half of First Nations children whose first language is not English live in *Remote* or *Very remote* areas (15% in *Remote* and 43% in *Very remote*), while the majority of those with English as a first language are concentrated in *Major cities* and *Inner regional* areas (Table S4.12).

The distribution of children developmentally on track by English language background over time (Figure 4.6) shows that the gap between First Nations children for whom English is a first language and those for whom it is not has slightly widened since 2012.

Figure 4.6: First Nations children developmentally on track in all 5 AEDC domains, by English language background and AEDC cycle, 2009 to 2021



Note: For more details, see Table S4.14.

Source: AIHW analysis of AEDC data.

4.2.6 Presence of developmental difficulties

The AEDC asks teachers about students' conditions and impairments that influence their ability to do schoolwork in a regular classroom. These conditions range from physical disability (including visual, hearing or speech impairment) to psychological stress, problems at home, trauma, and behavioural issues. If the teacher indicates that the student has any condition that affects their learning, the student is reported as having developmental difficulties. This assessment of developmental difficulties differs from the actual AEDC assessment of being developmentally on track or developmentally vulnerable in each of the 5 domains.

In the 2021 AEDC, about 1 in 3 First Nations children were reported as having at least one type of developmental difficulty that affected their learning, which was double the rate for non-Indigenous children. Among those considered eligible for assessment for being developmentally on track, these numbers were 30% among First Nations children and 14% among non-Indigenous children. Of these children, the proportion reported as having more than one difficulty was 44% among First Nations children and 35% among non-Indigenous children (see Table 4.1).

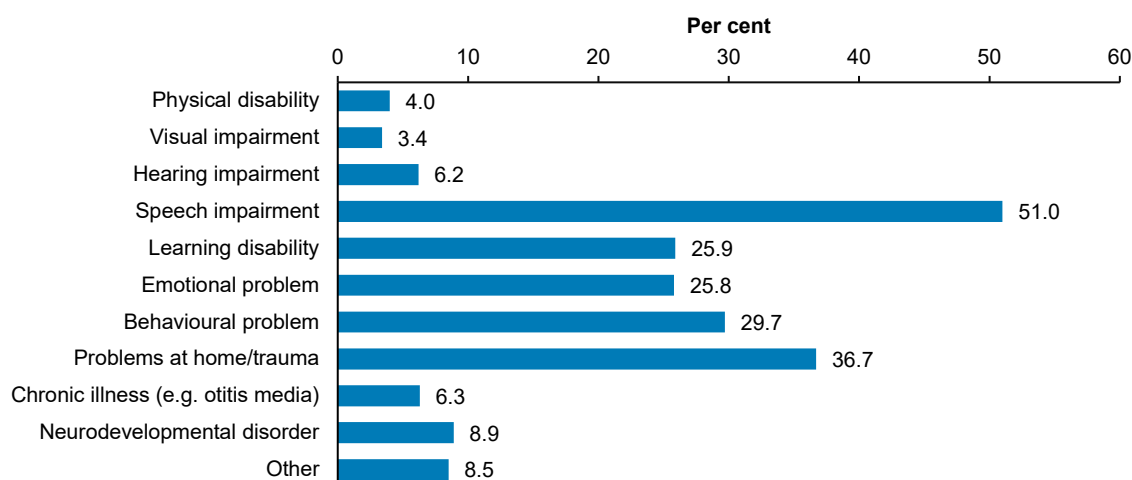
Table 4.3: Distribution of children by reported developmental difficulties and Indigenous status in 2021 AEDC

	First Nations	Non-Indigenous
Number of children with any developmental difficulty	6,977	47,747
% of total	33.8%	16.8%
Number of children with any developmental difficulty eligible for assessment	5,458	36,610
% of eligible	29.5%	13.6%
of these with 1 developmental difficulty	56.2%	65.0%
of these with 2 or more developmental difficulties	43.8%	35.0%
Total number of children eligible for assessment	18,518	269,027
Total number of children	20,646	284,369

Source: AIHW analysis of AEDC data.

Figure 4.7 presents the distribution of First Nations children by the type of reported difficulties. The most commonly reported difficulty affecting learning among First Nations children was speech impairment, encountered by about half of those with any difficulties (51%). Problems at home/trauma and behavioural problems were also among the most commonly reported types of developmental difficulties noted by the teachers (37% and 30%, respectively). Physical disability, visual and hearing impairments, and chronic illness were reported only for 3–6% of First Nations children with developmental difficulties.

Figure 4.7: First Nations children reported having any developmental difficulties impacting their learning, by type of impairment/disability, AEDC 2021

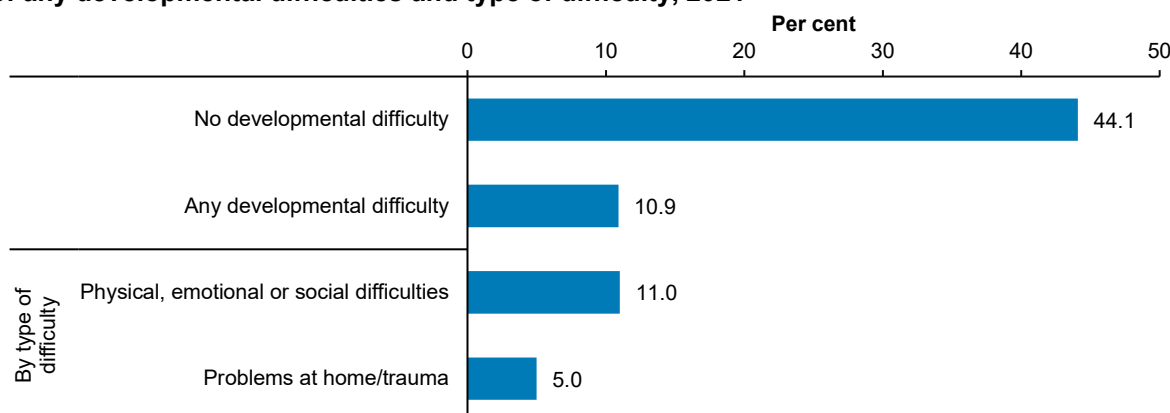


Note: For more details, see Table S4.15.

Source: AIHW analysis of AEDC data.

The analysis of First Nations children developmentally on track by developmental difficulties (Figure 4.8) revealed that, in the presence of any developmental difficulties, the proportion of First Nations children developmentally on track was 11% compared with 44% in their absence. The proportion developmentally on track was particularly low among those reported to have problems at home/trauma (only 5%).

Figure 4.8: First Nations children developmentally on track in all 5 AEDC domains by presence of any developmental difficulties and type of difficulty, 2021

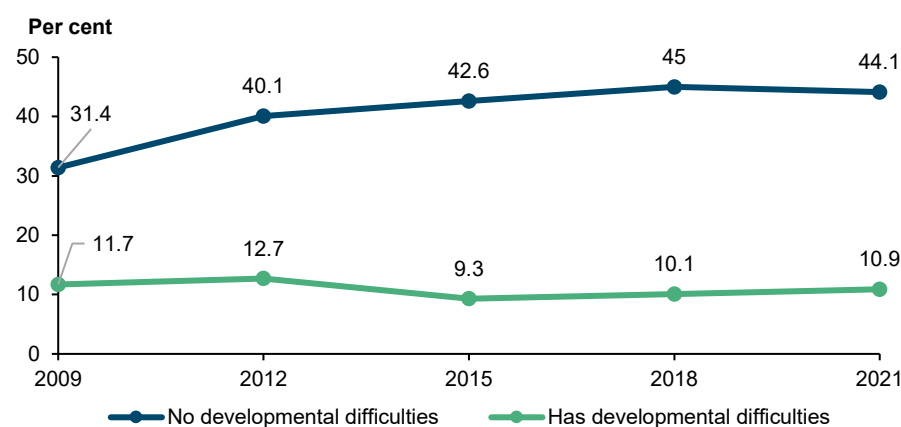


Note: For more details, see Table S4.16.

Source: AIHW analysis of AEDC data.

Analysis of children developmentally on track by developmental difficulties over time shows that this gap has widened by more than 10 pp since the baseline in 2009 (Figure 4.9). Among First Nations children, the proportion developmentally on track for those with no developmental difficulties has risen by about 13 pp between the baseline and 2021, while for those with any developmental difficulties, the rate developmentally on track has remained about the same.

Figure 4.9: First Nations children developmentally on track in all 5 AEDC domains by presence of any developmental difficulties and AEDC cycle, 2009 to 2021



Note: For more details, see Table S4.17.

Source: AIHW analysis of AEDC data.

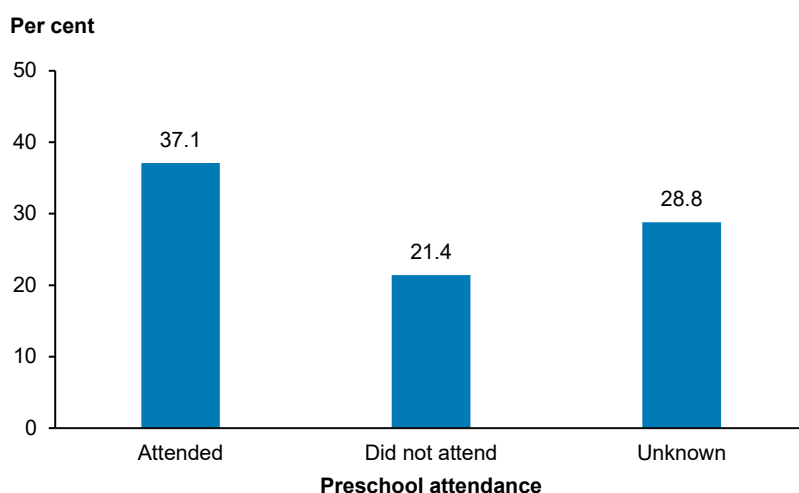
4.2.7 Preschool attendance

The National Agreement on Closing the Gap (Australian Government 2020) notes that preschool enrolment and attendance is one of the key factors affecting progress towards the early development outcome. The majority of children in the 2021 AEDC were reported to have attended preschool a year before starting school, including about 77% among First Nations children. However, preschool attendance was unknown for about 10% of First Nations children in the AEDC (Table S4.25).

The analysis of children developmentally on track by preschool attendance in the 2021 AEDC reveals that the proportion of First Nations children developmentally on track was higher for those who attended preschool (37%) than for those who did not (21%) (Figure 4.10).

The analysis of these trends across all AEDC cycles shows that the gap between First Nations children who attended and did not attend preschool has been consistent over time (Table S4.19).

Figure 4.10: First Nations children developmentally on track in all 5 domains of the AEDC, by preschool attendance, 2021



Note: For more details, see Table S4.18.

Source: AIHW analysis of AEDC data.

4.2.8 Absence from school

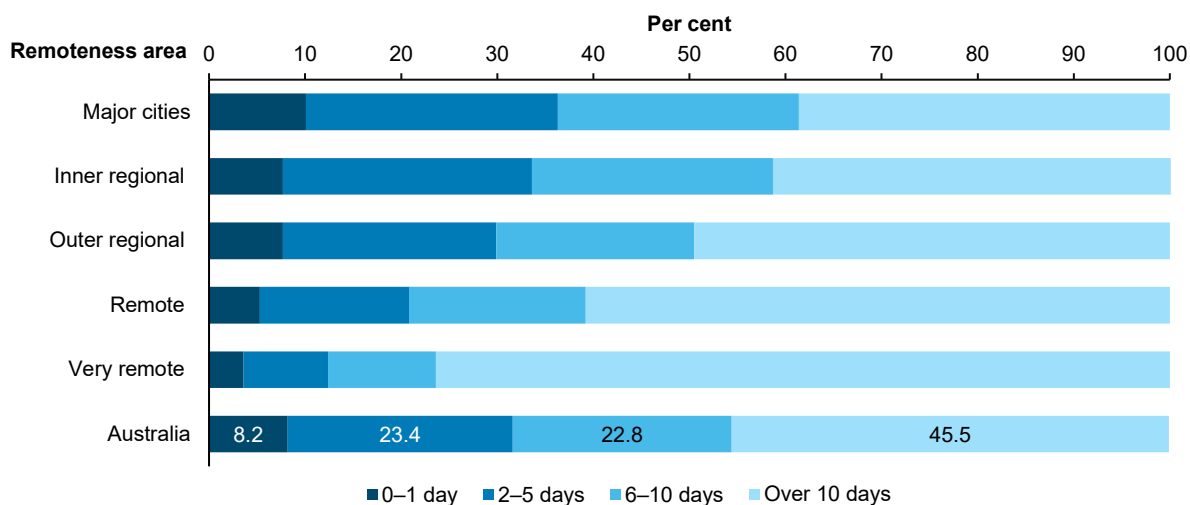
The AEDC collects information on the number of days children were absent from school since the start of the year, in reference to the school period, before the AEDC assessment is made. These absent days are grouped into 4 categories: 0 to 1 day, 2 to 5 days, 6 to 10 days, and more than 10 days. Figure 4.11 shows the distribution of First Nations children by the number of days absent from school nationally and by remoteness categories. Nationally, about 45% of First Nations children were reported absent for more than 10 days since the start of the year, and another 23% were absent for 6–10 days.

The distribution of the number of days absent from school varied considerably by remoteness areas. About 76% of First Nations children in *Very remote* areas and 61% of those in *Remote* areas were absent from school for more than 10 days, compared with 39% in *Major cities* and 41% in *Inner regional* areas.

Analysing the trends of children developmentally on track by absenteeism shows that the proportion of children developmentally on track decreases by increasing number of absent days among First Nations children. While over 47% of First Nations children were developmentally on track if they were absent from school for 0–1 day, this proportion drops to 23% for those absent for more than 10 days (Figure 4.12).

Absence from school is an important indicator associated with academic outcomes. It must be noted that there are also likely to be other underlying common factors – such as living in remote areas – that may affect both school absenteeism and developmental outcomes, which need to be studied further. However, the results from the logistic regression in Section 4.4 below suggest that absence from school is not just a remoteness effect, the impact is large and statistically significant even when remoteness is controlled for.

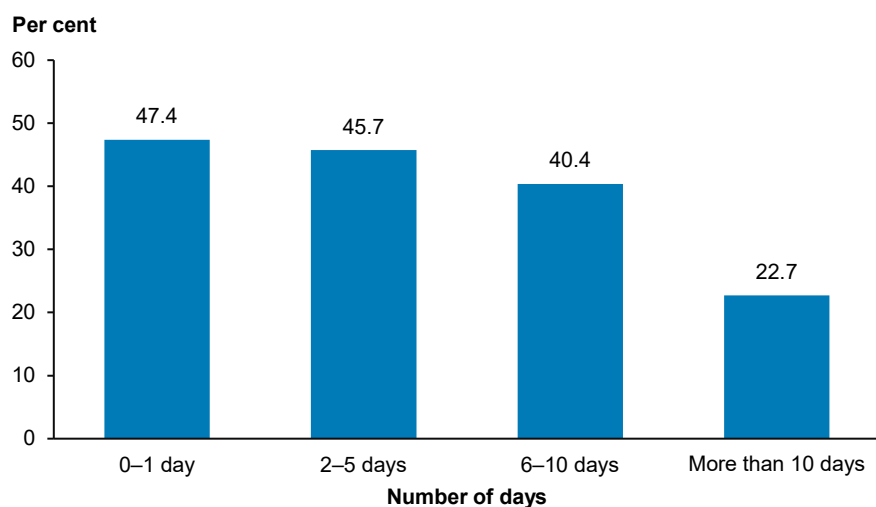
Figure 4.11: Distribution of First Nations children, by the number of days absent from school and remoteness areas, 2021 AEDC



Note: For more details, see Table S4.20.

Source: AIHW analysis of the 2021 AEDC.

Figure 4.12: First Nations children developmentally on track in all 5 AEDC domains, by the number of days absent from school since the start of the year, 2021 AEDC



Note: For more details, see Table S4.21.

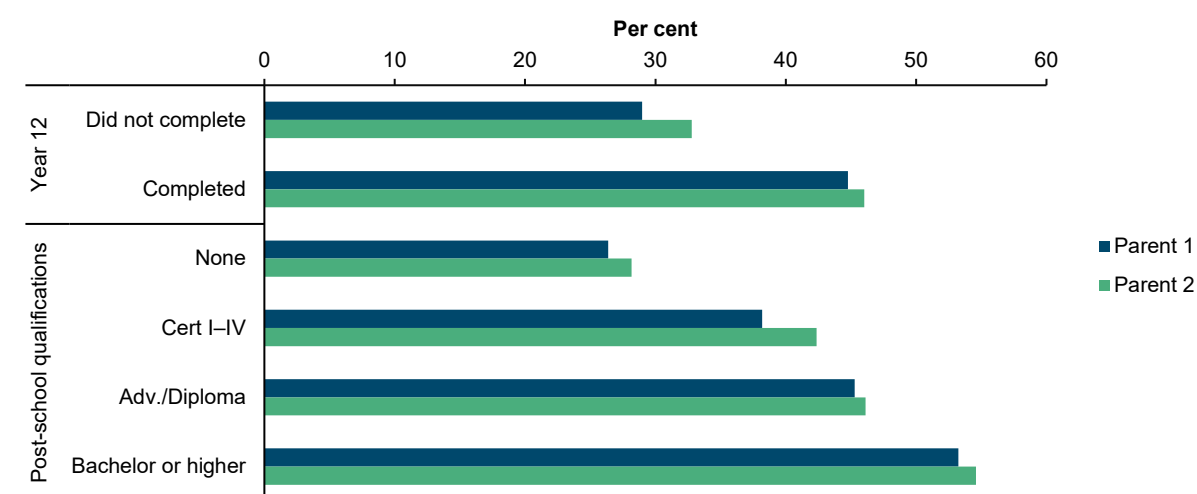
Source: AIHW analysis of AEDC data.

4.2.9 Parental education

One factor noted in the National Agreement on Closing the Gap (Department of Education, Skills and Employment 2022a) as a key driver of early child development is primary carer's education. Data on parental level of schooling and post-school qualification have been collected only in the last 3 cycles of the AEDC – that is, since 2015. The level of education is recorded for up to 2 parents separately (where applicable). However, it is not clearly indicated which parent the information is for, as it is labelled as being for Parent 1 and Parent 2. In 2021, the gender of Parent 1 and Parent 2 were added to the census. However, in a considerable number of cases, the gender of the parent or parents is not stated/missing. Based on the available data, in the majority of cases, Parent 1 is indicated as female, and Parent 2 as male.

The distribution of children developmentally on track by parental level of education shows that the proportion of children developmentally on track is higher among those whose parents have a higher level of education: the trend is similar for both parents (Figure 4.13). About 45–46% of First Nations children having a parent with year 12 completion were assessed as developmentally on track in all 5 domains, compared with 29–33% of children having a parent who did not complete year 12. About 38% of Parents 1 and 28% of Parents 2 in the AEDC were recorded as having completed year 12. Similarly, the proportion of First Nations children developmentally on track were much higher where the parent had any post-school qualification. About 32% of Parents 1 and 24% of Parents 2 did not have any post-school qualification (Table S4.23).

Figure 4.13: First Nations children developmentally on track in all 5 AEDC domains, by parental level of education, 2021



Note: For more details, see Table S4.24.

Source: AIHW analysis of the 2021 AEDC.

4.3 Literature review

4.3.1 Conceptual framework of child development

The ecological model of human development

The ecological model of human development, created by Bronfenbrenner in the 1970s, changed the way child development is viewed. In its earlier stages, this theory suggested that a child's environment is composed of systems at 4 different levels that influence children's development:

- the microsystem – contains relations between the individual and their immediate environment, such as the home, school or workplace
- the mesosystem – comprises the interrelations between the major settings that the individual child inhabits; for example, relations between home and school
- the exosystem – contains the major social institutions (such as public agencies or mass media) that influence what is happening in the settings the child inhabits
- the macrosystem – constituted by the laws and norms that govern society (Eriksson et al. 2018) (Figure 4.14).

In the theory's second phase of development (between 1982 and the mid 1990s), Bronfenbrenner added biology (how individual characteristics interact with environmental experiences) and time (consideration of changes over time within the person as well as in the environment) to this framework determining developmental outcomes.

The theory was finalised between the 1990s and the 2000s by developing the idea that the most powerful influences on a child's development come from the close and reciprocal interactions between the child and their immediate environment – what Bronfenbrenner termed as proximal processes (Eriksson et al. 2018).

Determinants of First Nations early child development

Bronfenbrenner's ecological model can be applied in understanding the determinates of First Nations children's development, health and wellbeing.

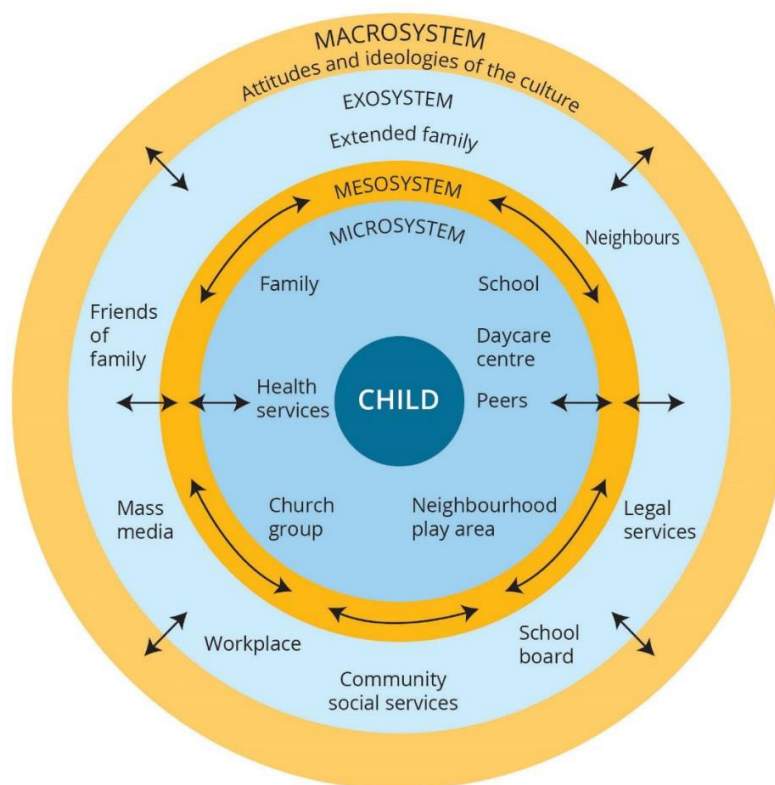
Proximal determinants

The most direct and closest (proximal) determinants that put First Nations children at risk of not being developmentally on track may include the personal characteristics of the child and their socioeconomic, educational and/or psychosocial environment. For example, there is evidence to suggest that child development among First Nations people is associated with:

- low maternal education and parental unemployment (Williamson et al. 2019)
- family stress, or family violence and financial hardship (Zubrick and Kovess-Masfety 2005).

High levels of family mobility, the style of parenting (warmth and harshness), not being in the care of biological parents, and exposure to racism and bullying have also been shown to put First Nations children's development at risk (Zubrick and Kovess-Masfety 2005).

Figure 4.14: Bronfenbrenner diagram of the ecological theory of child development



Source: Adapted from Kopp and Krakow 1982, Figure 12.1.

Intermediate determinants

There are also intermediate determinants of health (the underlying factors behind the proximal determinants) – including community infrastructure, cultural continuity, and health-care systems, racism, social exclusion, social inequality, forced separation from parents, self-determination and the impacts of colonialism (Greenwood 2016; Halseth and Greenwood 2019; Zubrick and Kovess-Masfety 2005). In addition, First Nations children are also subject to:

- structural and systemic factors, such as policies, legislation and agreements, that enable or hinder the development of healthy, positive environments for children, families and communities
- the availability of strong, community-focused accessible health, education, child welfare and justice systems that support and enable wellbeing (Halseth and Greenwood 2019).

The literature review in the remainder of this section focuses on the empirical evidence for the direct and proximal determinants of First Nations children's development in their early years, including individual characteristics, such as health conditions and disability, early childhood education, family-level socioeconomic disadvantage, and community-level socioeconomic characteristics.

4.3.2 Disability and health conditions

Physical disability, like vision and hearing impairment, especially in childhood, can disrupt a person's schooling and affect their ability to learn (Australian Government 2020). For example, experiencing hearing loss in childhood can affect speech and language development, and may lead to behavioural problems, early school leaving, limited employment options and increased contact with the criminal justice system (Burns and Thomson 2013).

Disability prevalence data for First Nations children are limited (AIHW 2009). However, the existing evidence suggest that rates of disability in First Nations adults and children are higher than in non-Indigenous Australians (DiGiacomo et al. 2013). First Nations children are 30% more likely to need assistance with learning or communicating, have a core activity need for assistance, and a profound or severe disability than age-matched non-Indigenous children (ABS and AIHW 2008). Further, the literature review conducted by DiGiacomo and colleagues (2013) found that perceptions of disability among First Nations people, a lack of culturally appropriate screening instruments and psychometric tools, and barriers to accessing support services not only affect awareness but also hinder the identification of disability, help-seeking behaviour, and early intervention among First Nations children.

Ears and eyes

First Nations children are more likely to experience hearing loss linked to higher rates of middle ear disease such as otitis media. Often starting within weeks of birth, otitis media is a major source of ear disease in First Nations children (Closing the Gap Clearinghouse (AIHW & AIFS) 2014). Using self-reported data collected through the 2017–18 National Aboriginal and Torres Strait Islander Health Survey, the AIHW estimates that over 19,000 (6.9%) First Nations children aged 0–14 had an ear or hearing problem, which was 2.3 times the rate of non-Indigenous children (3.0%) (AIHW 2023b).

Vision loss and other eye diseases can lead to linguistic, social and learning difficulties, as well as behavioural problems during school years, leading, in turn, to poor education outcomes and employment prospects. In 2017–18, an estimated 28,000 (10%) First Nations children aged 0–14 were reported to have eye or sight problems, an increase from 8.8% in 2012–13 (AIHW 2023c). Vision problems are associated with lower reading outcomes, as reported in a recent study by Hopkins et al (2017). Reduced reading results were due to reduced vision in both First Nations and non-Indigenous children in Queensland. There are differences in ocular biometric measurements of First Nations children when compared with non-Indigenous children, and that can potentially lead to development of ocular/eye diseases later in life (Cox et al. 2023).

Trauma

Besides physical disability, episodic and ongoing trauma can also affect a developing brain, slowing down a child's development (Atkinson 2013) and impairing physical and mental wellbeing and education. The colonisation of Aboriginal and Torres Strait Islander land and the (ongoing) oppressive practices that followed have resulted in a legacy of unresolved intergenerational trauma for First Nations Australians. The removal of First Nations children from their families from the late 1800s to 1969, known as 'the Stolen Generations', has left the greatest legacy of trauma, and the ongoing exposure to this trauma has affected successive generations of First Nations peoples. Studies have found that children who had a carer who had been forcibly removed were more than twice as likely to be at high risk of clinically significant emotional or behavioural difficulties, compared with children living in households where the carer had not been removed (Darwin et al. 2023).

Chronic conditions

Chronic conditions may also affect child development and can include acute rheumatic fever and rheumatic heart disease. Between 2017 and 2021, the highest rate of diagnosis for rheumatic fever was among First Nations people aged 5–14 (1,142 diagnoses, 140 per 100,000 First Nations children) (AIHW 2023a). In many cases, acute rheumatic fever in childhood, where ongoing active engagement with the health care system is needed for many years, progresses to rheumatic heart disease and associated heart conditions during adulthood (RHD Australia 2020).

Enteric infections and malnutrition

Enteric infections (that is, those related to the small intestine) in the first 2 years of the life can have an adverse effect on growth and cognitive development, with a high prevalence of enteric pathogen and non-pathogen carriage in First Nations infants and toddlers (Hanieh et al. 2021). Food insecurity can also lead to emotional and behavioural issues in children. Food insecurity over a long period places children at risk of malnutrition, which can affect a child's development, health and wellbeing throughout life (AIHW 2022c).

Low birthweight

A further risk to poor health outcomes in early childhood is low birthweight which, in First Nations populations, is relatively high at 9.2%, compared with 4.9% for non-Indigenous babies (AIHW 2022a). Low birthweight has been associated with developmental delays and lower academic performance in children (Matte et al. 2001; Vasak et al. 2015).

4.3.4 Early childhood education

High-quality early childhood education and preschool attendance have been consistently shown to benefit children's development (Gialamas et al. 2014; Holzinger and Biddle 2015; Melhuish 2004; Productivity Commission 2014; The Smith Family 2021). However, Holzinger and Biddle (2015) note that much of the literature on the benefits of preschool is not First Nations-specific and cannot encompass the rich cultural and social skills that are traditionally passed on to children in First Nations communities.

- For example, traditional First Nations child-rearing practices develop independence, visual-spatial and motor skills and the capacity for judgement and risk taking (SCRGSP 2020). Even so, general studies discussed here on the benefits of preschool education can be a guide to some of the skills that may benefit First Nations children who participate (Holzinger and Biddle 2015).

Benefits of attending preschool

Preschool attendance has been shown to be associated with better developmental outcomes for both First Nations and non-Indigenous children (Silburn et al. 2018). After adjusting for confounding factors (such as socioeconomic status and remoteness), Jorgensen and colleagues (2017), using 2009 and 2012 AEDC data, found that First Nations children living in New South Wales who attended preschool were more likely to be developmentally on track on 4 of the 5 domains of the AEDC than children who had not.

Biddle and Bath (2013) – using data from the 2009 AEDC and controlling for a child's gender; the month in which they were tested; and their remoteness, jurisdiction and socioeconomic status – found that First Nations children who attended preschool were developmentally vulnerable (on average) on 1.0 out of 5 domains. This was significantly lower than the average of developmentally vulnerable on 1.2 domains for those who did not

attend preschool. However, non-Indigenous children who attended preschool were developmentally vulnerable on only 0.4 domains, on average, showing that, while preschool attendance is associated with lower levels of developmental vulnerability, other factors are also associated with the increased developmental vulnerability of First Nations children.

Holzinger and Biddle (2015) analysed the Longitudinal Study of Indigenous Children (LSIC) data and showed that preschool attendance is associated with better educational attainment in later life; this, in turn, is associated with improved wellbeing and health and employment opportunities. Two years after preschool attendance, the authors showed a large, positive and statistically significant association between attendance and vocabulary, even after controlling for factors such as gender, the child's age, remoteness and financial position. Examining outcomes in the 3 waves of data collected 3–5 years after preschool enrolment (when children were aged 6–10) showed preschool attendance had enduring and large associations with improved behavioural outcomes, which were significant even after controlling for demographic characteristics. There were also large positive associations for vocabulary in native language and reading achievement at age 8–10. The positive effect on maths achievement and teacher-reported maths at age 8–10, while also positive, was weaker and became statistically insignificant once demographic characteristics were controlled. Results showed stronger associations with longer term outcomes (3–5 years) than short-term outcomes (2 years).

First Nations children's enrolment in preschool

Despite the advantages of preschool attendance, and its potential to remedy geographic, ethnic, and socioeconomic inequalities (Biddle and Bath 2013), there is lower enrolment of First Nations children in preschool programs (Holzinger and Biddle 2015) and lower participation by First Nations children in early learning programs compared with non-Indigenous children (AIHW 2018; Baxter and Hand 2013; Biddle 2007). The literature cites various reasons for non-attendance, including that parents feel their children are too young for preschool, or do not need it (Holzinger and Biddle 2015). Lower household income and education levels of parents were other reasons given (Biddle 2007).

First Nations parents and families have complex competing social worlds that make prioritising schooling difficult. In an ethnographic study of 3 Northern Territory schools, Lea and colleagues (2011a, 2011b) highlighted that the task of getting First Nations children to school is difficult, given other priorities such as cultural obligations, demands of multiple authorities, funerals, ceremonial commitments, and ensuring food and shelter.

First Nations children who suffer from emotional or behavioural difficulties are also more likely to have unexplained absences from school. Of children assessed by their teachers as being at risk of clinically significant emotional or behavioural difficulties, over 61% had more than 10 days of unexplained absences – about 43% of children at low risk were in this category (Zubrick et al. 2006). Further, Zubrick and colleagues (2006) note that First Nations children are more likely to have poorer attendance records at school if:

- their carers are not educated beyond year 10
- they have 7 or more life stress events occur in a year
- they speak a First Nations language as their first language
- they are sleep deprived
- they did not attend day care
- their carer sees the school principal about a problem they are having at school

- the school has a higher proportion of First Nations students or employs an Aboriginal and Islander Education Officer (AIEO).

Early childhood education

However, considering that children spent only 13.5 hours per week (on average) at preschool, preschool attendance cannot entirely compensate for socioeconomic or geographic disadvantage (Biddle and Bath 2013). The quality of education is also important, and it is likely to vary considerably across different schools. The empirical evidence suggests that high-quality preschool education – characterised in terms of staff–child relationships rather than activities conducted at child care, or the provider and program characteristics – is associated with better cognitive and socio-emotional development, net of other factors (Gialamas et al. 2014; Melhuish 2004). While it is not the only factor contributing to closing the gap in early developmental outcomes, boosting early childhood education attendance for First Nations children is likely to be a key factor in this area, particularly if preschool quality is high (Biddle and Bath 2013).

4.3.5 Family-level socioeconomic status

Socioeconomic disadvantage is associated with a host of factors that influence early child development, such as adequate maternal nutrition, maternal mental and physical health, parental stress and depression, parenting styles, and housing conditions. Studies regularly provide evidence that family-level economic disadvantage is associated with poorer academic achievement, poorer social skills and poorer cognitive functioning, while low maternal education, poor maternal health and lack of family networks pose risks to early child development (Maggi et al. 2010). Socioeconomic disadvantage can also affect children's literacy, such as language acquisition (Hart and Risley 1996; Maggi et al. 2010) and reading skills (Rikin et al. 2015; Tomopoulos et al. 2007); preschool attendance (Biddle 2007), and academic performance (Zubrick et al. 2006).

Impacts of socioeconomic circumstances on children's development

Differences in children's development, based on socioeconomic disadvantage, can be seen from their earliest years. Williamson and colleagues (2019) conducted a retrospective cohort study, and linked data of participants in the AEDC in New South Wales in 2009 and 2012 with birth registration and perinatal data. The study found that a large proportion of the inequality in social competence or emotional maturity between First Nations and non-Indigenous children was explained by socioeconomic disadvantage and perinatal outcomes, after adjusting for census year and sex. Socioeconomic status factors particularly associated with poorer social and emotional competence included not having private health insurance, low maternal education, and parental unemployment. The study found that almost all the inequality in social and emotional development could be attributed to socioeconomic disadvantage.

Conversely, better socioeconomic circumstances can lead to more investment in a child's development, in the form of enriching experiences and other cognitive stimulation which, in turn, contributes to children with higher levels of skills (Duncan et al. 2014; Heckman and Mosso 2014). This also helps to alleviate the effects of stresses caused by poverty, which evidence suggests negatively influences child development (Duncan et al. 2014). As well, higher levels of parental income are associated with more engaged parenting, which positively influences child development (Heckman and Mosso 2014).

Higher levels of parental education and occupation can also serve as protective factors, even when children are living in socioeconomically disadvantaged communities. Brinkman et al.

(2020), using simple links between SEIFA and parental education, shows that children who live in a disadvantaged community will be less likely to be developmentally vulnerable if their parents have higher levels of education than children in the same community whose parents have lower levels of education.

4.3.6 Parent/carer engagement in learning

Parental engagement in learning is another factor known to be associated with child developmental outcomes. Studies suggest that positive parental engagement in learning, either through schools or at home, improves academic achievement, wellbeing and productivity (Emerson et al. 2012). Parental involvement in learning – including provision of learning activities at home, parental involvement in school, reading at home, telling stories, teaching letters and numbers, singing songs and playing games – were associated with higher levels of literacy and maths achievement, general development, language development and reading and comprehension skills (Boonk et al. 2018; Rodriguez et al. 2009; Sénéchal and LeFevre 2002; Van Voorhis et al. 2013).

Parental involvement/engagement, in turn, is strongly associated with factors ranging from level of socioeconomic disadvantage and educational attainment, expectations, and previous experiences, to community and systemic issues, such as racial prejudice and poor housing (Higgins and Morley 2014).

4.3.7 Family stress and trauma

Exposure to ‘toxic stress’ resulting from strong, frequent or prolonged activation of the stress response system when children are young can disrupt the development of the brain and other metabolic systems during sensitive developmental periods (Shonkoff and Garner et al. 2012). This disruption leads to problems with cognitive, linguistic and social and emotional capacity. Several studies provide evidence of how stress in the home environment can affect child development (Carta et al. 2001; Kelly et al. 2011; Lea et al. 2011a, 2011b; Zubrick and Kovess-Masfety 2005; Zubrick et al. 2006).

Poorer early childhood developmental outcomes in First Nations children can be largely explained by disadvantage, particularly major life stressors (SCRGSP 2020). The LSIC data for wave 3 (2010) for 2 cohorts of 4,404 First Nations children aged 2.5 to 4 (B cohort, 3,813 children) and 5.5 to 7 (K cohort, 591 children) showed a higher prevalence of major life events among the families of children in the LSIC sample than among the general population, as measured by the Household, Income and Labour Dynamics in Australia (HILDA) survey. The most common major life events included pregnancy or a new baby; the death of a close family member or friend; housing insecurity, such as feeling crowded, having housing problems or moving house; having someone close being hurt or sick; and worries about money (FaHCSIA 2013).

Main stressors

Zubrick and Kovess-Masfety (2005) describe the main chronic and acute stressors that children in general can experience that pose a risk to their mental health, noting that these risks are more common in First Nations families. These stressors include the death of a parent; violence in the family; parental separation and family breakdown; parents who have serious health problems, including mental illness and/or drug and alcohol problems that disrupt effective parenting; psychological trauma; physical illness or disability; lack of peer support; and poverty.

Intergenerational trauma

First Nations families face intergenerational trauma associated with colonisation (SCRGSP 2020; Zubrick and Kovess-Masfety 2005). For example, attachment relationships between carers and children are disrupted, which affects parenting and family functioning: carers are more likely to suffer physical or mental illnesses and there is disconnection from extended family, culture and society. These effects are compounded when there are multiple bereavements and children witness the impact of trauma in their families.

4.3.8 Socioeconomic characteristics of neighbourhood

Local community and neighbourhood characteristics influence child development through social and psychological stresses, social organisation and through institutions, and different factors affect different aspects of child development to various degrees (Maggi et al. 2010). Evidence from some studies reviewed by Maggi and colleagues (2010) suggest that the socioeconomic status of neighbourhoods mostly affects child health outcomes, but once children enter school, their social networks and the potential resources that shape their lives widen. Other studies showed that neighbourhood effects are stronger for cognitive and academic outcomes than for behavioural and mental health outcomes (Maggi et al. 2010).

Minh and colleagues (2017) conducted a scoping review of 42 studies published between 2009 and 2014 on the impact of neighbourhood effects on the development of young children aged 0 to 6. They highlighted a number of characteristics of neighbourhoods that were negatively associated with child development. These include poorer neighbourhood safety, reduced sense of belonging, less neighbourhood cohesion, social disorder and less potential for community involvement with children. Children in these neighbourhoods had poorer language development and more emotional and behaviour problems. In contrast, neighbourhoods where children had better developmental outcomes had better schools and higher quality child care, measured by the amount of stimulation and support children were given – which may partly explain the improved language and cognitive outcomes for children in these neighbourhoods.

Minh and colleagues (2017) note, however, that the effect of many neighbourhood processes may be mediated through their impact on families. For example, higher levels of maternal depression and associated poorer parenting practices of those living in poorer neighbourhoods may explain the higher levels of emotional and social problems of children in these areas. Parents may also not be able to access resources to support children's development, which may explain lowered cognitive outcomes.

Moving to Opportunity study

Chetty and Hendren (2018) described results from a randomised controlled-trial social experiment - the Moving to Opportunity for Fair Housing Demonstration, which was conducted in 1994 in the 5 United States cities of Baltimore, Boston, Chicago, Los Angeles and New York City. Families living in public housing in high-poverty neighbourhoods were given the opportunity to move to less poor neighbourhoods (Leventhal and Brooks-Gunn 2003). The study showed that children's developmental outcomes (measured by college attendance, earnings, and single parenthood rates) improved when their families moved. However, the duration of exposure mattered: children who had longer exposure to better environments because they moved when they were younger had better outcomes. Chetty and Hendren (2018) suggested that peer effects or higher levels of resourcing in better neighbourhoods seemed to drive improved outcomes for children.

SEIFA IRSD quintiles

Differences in children's developmental outcomes by socioeconomic gradient have been shown using the 2009 AEDC data (Brinkman et al. 2012). Communities in more disadvantaged areas tend to have children with higher levels of developmental vulnerability than more affluent communities (Brinkman et al. 2020). For example, Williamson and colleagues (2019) in a retrospective cohort study, using AEDC data in New South Wales in 2009 and 2012 linked with birth registration and perinatal data, found that First Nations children from the most disadvantaged areas were at greater risk of social and emotional competence vulnerability. Although Brinkman and colleagues note that developmental vulnerability levels are highest in communities in the middle range of disadvantage spectrum, meaning it is important to target developmental vulnerability in all communities and not just in the most disadvantaged areas.

Collier and colleagues (2020) describe the differences between states in the proportions of developmental vulnerability in the least and most disadvantaged areas – what they call developmental vulnerability inequality. They also describe the changes in developmental vulnerability inequality over the 2009 to 2018 AEDC data collections, after adjusting for confounders.

- For example, Tasmania showed an increase in inequality over time so that, by 2018, there was a difference of 21 pp between the proportions of developmentally vulnerable children in the most and least disadvantaged areas. The Northern Territory also showed an increase in inequalities in developmental vulnerability by level of disadvantage over time so that it moved from the second lowest inequality in 2009 to equal highest inequality in 2018, 21 pp. Queensland experienced reductions in adjusted developmental vulnerability over time, although inequality by socioeconomic gradient was constant across collection waves.

4.4 Modelling factors affecting early child development

The trend analysis described earlier in this chapter showed that child developmental outcomes can vary considerably by various geographic and demographic characteristics. The literature review also indicated that the drivers of early child development can include a range of social, economic and behavioural factors affecting the child either directly, or indirectly through community effects.

To understand the net effects of various socioeconomic factors on early developmental outcomes among First Nations children, a random intercept multivariate logistic regression analysis was conducted using the 2021 AEDC. This approach takes into consideration the clustering of the data at the school level. The analyses are conducted using the GLIMMIX procedure in Statistical Analysis System (SAS) (SAS Institute Inc. 2018). For more information about logistic regression analysis see Appendix A.

Random intercept logistic regression models are used to analyse multilevel or hierarchical data with a binary outcome. The multilevel structure of the data induces correlation among observations from the same cluster (for example, observations from the same school in AEDC data). The advantages of using random intercept logistic models with multilevel data over traditional regression methods and fixed effects regression models are discussed in detail in Li et al. (2011).

The modelled outcome was a binary variable, coded as 1 if the child was assessed as developmentally on track in all 5 domains of the AEDC, and as 0 otherwise. The main predictors included the factors identified in the literature review as drivers of early child development. These were:

- preschool attendance
- absence from school
- parental level of education
- parental occupation
- problems at home.

The analyses also controlled for demographic, school- and community-level characteristics such as:

- gender
- age
- presence of developmental difficulties that affect learning, such as physical disability and speech, hearing or visual impairments
- English language background
- type of school
- state or territory
- remoteness
- SEIFA IRSD.

Table S4.25 provides the full list of variables, their description and distribution by Indigenous status. The statistical analyses were limited to children eligible for assessment of the developmentally on track status and those who were not repeating the grade.

The statistical analyses consisted of several steps:

- A logistic regression analysis was conducted to model the odds of First Nations children being developmentally on track. Additionally, the marginal effects for each explanatory variable were estimated using the `melogit` command in STATA, which allows the intercept to vary randomly by school. The marginal effects are presented in Table S4.28. However, the discussion of the results in the rest of this chapter will be restricted to odds ratios only.
- The odds of First Nations children being developmentally on track for each of the last 3 AEDC cycles were modelled to assess if any of the key factors have changed over time.
- A random forests analysis was conducted to assess variable importance of the key factors of First Nations children being developmentally on track on all 5 domains in 2021.

4.4.1 Multivariate logistic regression results

This section presents the results of random intercept logistic regression predicting the odds of First Nations children's being developmentally on track in the 2021 AEDC, controlling for individual, family- and community-level socioeconomic characteristics.

The results of the logistic regression model are presented in Table 4.2: the OR values above 1 indicate positive association, and the values below 1, negative association. Where the p-value is below 0.05, the association is considered statistically significant.

The outcomes of the random intercept logistic regression by AEDC cycle are presented in Table S4.26. The analyses were conducted for the 2015, 2018 and 2021 cycles (as parent-level education measures were not available in the AEDC cycles before 2015). The analyses presented in Table S4.26 do not include parental occupation measures for comparability reasons as parental occupation measures were not available prior to 2021 cycle. Thus, caution must be taken when comparing these results with the outcomes of the full model presented in Table 4.2.

Preschool attendance

Having attended preschool in the year before starting school was among the strongest predictors of being developmentally on track for First Nations children. The odds of being developmentally on track were about 1.6 times as high for those who attended preschool as for those who did not ($p < 0.001$), controlling for other factors. Higher odds were also seen for those with preschool attendance being unknown compared with those who did not attend. It is possible that the 'unknowns' may have attended preschool in the year before starting full-time schooling.

The comparison between the AEDC cycles reveals that (controlling for other factors) the effect of preschool attendance on being developmentally on track varied slightly across the cycles (OR ranging from 1.74 in 2015 to 1.49 in 2018) (Table S4.26).

Associations between the number of attendance hours and being developmentally on track were explored. Whether or not the child attended preschool for less than 15 hours, 15 hours, or more than 15 hours per week (compared with those who did not attend) had similar effects on being developmentally on track, net of other factors (results not presented). Thus, in these results, having attended preschool the year before starting school is a strong factor associated with being developmentally on track, regardless of the number of hours attended.

Absence from school

Absence from school was also a strong predictor of being developmentally on track among First Nations children, with the size of the effect increasing with increasing number of absent days. While the odds of being developmentally on track for First Nations children were not statistically different for absences of 2–5 days compared with 0–1 day, absences of 6–10 days lowered the odds of being developmentally on track by about 13% (OR=0.87, $p < 0.001$). Absences of more than 10 days compared with 0–1 day had the largest effect, lowering the odds of First Nations children being developmentally on track by about half (OR=0.54, $p < 0.001$), net of other factors.

Across AEDC cycles, similar trends of lower odds for more absent days were observed, with absences of more than 10 days, compared with 0–1 day, reducing the odds of First Nations children being developmentally on track by the largest amount (Table S4.26).

Table 4.2: Results of multivariate logistic regression predicting First Nations children being on track in all 5 domains in the 2021 AEDC

Independent variables		OR	Pr > t
Individual characteristics	Gender: Female vs Male	1.827	<.0001
	Age: Under 5 years vs 5 years	1.558	<.0001
	6 years and over vs 5 years	0.823	0.001
	Any developmental difficulties vs none	0.218	<.0001
	ESL: English as a second language vs not	0.733	0.000
	Preschool: Attended preschool vs did not attend	1.570	<.0001
	Unknown vs did not attend	1.210	0.025
	Number of days absent from school: 2–5 days vs 0–1 day	1.019	0.781
	6–10 days vs 0–1 day	0.875	0.053
	Over 10 days vs 0–1 days	0.544	<.0001
Family and home environment	Home environment: Has problems at home vs Not	0.180	<.0001
	Parent 1 year 12 completion: Completed vs No	1.188	0.000
	Unknown vs No	0.965	0.735
	Parent 2 year 12 completion: Completed vs No	1.174	0.001
	Unknown vs No	0.875	0.109
	Parent 1 post school qualifications: Bachelor degree and above vs None	1.294	0.004
	Diploma/Advanced Diploma vs None	1.261	0.002
	Cert I–IV vs None	1.135	0.015
	Unknown vs None	1.022	0.799
	Parent 2 post school qualifications: Bachelor degree and above vs None	1.354	0.003
	Diploma/Advanced Diploma vs None	1.148	0.143
	Cert I–IV vs None	1.176	0.004
	Unknown vs None	1.037	0.662
	Parent 1 occupation: Senior Management, etc. vs Not employed	1.203	0.048
	Other professionals vs Not employed	1.083	0.384
	Sales, service staff, etc. vs Not employed	1.140	0.045
	Hospitality, labourers, etc. vs Not employed	1.070	0.320
	Unknown vs Not employed	1.108	0.123
	Parent 2 occupation: Senior Management, etc. vs Not employed	1.724	<.0001
	Other professionals vs Not employed	1.694	<.0001
	Sales, service staff, etc. vs Not employed	1.581	<.0001
	Hospitality, labourers, etc. vs Not employed	1.425	<.0001
	Unknown vs Not employed	1.207	0.029

(continued)

Table 4.2 (continued): Results of multivariate logistic regression predicting First Nations children being on track in all 5 domains in the 2021 AEDC

Independent variables		OR	Pr > t
School and Community	School type: Catholic vs Government	1.008	0.911
	Independent vs Government	1.047	0.685
	State/territory: NSW vs Qld	1.226	0.001
	Vic vs Qld	1.082	0.366
	WA vs Qld	1.169	0.069
	SA vs Qld	0.986	0.892
	Tas vs Qld	1.226	0.108
	ACT vs Qld	0.447	0.000
	NT vs Qld	0.562	<.0001
	Remoteness: Inner regional vs Major cities	0.945	0.313
	Outer regional vs Major cities	0.992	0.899
	Remote vs Major cities	0.959	0.716
	Very remote vs Major cities	0.591	<.0001
	Local community SEIFA IRSD quintile: Q2 vs Q1 (most disadvantaged)	1.034	0.524
	Q3 vs Q1 (most disadvantaged)	0.958	0.484
	Q4 vs Q1 (most disadvantaged)	1.082	0.263
	Q5 (least) vs Q1 (most disadvantaged)	1.150	0.133

OR = odds ratio; P>|t| = p-value.

Source: AIHW analysis of AEDC data.

Other significant child-level factors

The results of the logistic regression show that among the individual level background characteristics, gender, age, English language background and presence of any developmental difficulties have statistically significant and strong associations with First Nations children being developmentally on track, net of other factors. For example, in 2021:

- Females had 1.8 times higher odds of being developmentally on track than males (Table 4.2).

The effect of gender has decreased over time: the odds ratio of females compared with males being developmentally on track fell from 2.1 in 2015 to 1.9 in 2018 and 1.8 in 2021, controlling for other demographic and socioeconomic differences (Table S4.26).

- Compared with 5-year-olds, children under 5 had 1.6 times higher odds of being developmentally on track, while the odds for children aged 6 and older were 0.82 (Table 4.2). Over the AEDC cycles, the association between younger age and being developmentally on track has become stronger. However, no clear pattern was observed for the association with older age (Table S4.26).
- Children for whom English was a second language had 30% lower odds of being developmentally on track (OR=0.73, $p<0.001$) compared with those with English as a first language.

The effect of English background on being developmentally on track among First Nations children has become smaller over time, with the odds ratio ranging from 0.51 in 2015, to 0.62 in 2018, to 0.72 in 2021 (Table S4.26).

- The presence of any developmental difficulties – such as physical disability; hearing, speech or visual impairment; or social, psychological and behavioural problems that affect learning – is strongly associated with children being developmentally on track, significantly lowering the odds compared with those with no difficulties (OR=0.22, $p<0.001$).

Similar results are found across all AEDC cycles. This is an expected outcome, considering that the AEDC domains included in the developmentally on track assessment are closely linked with literacy and numeracy, social and emotional wellbeing, and physical skills.

One in 3 First Nations children were reported as having some developmental difficulty; hence, including this factor as a control in the model shows that the strong effect of the key factors on developmental outcomes persist, net of any developmental difficulties.

Home environment

As well as individual-level characteristics, the analyses show that family-level determinants are also significant factors associated with First Nations children being developmentally on track. These include parental level of education and employment, and the home environment.

- Having problems at home or trauma related to isolation or resettlement statistically significantly reduces the odds of being developmentally on track by about 80% compared with not having any problems at home (OR=0.18, $p<0.001$). This link has been relatively consistent across the last 3 AEDC cycles.

The effect of 2 extra measures of parental involvement on developmental outcomes was assessed. The AEDC collects data on the teacher's assessment of parental engagement:

- in the learning process, such as whether or not the child is regularly read to at home
- with the school in supporting their child's learning.

Both measures showed strong positive effects on being on track, net of other factors. Parents who were actively engaged increased the odds of being on track 1.3 times, and regularly reading to a child increased the odds 5-fold (the results are presented in Table S4.27).

Despite the strong and statistically significant associations, these measures were excluded from the final model to avoid possible bias. Although the strong association found in the analysis is likely to be partially due to the benefits of regularly reading to a child and actively supporting their learning process, these measures in the AEDC are a subjective assessment made by the teacher and are likely to be highly influenced by how well the child is tracking developmentally, rather than being objective measures of parental involvement. The size and significance of the impact of other covariates in the model remain largely unaffected, whether or not parental engagement measures are adjusted for in the model.

Parental level of education and occupation/employment

The AEDC has collected information on parental level of education since 2015, on gender since 2018, and on occupation in the last cycle (note that occupation data are not available for children from Western Australia). There is a lot of missing data on gender. This means fully identifying to which parent the education and occupation data are related is not possible, although large proportions of 'Parent 1' are identified as female and large proportions of 'Parent 2' as male. Having a clearer indication which education and occupation data relate to which parent is important as the effects of level of education and occupation on the child's being developmentally on track were different for Parent 1 and Parent 2. (This difference

occurs in the multivariate regression model, but not in the simple bivariate comparisons of the role of parental education reported in Section 2).

- Having a parent who completed year 12, compared with having a parent who has not completed year 12, is associated with about 1.2 times higher odds of being developmentally on track among First Nations children – and the effect is about the same in the case of both parents.
- Parental post-school qualifications compared with no qualifications overall were also positively associated with being developmentally on track among First Nations children, with the size of the effect larger for higher levels of education.

The effects of occupation groups, compared with no employment, on a child's being developmentally on track is more pronounced for Parent 2 occupation than for Parent 1 occupation:

- For parent 1 (most likely a mother), the occupation groups were in a positive direction; however, they were not statistically significant.
- For parent 2 (most likely a father), the higher skill-level occupations showed a positive effect on being developmentally on track compared with not being employed.
 - For example, the odds of being developmentally on track for a child with Parent 2 employed in the highest skill-level profession, compared with not employed, were 1.72 times higher, while for a child with Parent 2 employed in the lowest skill-level profession, compared with not employed, the odds of being developmentally on track were 1.42 times higher.

State/Territory, community-, and school-level determinants

Despite the large variations seen in the proportion of First Nations children developmentally on track by geographic factors in Section 4.2, the multivariate analysis shows that some of these differences disappear, while others persist, after controlling for individual and family-level characteristics.

State/Territory

The results of the logistic regression show that, even after controlling for individual and family-level socioeconomic background characteristics, there are considerable differences across the states and territories for First Nations children.

- Children in the Australian Capital Territory and the Northern Territory have significantly lower odds of being developmentally on track than children in Queensland.
- In New South Wales compared with Queensland, First Nations children have about 1.2 times higher odds of being developmentally on track.
- The odds of being developmentally on track were not statistically different for First Nations children living in other states compared with Queensland.

Remoteness

In 2021, compared with living in *Major cities*, living in *Inner regional*, *Outer regional* or *Remote* areas of Australia did not significantly affect First Nations children being developmentally on track, but living in *Very remote* locations decreased the odds of children being developmentally on track by about 41% (OR=0.59, $p<0.01$). The results for the net effect of remoteness on First Nations children being developmentally on track were similar in the previous AEDC cycles.

SEIFA IRSD

The level of socioeconomic disadvantage at the community-level measured by SEIFA IRSD quintiles did not show any significant effect on First Nations children being developmentally on track in 2021, net of other factors. This suggests that the bivariate association with SEIFA IRSD observed in Section 4.2.4 above is reflective of differences in the variables controlled for in the model. The results from previous cycles slightly varied where living in less disadvantaged areas (in IRSD fourth or fifth quintile), compared to the most disadvantaged areas (IRSD first quintile) was associated with statistically significantly increased odds of being developmentally on track. However in these models from earlier AEDC cycles, parental employment was not available to be included in the model.

School type

The odds of First Nations children being developmentally on track in 2021 were not significantly different by type of school and the results were similar for the last 3 AEDC cycles.

4.4.2 Random forest analysis

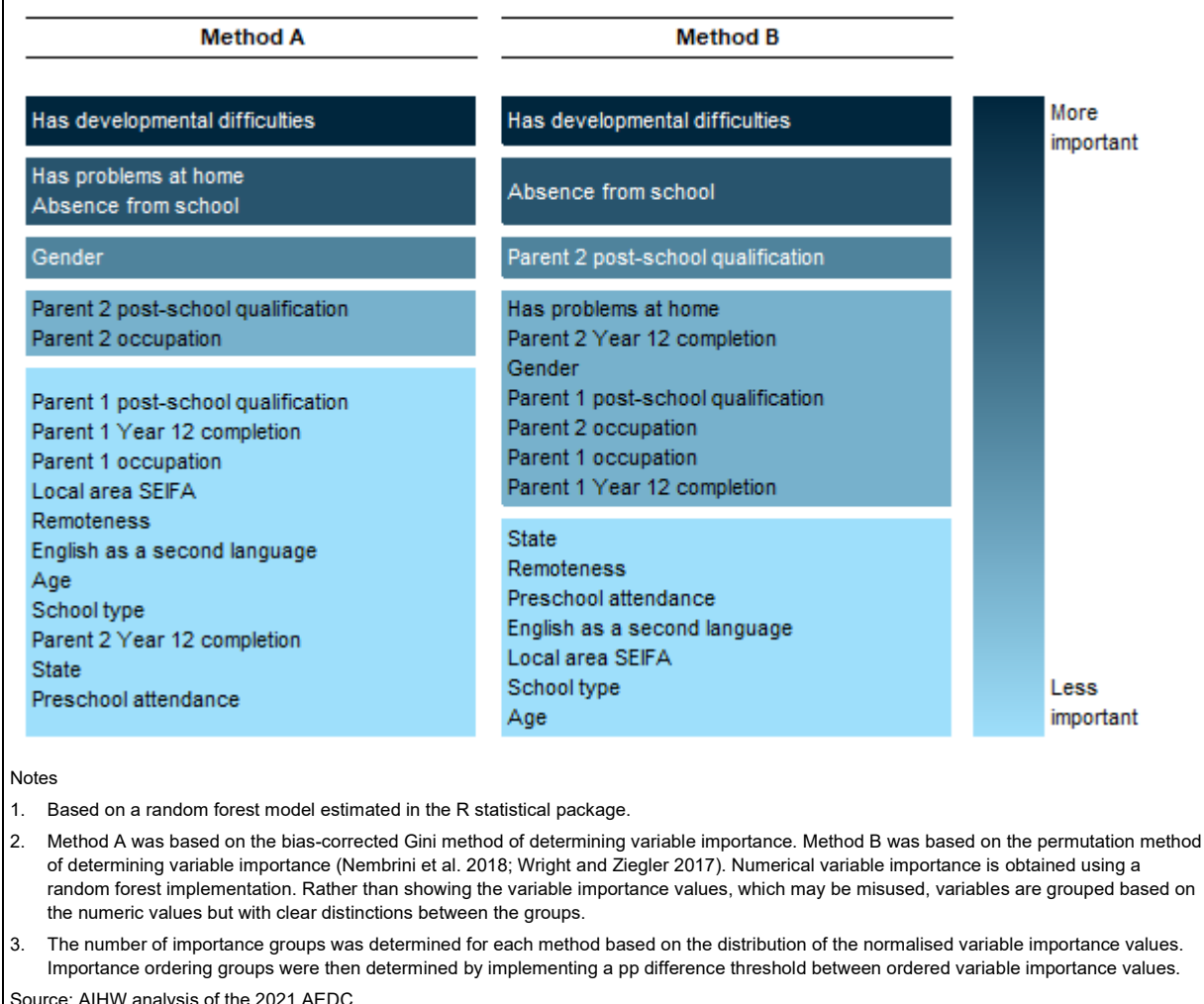
For this study, all 17 independent variables in the logistic regression model predicting First Nations children being developmentally on track in all 5 domains (results shown in Table 4.2) have been included in the random forests analysis and were ranked from high to low importance, based on both measures of importance (Figure 4.15). For more information about random forest analysis see Appendix A.

Across both measures (Method A and Method B), having any physical, emotional, or social developmental difficulties that affect learning was ranked as a variable with very high importance in explaining if First Nations children were developmentally on track on all 5 AEDC domains. This result is not surprising, considering that the 5 domains used in the assessment of being developmentally on track are highly affected by the child's ability and skills to perform well on domain related tasks. And 1 in 3 First Nations children had some kind of developmental difficulty.

Number of days absent from school ranked as a variable with relatively high importance among the factors associated with First Nations children's being developmentally on track on all 5 domains of the AEDC, and the results were consistent across both measures. The logistic regression model presented in Table 4.2 shows that, net of other factors, an increasing number of absent days was associated with 0.87–0.54 lower odds of First Nations children's being developmentally on track. And more than half of First Nations children in the 2021 AEDC had been absent for 6 days or more in the first half of the school year. Having problems at home was ranked as being of relatively high importance based on the first measure. However, it ranked as having low importance based on the second measure.

The importance rankings of the rest of the variables were less consistent across the 2 measures. Variables of medium importance were gender (based on the first measure) and post-school qualification of parent 2 (based on the second measure). The remaining factors were ranked as having low or very low importance. Individual-level characteristics such as age, English language background, preschool attendance (despite being strongly associated with being developmentally on track in the regression model), and community-level factors – such as state/territory of residence, remoteness, local area SEIFA and school type – were consistently ranked as having very low importance across both measures. Meanwhile, parental socioeconomic status measured by school completion, post-school qualification and occupation ranked as having either low or very low importance.

Figure 4.15: Relative importance groupings of variables predicting First Nations children's being developmentally on track in all 5 domains of the 2021 AEDC



In order to understand whether the relative ranking of the variables were affected by the dominant effect of having developmental difficulties observed in Figure 4.15, an alternative random forest ranking exercise, excluding this variable, was carried out. The alternative ranking results showed only minor changes. The highest ranked variables that explained which child was developmentally on track remained as absences from school and parental occupation and post-school qualifications, as in the initial ranking in Figure 4.15. The role of gender was reduced somewhat, and preschool attendance and having English as a second language remained in the less important category.

4.5 Policy implications

Aboriginal and Torres Strait Islander children thriving in their early years is the fourth socioeconomic outcome in the National Agreement on Closing the Gap. The agreed target is to increase the proportion of First Nations children assessed as developmentally on track in all 5 domains of the AEDC to 55%. Although the gap in developmental outcomes between First Nations and non-Indigenous children has been closing over time, in 2021 only about 34% of First Nations children were assessed as being developmentally on track compared with 56% of non-Indigenous children. However, while the early years are a vital period of a child's development, intervention is still possible if children are not developmentally on track at this stage.

This chapter presents the current and historical trends in this target outcome at the national level, disaggregated by various geographic, demographic and social characteristics. It comprehensively discusses the key factors associated with early child development through a literature review and advanced statistical analyses, using the 2021 AEDC data (the latest at the time of writing). An extensive body of literature is available about early childhood development, both in Australia and globally.

Bronfenbrenner's ecological model of human development provides a conceptual framework for studying the drivers of early child development. This framework suggests that the factors associated with child development range from child- to family- and community-level determinants that shape the environment and the circumstances in which children grow up. These include factors associated with early childhood education and its quality; school attendance; parental level of education and occupation, and engagement in their child's learning; community environment; and level of disadvantage.

Regression modelling outcomes

The outcomes of the regression modelling add to the existing evidence (Biddle and Bath 2013; Brinkman et al. 2020; Collier et al. 2020; Jorgensen et al. 2017; Silburn et al. 2018), showing that factors at the microsystem level in Bronfenbrenner's model – those with the most direct or proximal influences on child development – are important factors associated with First Nations children's developmental outcomes.

These findings indicate that developmental difficulties, preschool attendance, school absences, stress in the home environment and parental/carers' education and occupation are significantly associated with First Nations children's being developmentally on track. Among these, having any physical, emotional or social developmental difficulty was one of the most important determinants predicting First Nations children's being assessed as developmentally on track in all 5 AEDC domains.

Disability among First Nations children

The limited data on the prevalence of disability among First Nations children suggest that rates of disability among First Nations children are higher than among non-Indigenous Australians. Further, identifying disability, help-seeking behaviour, early prevention, and use of support services among First Nations people is hindered due to individual, community, system and provider-related factors. It has been suggested that to deal with First Nations childhood disability and maximise participation in the education system, it is critical to:

- adapt appropriate instruments and tools to guide developmental surveillance and monitoring, particularly in remote Australian First Nations communities

- increase access to culturally appropriate, accessible and acceptable health and social services
- ensure the services are led and controlled by First Nations people
- increase workforce participation of First Nations people in health, education and social services
- collect more data and research evidence to help capture the breadth and complexity of First Nations childhood disability to inform effective and sustainable practice and policy (DiGiacomo et al. 2013).

Absence from school

The findings also suggest that absence from school is among the most important predictors of being developmentally on track among First Nations children and the size of the effect increases with increasing number of absent days. The literature suggests that reasons for school absences for First Nations children may include emotional or behavioural difficulties (Zubrick et al. 2006) and/or juggling other priorities such as cultural obligations, demands of multiple authorities, funerals, ceremonial commitments, and ensuring food and shelter (Lea et al. 2011a, 2011b).

Improving attendance at school is likely to hinge on collective action across a range of sectors, including health, housing, education, transportation, and social welfare, among others (Halseth and Greenwood 2019). Zubrick and colleagues (2006) suggested that as well as improving parental/carers' education outcomes and mitigating household socioeconomic disadvantage, consistent school attendance could benefit from providing programs at school (particularly early in First Nations children's schooling) that support and treat emotional and behavioural difficulties.

Other factors influencing outcomes

Other factors found to be associated with First Nations children's being developmentally on track included preschool attendance, parental/carer's level of education and occupation, and having problems at home or trauma related to major life events.

Earlier evidence from AEDC analysis indicated that a large rise in preschool availability and enrolment in Queensland between 2009 and 2012 likely drove falls in developmental vulnerability (Collier et al. 2020). However, changes in developmental vulnerability in other jurisdictions could not be explained by changes in preschool attendance, so Collier and colleagues (2020) suggested that other factors must also be at play. Research indicates that the reasons behind First Nations children's being less likely to get preschool education include low priority for sending children to preschool, lower household income and parental education, and living in a low socioeconomic area (Biddle 2007; Lea et al. 2011a, 2011b; Jorgensen et al. 2017).

As well as increasing the physical and financial availability of preschool services, First Nations children's preschool attendance may be improved by providing incentives for culturally sensitive, appropriate and safe early childhood education programs (Holzinger and Biddle 2015); employing First Nations preschool workers (Biddle 2007); and building trust with First Nations communities (The Smith Family 2021).

Improving parental education depends on a range of broader systemic and structural factors, such as health, housing, transportation, and social welfare (Halseth and Greenwood 2019). Parents would benefit from support not only to access further education but also to find employment, as well as support in dealing with the social determinants of health, including inadequate housing (Williamson et al. 2019).

Zubrick and Kovess-Masfety (2005) describe several factors likely to reduce the stress and trauma that First Nations families experience and the resulting social and emotional problems that children experience. These include:

- improving the health and wellbeing of parents/carers
- eliminating social exclusion and inequality that diminishes opportunity and choice
- building social support for families and providing health, child care and educational services that are tailored to meet their needs
- providing postnatal home visiting programs, early education and day care, and parenting programs for preschoolers and early school age children.

Outcomes in communities of improved AEDC scores

Communities that have shown improvements in AEDC scores over time have been those with strong links between schools, child care services, and community organisations such as health services. These communities also exhibit a strong sense of responsibility for their children, and children and families had a strong sense of belonging. As well, these communities initiated collective or collaborative ventures that may also have influenced children's outcomes positively (Gregory et al. 2016).

The findings in this chapter along with evidence from previous research may inform social policy aimed at improving early child development among First Nations children by highlighting the areas where there is clear evidence of an identifiable need.

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Student learning potential

5

Summary

Target

The target associated with Outcome 5 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander people aged 20–24 attaining year 12 or equivalent qualification to 96% by 2031 from a baseline of 63%.

Background

Education is widely recognised as a key social determinant of health and future socioeconomic wellbeing, including income and employment.

- While schooling is the mainstream way to achieve an education, Aboriginal and Torres Strait Islander (First Nations) people have a long history of using informal learning methods – storytelling or yarning, observation, imitation, real-life or land-based learning (as opposed to the mainstream Western education system) – to pass on their knowledge and skills to the next generation.
- It is important to note also that educational opportunities for First Nations people in the mainstream education system were restricted for much of colonial history.

Current status

- Nationally, in 2021, 68% of First Nations people aged 20–24 had attained year 12 or an equivalent qualification. While the target shows improvement, it did not achieve the progress point for 2021 (74%) to be on track to meet the 2031 target.
- Among First Nations people aged 20–24 (who identified as Aboriginal and/or Torres Strait Islander in the 2011 Census) who had not completed year 12 or equivalent (566) in 2011, more than one-quarter (27%) went on to do so by 2016.
- The proportion completing year 12 or equivalent among First Nations people aged 20–24 was higher for women (72%) than for men (64%).
- The proportion of First Nations people aged 20–24 who had attained year 12 or equivalent ranged from 40% in the Northern Territory to 82% in the Australian Capital Territory.
- *Major cities* had the highest proportion of year 12 attainment among First Nations people aged 20–24 (at 76%) while *Very remote* areas had the lowest (42%).
- About 52% of First Nations people aged 20–24 living in most disadvantaged areas (in decile 1 of Index of Relative Socioeconomic Disadvantage [IRSD]) completed year 12 or equivalent compared with 89% of First Nations people living in least disadvantaged areas (IRSD decile 10).

Key findings

- The literature suggests that First Nations students living in remote areas face challenges in attending secondary school due to the limited number of schools available in these communities, despite willingness to continue schooling by both students and parents. It is more difficult and costly to attend schools in remote areas and the facilities often have inadequate services, resources and trained teachers.
- Another major obstacle to equal access to education in First Nations communities in Australia and elsewhere is ethnic and cultural discrimination. Many First Nations students report being discriminated against by students and teachers because of their language and cultural practice.

- Students' educational aspirations are strongly linked with support from parents, family and community as these have an impact on student motivation and self-efficacy. Positive First Nations cultural identity is associated with higher students' educational aspirations among students.
- Regression analysis showed that, net of other factors, the odds of having completed year 12 or equivalent among First Nations people aged 20–24 were statistically significantly:
 - higher for those identifying with a tribe, language group or clan than for those who do not
 - higher for those living in households that were not crowded than for those living in crowded households
 - higher for those living in *Major cities* than for those living in *Very remote* areas
 - higher for those living in areas ranked in the middle 3 IRSD deciles of socioeconomic disadvantage than for those living in the most disadvantaged areas (bottom IRSD decile)
 - lower for those living in Western Australia and South Australia than for those living in New South Wales and the Australian Capital Territory.

Key factors

- Interventions targeting attendance and achievement in the early and middle levels of school should be strongly considered, based on a wealth of literature that suggests that earlier years of educational attendance and achievement have a substantial direct influence on year 12 attainment. A holistic approach that takes into consideration the broader social challenges in communities, and fosters connections with First Nations peers, mentors and communities, may be one way to improve school attendance and achievement in earlier years.
- Practising cultural safety and culturally responsive teaching should be considered paramount within the school environment.
- Greater support should be provided for First Nations students with disabilities, mental health conditions or other ongoing health conditions to enable them to complete school.
- Policy interventions designed to reduce household overcrowding among First Nations youth may improve the year 12 or equivalent attainment rate.
- Improving educational resources in remote communities is likely to improve First Nations year 12 attainment outcomes.

5.1 Introduction

Outcome 5 of the 2020 National Agreement on Closing the Gap is that Aboriginal and Torres Strait Islander students achieve their full learning potential. The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people aged 20–24 attaining year 12 or equivalent qualification to 96% by 2031 from a baseline of 63%.

Outcome	Aboriginal and Torres Strait Islander students achieve their full learning potential.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people (aged 20–24) attaining year 12 or equivalent qualification to 96%.
Indicator	The proportion of Aboriginal and Torres Strait Islander people aged 20–24 who have attained a minimum of year 12 or equivalent, or Certificate level III or above qualification.
Measure	<i>Numerator</i> – the number of Aboriginal and Torres Strait Islander people aged 20–24 who have attained a school qualification of year 12 or equivalent, or a non-school qualification at Certificate level III or above based on the Australian Qualifications Framework. <i>Denominator</i> – the total number of Aboriginal and Torres Strait Islander people in the population aged 20–24. This proportion is presented as a percentage.

In this chapter, ‘year 12 or equivalent’ refers to attaining a school qualification of year 12 or equivalent, or a non-school qualification at Certificate level III or above based on the Australian Qualifications Framework (AQF), unless otherwise indicated. In other contexts, ‘year 12 or equivalent’ may refer to year 12 or equivalent school qualification only (that is, excluding non-school equivalents); thus, care should be taken when comparing data in this chapter with those from other sources.

Education is widely recognised as a key social determinant of health as well as a determinant of prospects for future socioeconomic wellbeing, including income and employment (AIHW 2023; ABS 2011; Biddle 2007; Biddle and Cameron 2012). Year 12 completion is associated with more successful transitions to work, even among those not proceeding to further study (Ryan 2011). Aboriginal and Torres Strait Islander (First Nations) people who complete a year 12 qualification are more likely to be employed, work full time and have skilled jobs (Shirodkar et al. 2018; Venn and Biddle 2018).

The agreed target for measuring progress towards the outcome that First Nations students achieve their full learning potential (Target 5 in the National Agreement on Closing the Gap), is to increase the proportion of First Nations people aged 20–24 attaining year 12 or equivalent qualification to 96% by 2031.

To make progress towards that target, it is important to understand the current picture and trend for year 12 or equivalent attainment among First Nations people, as well as to attempt to identify the key factors associated with this attainment rate.

The main data source for assessing progress towards the target is the Australian Bureau of Statistics (ABS) Census of Population and Housing (Census). Data are available every 5

years and enable relatively detailed disaggregation by geography and other characteristics. At the time of analysis, 2021 data were the most recent Census data available for inclusion in this chapter.

While not directly comparable with Census data, supplementary data are also available from certain ABS surveys. Estimates of year 12 or equivalent attainment for the First Nations population are available from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) (ABS 2019), most recently conducted in 2018–19. However, small sample sizes and sampling error associated with survey data limit not only the extent to which data can be disaggregated but also the ability to detect meaningful differences over time or between subpopulations. For this report, the 2018–19 NATSIHS is used only for the regression-based primary data analysis identifying key factors associated with this target (see Section 5.4).

This chapter provides a summary of First Nations year 12 or equivalent attainment, including:

- data on the target indicator at the national, state/territory levels, by remoteness areas, and by index of relative socioeconomic disadvantage, as well as on progress towards the target
- a literature review of broad findings on the main factors associated with year 12 or equivalent attainment
- results of primary data analyses identifying key factors associated with year 12 or equivalent attainment.

5.2 Year 12 or equivalent attainment target: current picture and time trends

This section presents the data available on year 12 or equivalent attainment rates, along with progress towards the target. Analysis of attainment by age, sex and geographical areas are also presented. To align with the target, data are presented for First Nations people aged 20–24.

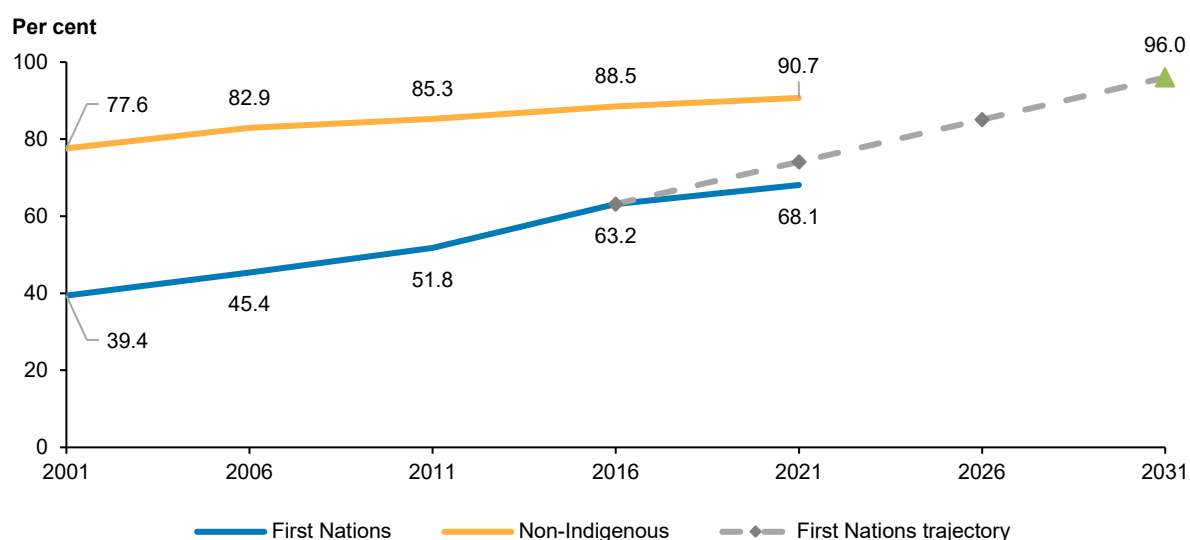
5.2.1 National

Nationally, in 2021, 68% of First Nations people aged 20–24 (45,800 out of a population of 67,300 with a valid Census response) had attained year 12 or equivalent qualification. This is a 5 percentage point (pp) increase from 63% in the baseline year of 2016 and a considerable increase of 23 pp from 45% in 2006 (Figure 5.1). In 2021, the non-Indigenous rate of year 12 or equivalent attainment among those aged 20–24 was 91%, 1.3 times that of the First Nations rate (or 23 pp higher).

The 2021 trajectory point in order to meet the 96% target in 2031 was 74%, 6 pp higher than the actual 2021 rate achieved (Figure 5.1). This assessment of progress should be interpreted with some caution, however, because of the limited number of data points available (Productivity Commission 2023).

In 2031, the population of First Nations people aged 20–24 is projected to be about 110,400 (ABS 2011-to-2031). A year 12 or equivalent attainment rate of 96% in 2031 would equate to about 106,000 First Nations people. That would represent roughly 47,000 additional First Nations people with a year 12 or equivalent attainment in 2031 compared with 59,000 estimated First Nations people aged 20-24 with the same level of education in 2021. This equates to an average increase of about 4,700 First Nations people per year over the decade from 2021 to 2031.

Figure 5.1: Rate of year 12 or equivalent attainment among people aged 20–24, by Indigenous status, 2001–2021



Note: Data in this table have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

Source: AIHW analysis of ABS 2001, 2006, 2011, 2016 and 2021 Census (TableBuilder), cited in Productivity Commission 2023.

Type of attainment

As the target definition of year 12 or equivalent includes both a school and/or a non-school qualification, Table 5.1 shows year 12 or equivalent completion by type of attainment. In 2021, the majority (60%) of First Nations people aged 20–24 had completed schooling at year 12 or equivalent – comprising those who had completed only year 12 (38%) and those who had completed both year 12 and a Certificate level III (Cert III) or above qualification (22%). Only a small proportion (8.6%) of First Nations people aged 20–24 had not completed schooling at year 12 but had obtained a non-school qualification at Certificate level III or above.

Table 5.1: First Nations people aged 20–24 who have attained year 12 or equivalent, by type of attainment, 2021

	Completed year 12 or school equivalent			No year 12, but has a Cert. III qualification or above ^(d)	Total year 12 or equivalent
	Completed year 12 only ^(a)	Completed year 12 and has a Cert. III qualification or above ^(b)	Total ^(c)		
Number	25,538	14,472	40,010	5,805	45,815
% of population	38.0	21.5	59.5	8.6	68.1

Cert. III = Certificate Level III.

(a) Includes people who have completed year 12 or an equivalent school qualification but have not attained any non-school qualifications at AQF Certificate III level or above.

(b) Certificate III level or above includes Certificate III or IV not further defined, but excludes Certificate not further defined and level not determined.

(c) This analysis combines information on highest year of school completed and level of non-school qualifications; as a result, the data on completion of year 12 or school equivalent shown here may differ from those published elsewhere.

(d) Includes people who did not state the highest year of school completed but had completed a Certificate level III qualification or above.

Note: Data in this table have been slightly randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

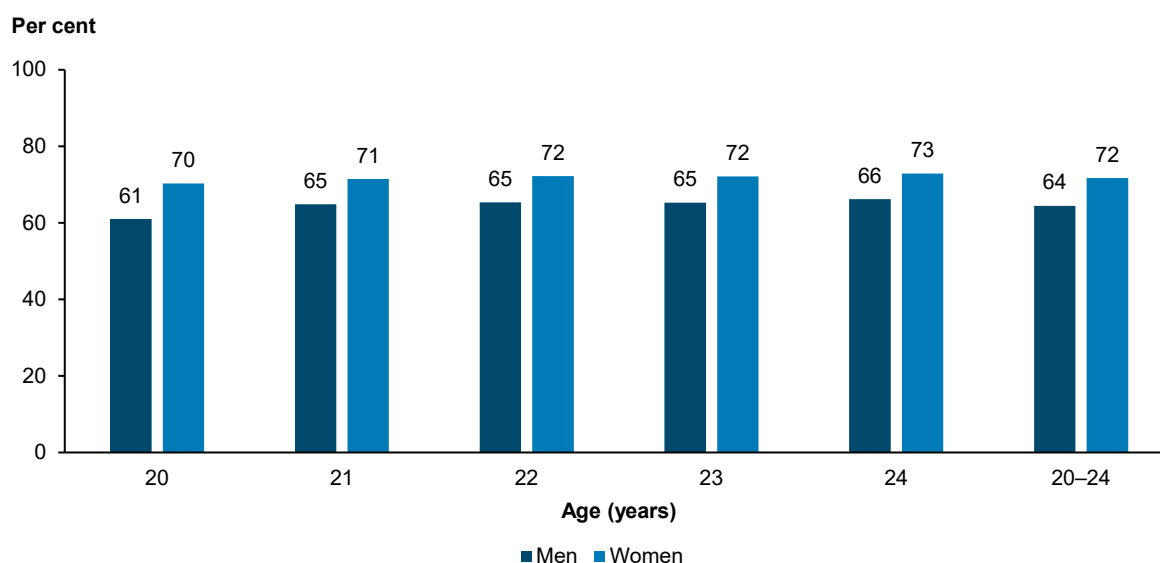
Source: AIHW analysis of ABS 2021 Census (TableBuilder).

Age and sex

There are notable differences in year 12 or equivalent attainment by sex and age (Figure 5.2; supplementary Table S5.1). For the 20–24 age cohort (the target specification), the proportion completing year 12 or equivalent is higher for women than men (72% and 64%, respectively).

Attainment rates by single year age and sex for the 20–24 age group shown in Figure 5.2 indicate that the proportion completing year 12 or equivalent increases slightly with each additional year of age. This suggests that some First Nations students are completing year 12 or equivalent at later ages, especially men. Among those aged 20, 61% of men had completed year 12 or equivalent compared with 70% of women. By age 24, the proportion of men completing year 12 or equivalent increased by 5 pp to 66%; for women, the proportion increased from 70% to 73%.

Figure 5.2: Proportion of First Nations people aged 20–24 with year 12 or equivalent attainment, by single year age and sex, 2021



Note: Data in this table have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

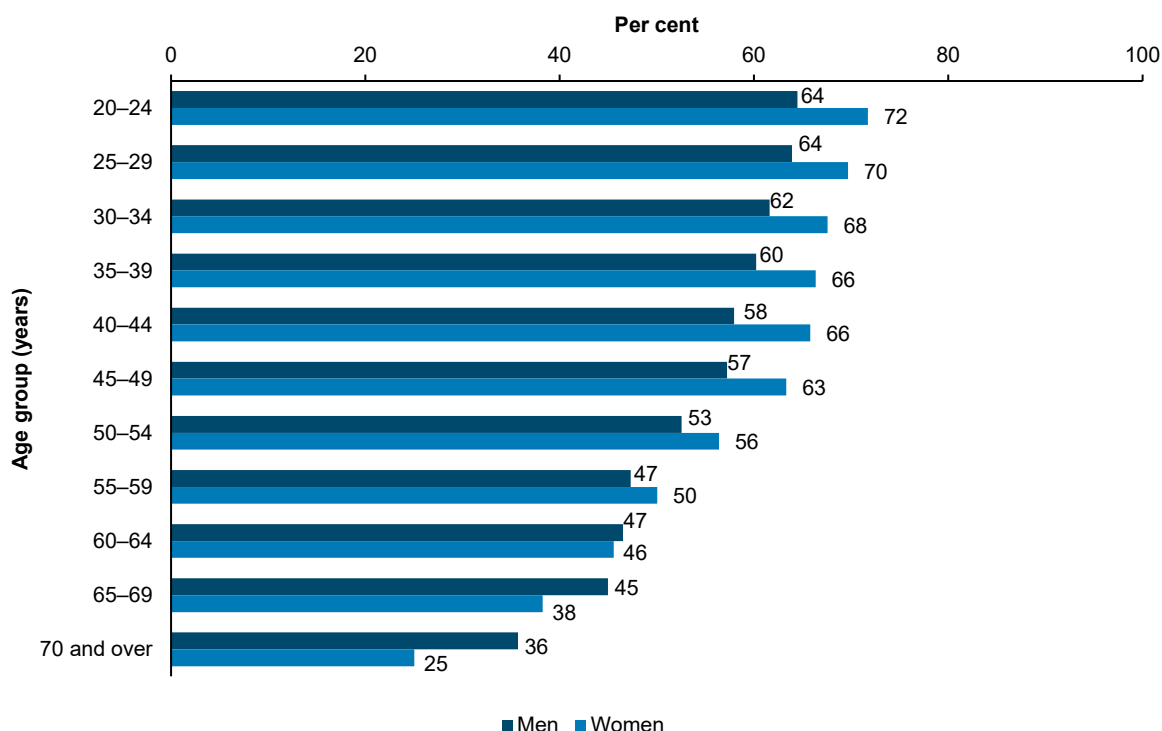
Source: AIHW analysis of ABS 2021 Census (TableBuilder).

Additional analyses done using the linked Australian Census Longitudinal Dataset (ACLD) from the 2011 and 2016 Census further support the finding that First Nations people may be completing year 12 or equivalent at a later age. The results showed that among First Nations people aged 20–24 (who identified as Aboriginal and/or Torres Strait Islander in the 2011 Census) who had not completed year 12 or equivalent (566) in 2011, more than one-quarter (27%) went on to do so by 2016.

Among those who did not complete year 12 or equivalent in 2011 were a small number of people (95) who did not identify as Aboriginal and/or Torres Strait Islander in the 2011 Census but did so in the 2016 Census. Among this cohort (newly identified as Aboriginal and/or Torres Strait Islander in the 2016 Census), 33% went on to complete year 12 or equivalent by 2016 (results not shown).

Looking across a broad range of age groups (Figure 5.3; Table S5.2), the rate of year 12 or equivalent attainment decreased in a roughly linear way among older age groups, reflecting an increasing rate of year 12 attainment over time for both men and women. For the older cohorts (aged 60 and over), year 12 attainment was higher for men than women; the reverse applied for cohorts younger than 60, where female attainment rates exceeded male attainment rates.

Figure 5.3: Proportion of First Nations people aged 20 and over with year 12 or equivalent attainment, by age group, 2021



Note: Data in this table have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

Source: AIHW analysis of ABS 2021 Census (TableBuilder).

5.2.2 State and territory

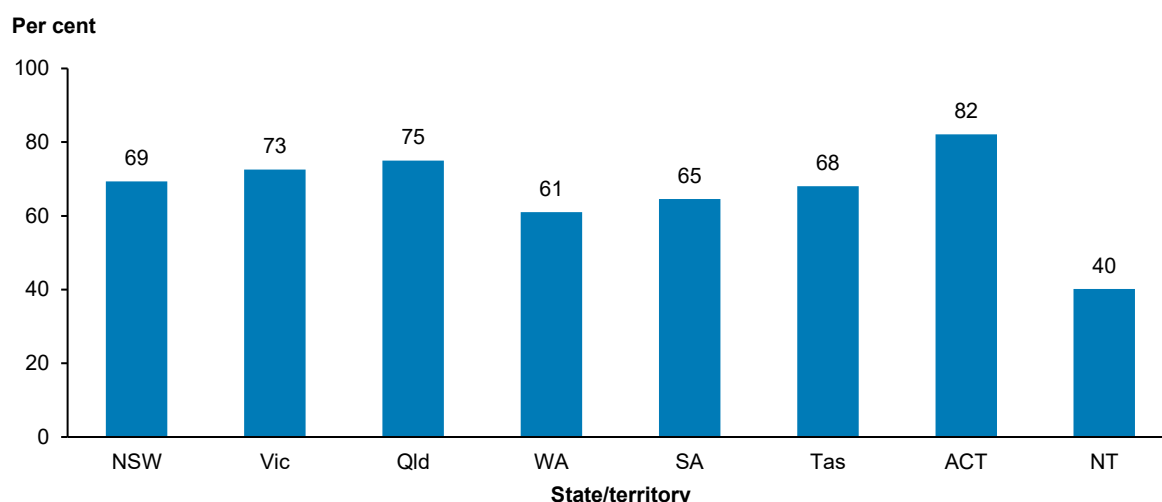
The proportion of year 12 or equivalent attainment varied substantially by location of residence. It must be noted, however, that the place of residence recorded in the Census may differ from the place where a person lived during the years of obtaining a year 12 education.

Across the states and territories in 2021, the proportion of year 12 or equivalent attainment among First Nations people aged 20–24 ranged from 40% in the Northern Territory to 82% in the Australian Capital Territory. The remaining states ranged from 61% to 75% (Figure 5.4a; Table S5.3).

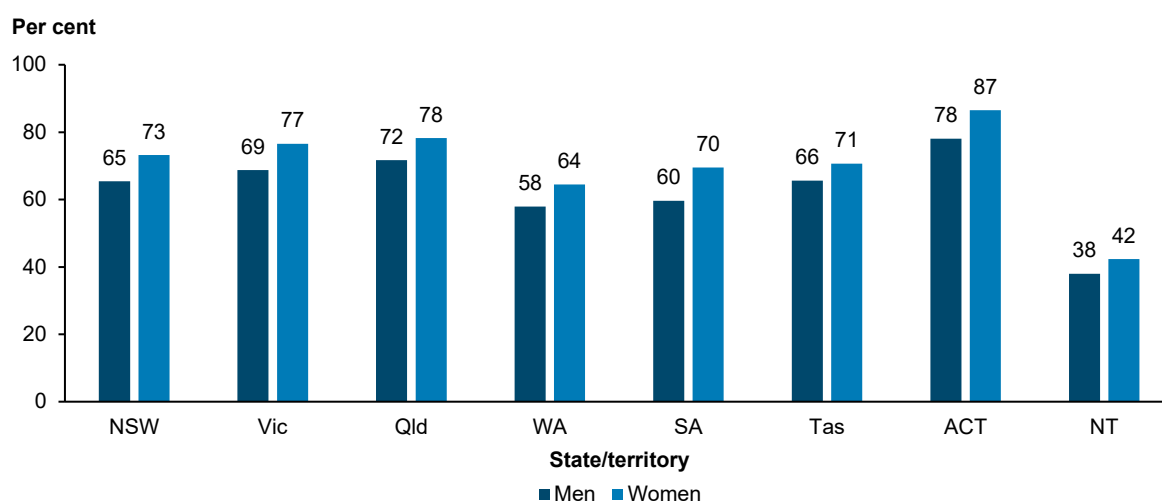
When the state and territory data on year 12 attainment is disaggregated by sex, in all states and territories, the proportion of year 12 or equivalent was higher for women than men. The gender gap was largest in South Australia (60% for men versus 70% for women) and smallest in the Northern Territory (38% for men versus 42% for women) (Figure 5.4b).

Figure 5.4: Proportion of First Nations people aged 20–24 with year 12 or equivalent attainment, 2021

a) By state/territory



b) By state/territory and sex



Note: Data in these tables have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

Source: AIHW analysis of ABS 2021 Census (TableBuilder).

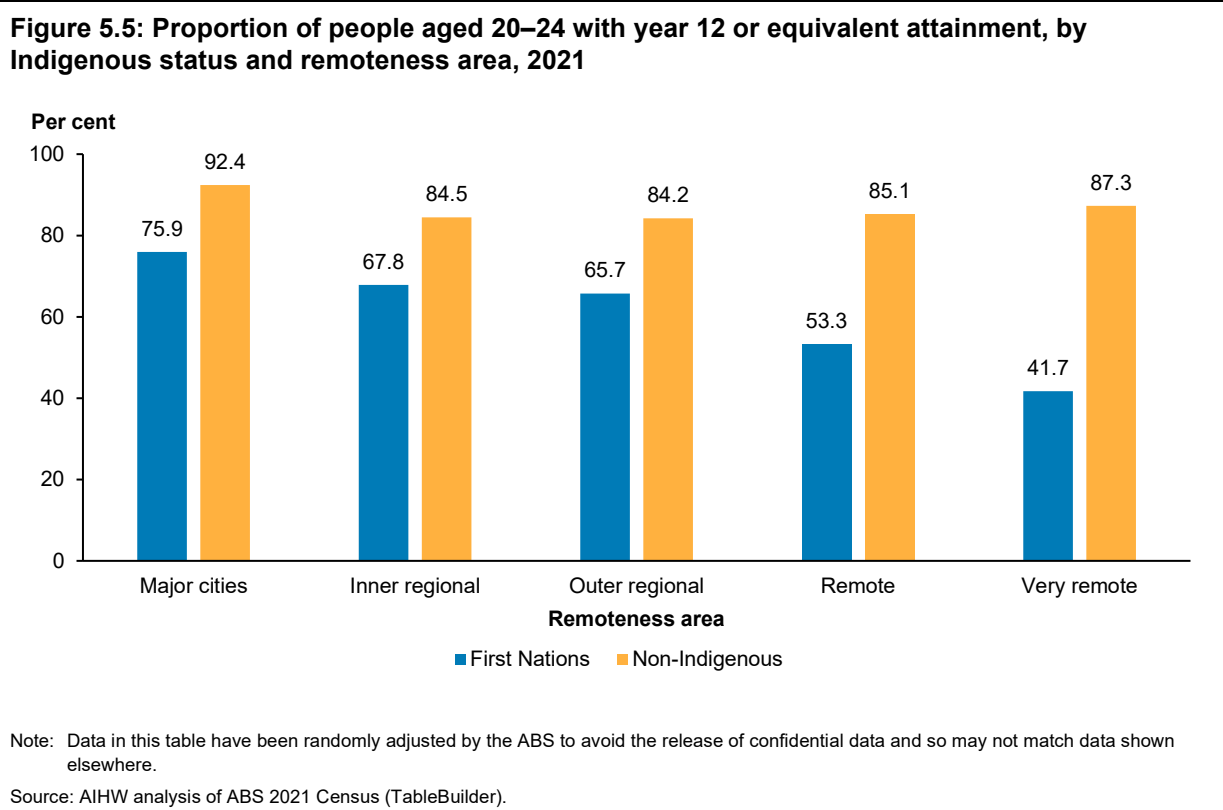
5.2.3 Remoteness area

In 2021, 86% (60,100) and 14% (9,900) of First Nations people aged 20–24 usually lived in non-remote and remote areas, respectively (ABS 2022). There was a notable remoteness gradient to year 12 or equivalent attainment among First Nations people, where increasing levels of remoteness were associated with lower levels of attainment in 2021:

- *Major cities* had the highest proportion at 76%
- *Very remote* areas had the lowest proportion at 42%.

In all remoteness areas, the proportion of year 12 or equivalent was higher for women than men, and the gender gap was wider in non-remote areas than in remote areas (results not shown).

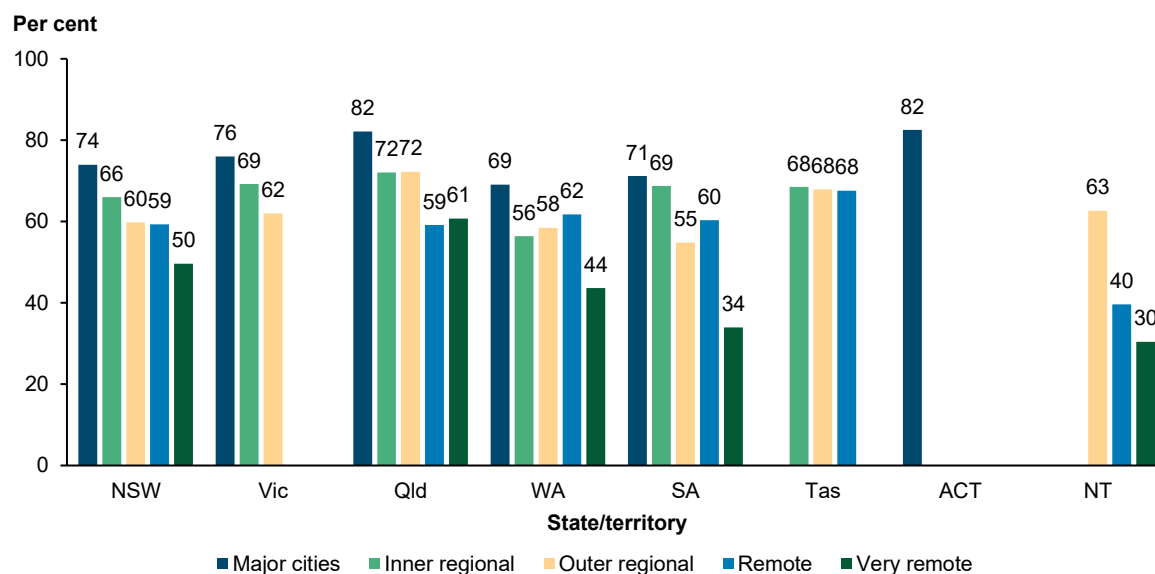
Figure 5.5 also presents the non-Indigenous rate of year 12 or equivalent attainment, which clearly shows that the gap in attainment rates is most pronounced in *Remote* and *Very remote* areas (Table S5.4).



5.2.4 State/territory and remoteness

Data from the Census enable more detailed geographic analysis. Analysis by remoteness areas within each state/territory shows that, in 2021, the proportion of year 12 attainment among First Nations people aged 20–24 ranged from 30% in *Very remote* areas of the Northern Territory to 82% in *Major cities* of the Australian Capital Territory (Canberra). For some states and territories, such as New South Wales, Victoria and the Northern Territory, the proportion of year 12 or equivalent attainment decreased with increasing remoteness. *Inner regional*, *Outer regional* and *Remote* areas of Tasmania had similar proportions (all around 68%) of year 12 or equivalent attainment (Figure 5.6; Table S5.5).

Figure 5.6: Rate of year 12 or equivalent attainment among First Nations people aged 20–24, by state/territory and remoteness, 2021



Note: Data in this table have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere. Data exclude areas with fewer than 10 First Nations people within specified age groups enumerated in the 2021 Census – that is, Major cities Tas/NT, Inner regional NT/ACT, Outer regional ACT, Remote Vic/ACT, Very remote Vic/Tas/ACT.

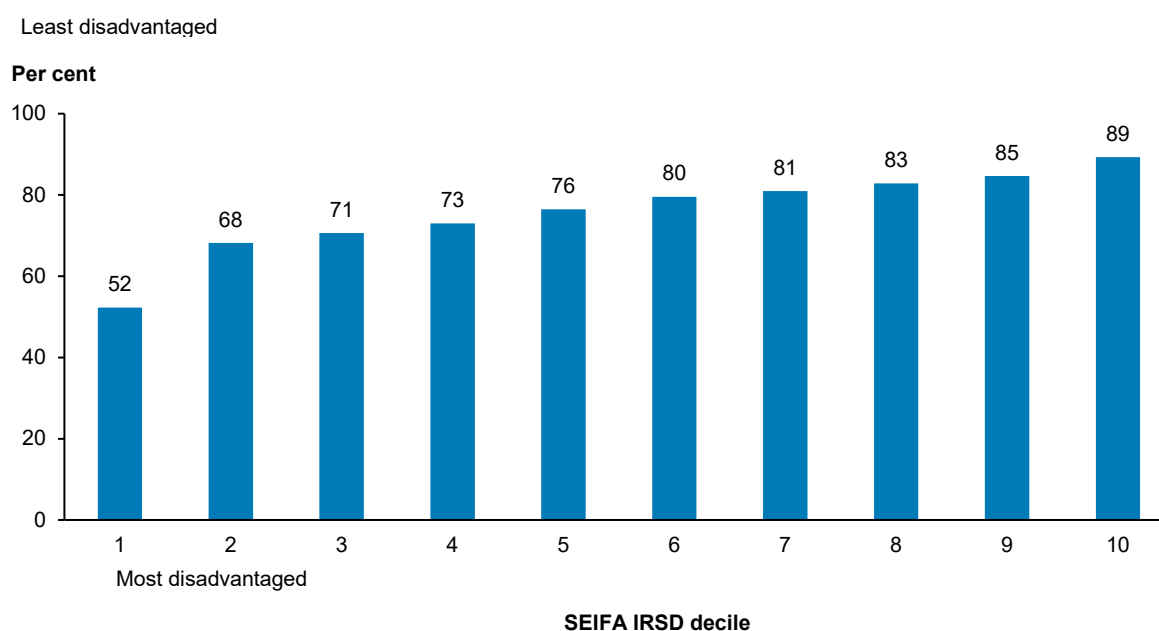
Source: AIHW analysis of ABS 2021 Census (TableBuilder).

5.2.5 Socioeconomic index

Using the ABS SEIFA IRSD (ABS 2021), we can see a noticeable socioeconomic gradient to year 12 or equivalent attainment among First Nations people in 2021. Among those living in areas ranked in IRSD decile 1 (most disadvantaged), 52% of First Nations people aged 20–24 completed year 12 or equivalent, while among those living in IRSD decile 10 (least disadvantaged), 89% completed year 12 or equivalent (Figure 5.7; Table S5.6).

More than half (56%, around 37,600) of all First Nations people aged 20–24 lived in areas ranked in the bottom 3 IRSD deciles in 2021. About 28% (19,000) lived in areas ranked in the most disadvantaged decile, and 3.1% (2,100) lived in areas ranked in the least disadvantaged decile (ABS 2022).

Figure 5.7: Rate of year 12 or equivalent attainment among First Nations people aged 20–24, by SEIFA IRSD decile, 2021



Note: Data in this table have been randomly adjusted by the ABS to avoid the release of confidential data and so may not match data shown elsewhere.

Source: AIHW analysis of ABS 2021 Census (TableBuilder).

5.3 Literature review

Education is an investment that provides better opportunities and future returns for an individual by enhancing their income, knowledge, skills, health and wellbeing. While schooling is the mainstream way to achieve an education, there are other ways to learn. First Nations people have a long history of using informal learning methods to pass on their knowledge and skills to the next generation. This has mainly been done through storytelling or yarning, observation, imitation, emulation, real-life or land-based learning, personal trials and feedback as opposed to through the mainstream Western education system (Bodkin-Andrews et al. 2017; Hughes and More 4 December 1997; Yunkaporta 2009; Yunkaporta and Kirby 2011).

It is also important to note that educational opportunities for First Nations people in the mainstream education system were restricted for much of colonial history. During most of the 1800s, First Nations students were not included in government schools; only from 1870, did they slowly start to gain admittance (Biddle and Edwards 2018). Further, the experience of Western schooling has been negative for many First Nations students who have been forced to learn in a foreign language and culture as well as being forbidden from using their native language. This approach has dismantled Indigenous languages, cultures and traditions and continues to affect the ability of families to interact positively with the education system (Dodson 2010). First Nations people have a strong community-based culture and hence support from both immediate and extended family members, peers and older generations within a community play a key role for First Nations students in enjoying learning and continuing with schooling (Wilks et al. 2020).

Despite these challenges, year 12 attainment levels of First Nations people have been increasing steadily over the past few decades. There are many factors associated with year

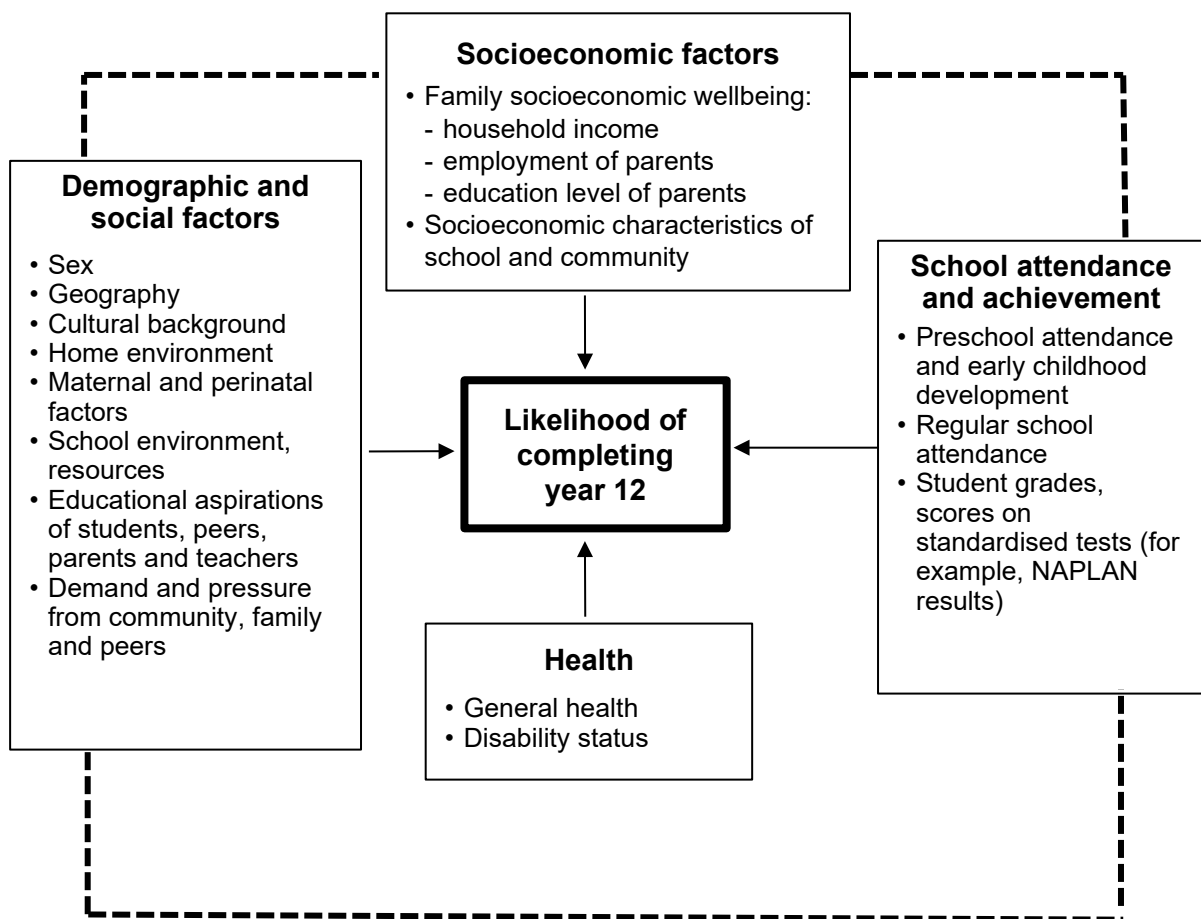
12 attainment, many of which are interrelated and influence schooling either directly or indirectly. Based on the available data and literature, a conceptual framework (Figure 5.8) has been developed that provides an overview of these factors (AIHW 2018b).

In this framework, there are 4 main domains that have a direct and indirect association with the likelihood of completing year 12:

1. demographic and social factors
2. socioeconomic factors
3. school attendance and achievement
4. health.

Evidence of their association with year 12 attainment is drawn from studies that have examined factors affecting school achievement more generally. Most of the literature relates to all Australians, rather than focusing specifically on First Nations people (AIHW 2018b).

Figure 5.8: Direct and indirect driving factors associated with year 12 or equivalent attainment



NAPLAN = National Assessment Program – Literacy and Numeracy.

Note: This figure shows many factors that research suggests are associated with year 12 attainment (either directly, or through influences on key factors associated with year 12 attainment). However, it is not meant to demonstrate causal pathways, and many of the factors shown are interrelated. It is also not an exhaustive list of all possible influences.

Source: Adapted from AIHW (2018b).

5.3.1 Demographic and social factors

Prior studies have shown that females are more likely to complete year 12 than males, among both First Nations people and non-Indigenous Australians, and since the early 1980s this gap between males and females has increased. There are also gender differences in National Assessment Program – Literacy and Numeracy (NAPLAN) test scores and school attendance rates that favour female students (Biddle and Meehl 2016; Marks et al. 2000).

Another demographic factor affecting school attendance for both First Nations and non-Indigenous communities is living in remote areas (Biddle 2007). First Nations students living in remote areas face challenges in attending secondary school due to the limited number of schools available in these communities, despite willingness to continue schooling by both students and parents. It is more difficult and costly to attend schools in remote areas and the facilities often have inadequate services, resources and trained teachers (Biddle 2007, Biddle and Edwards 2018). A study by the AIHW (2018b) using the 2014–15 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) found that the odds of completing year 12 or Certificate I/II among First Nations people aged 20–24 were statistically significantly lower in remote areas compared with non-remote areas (OR 0.5).

Another major obstacle to equal access to education in First Nations communities in Australia and elsewhere is racial discrimination (United Nations 2017). First Nations students report being discriminated against by students and teachers because of their language and cultural practice (Schwab 2018). Similar challenges are seen in First Nations communities in the United States, Canada, Latin America and other countries (Kirkness and Barnhardt 1991; McCarty and Lee 2014; Patrick and Moodie 2016; Psacharopoulos and Patrinos 1994). To overcome this, schools need to ensure the cultural safety of students and that their teachers are culturally responsive in their teaching practice.

Further, family structure and support are crucial for children's educational attainment. Boon (2008) found that 2-parent families provide more emotional support, while there is evidence of stress among families with teenage mothers, single-parent families and families that speak English as a second or third language.

The school environment itself also affects academic performance. Perry et al. (2022) analysed 2018 Programme for International Student Assessment (PISA) data and found that the socioeconomic characteristics of a school had a substantial effect on student performance – and were stronger in predicting academic performance than the individual socioeconomic characteristics of the student.

Finally, students' educational aspirations are strongly linked with parental behaviour and family and community support as these have an impact on student motivation and self-efficacy (Boon 2008). Positive First Nations cultural identity is associated with students' educational aspiration (Bodkin-Andrews et al. 2017).

5.3.2 Socioeconomic factors

Socioeconomic factors, including the student's parental education, parental employment and household income levels, are all strongly associated with educational achievement and attainment in general (AIHW 2018b; Chesters and Daly 2017; Considine and Zappala 2002; Côté 1996; Ermisch and Francesconi 2001; Lamb et al. 2004). Hancock et al. (2018) used NAPLAN test scores of Australian children from the Longitudinal Study of Australian Children (LSAC) and found that it was not only the parents' but also the grandparents' educational backgrounds that had a substantial impact on educational attainment of the next generation.

These studies support the social reproduction viewpoint that the socioeconomic background of the family – including finances, education and culture – are passed on through generations, leading to intergenerational advantage or disadvantage pertaining to education. As a result, one would expect that students from a low socioeconomic background would need extra support from schools and communities to overcome such disadvantages. Lamb et al. (2020) argues that the disparities of academic performance related to students' family socioeconomic backgrounds start to appear as early as year 3 in reading and numeracy NAPLAN scores for First Nations students.

Additionally, household financial stress is associated with a student's disruptive behaviour, which limits academic achievement (Boon 2008). This is often linked to other factors, such as childhood trauma or undiagnosed learning disability or other disability. A previous study by the AIHW (2018b) using the 2014–15 NATSISS found both household overcrowding and household income had a statistically significant influence on year 12 attainment. The odds of completing year 12 or Certificate I/II or above were 60% lower among First Nations people living in an overcrowded household than for those who did not, and the odds of completing year 12 or Certificate I/II were 5 times higher among First Nations people living in households in the 3 highest deciles of equivalised household income compared with those in the lowest 3 deciles.

5.3.3 Health

Poor health and disability limit access to education and future employment opportunities (Biddle 2007). Zubrick et al. (2006) found that having disability or being in poor health was one of the main reasons for First Nations children's not attending school in Western Australia. Primary and secondary students with disability frequently experience bullying and harassment in schools. They not only face tremendous challenges to access disability support services, but also experience discrimination from service providers. The experience of symptoms for students who suffer from mental health conditions can also substantially affect academic performance and achievement (Fleming and Grace 2016).

5.3.4 School attendance and school achievement

Poor rates of school attendance from a young age affect achievement and outcomes. Analysis of the Longitudinal Study of Indigenous Children (LSIC) and international research suggest that participation in formal early childhood education and care positively influences both developmental and learning goals, and can influence outcomes into early adulthood (Holzinger and Biddle 2015). Biddle (2014) argues that regular school attendance is positively associated with school outcomes. School retention also has a direct relationship with year 12 attainment rates (AIHW 2018b).

While most First Nations students attend school regularly, a large minority have very low rates of attendance. First Nations students are also more likely to miss school than non-Indigenous students (Biddle 2014). The reasons for school absenteeism for First Nations students are varied and involve a combination of home, school (including poor quality teaching) and individual factors. First Nations specific reasons also relate to lack of recognition by schools of First Nations culture and history (Purdie and Buckley 2010). Maintaining support and connections with family and First Nations peers, mentors and communities are important factors for First Nations students' school attendance and educational achievement (Pechenkina and Anderson 2011; Stahl et al. 2020; Wilks and Wilson 2015).

Prior school achievement is strongly linked to year 12 attainment (AIHW 2018b). Studies by Marks (2022) and Marks et al. (2000) showed that year 12 attainment was strongly

associated with achievement in literacy and numeracy test scores in year 9. Mahuteau et al. (2015) found similar outcomes by analysing results from the PISA, indicating that early educational performance at year 9 was a critical factor for later educational attainment. It has also been estimated that there would be almost no difference in later completion rates by socioeconomic and cultural background if the differences in early education performance scores were eliminated (AIHW 2018a; Mahuteau et al. 2015; McIntyre et al. 1996). Mahuteau et al. (2015) argue that improved education performance during early and middle school have the greatest impact on improving educational outcomes for First Nations students post school, and that reducing the size of the academic achievement gap between First Nations and non-Indigenous students at age 15 should be a key focus.

AIHW (2018b) analysis of data from the 2009 Longitudinal Survey of Australian Youth similarly shows that higher levels of numeracy and reading achievement at age 15 were highly correlated with the likelihood of completing year 12 or equivalent by age 19.

5.4 Modelling factors affecting year 12 or equivalent attainment

This section presents a summary of the results from the primary data analyses of factors associated with year 12 or equivalent attainment, using unit record data from the 2018–19 NATSIHS. The AIHW previously modelled the rate of year 12 or equivalent attainment among First Nations people using the 2014–15 NATSISS (AIHW 2018b).

Two modelling approaches are used to identify and quantify the role of specific factors associated with year 12 or equivalent attainment from primary data analyses:

- a logistic regression model, which estimates the level of associations of each driver with the odds of year 12 or equivalent attainment, after controlling for a range of other variables and drivers
- a random forest model, which estimates the relative importance of each driver.

For more information about logistic regression and random forest analyses see Appendix A.

Logistic regression modelling was undertaken to identify and quantify the role of specific factors associated with year 12 or equivalent attainment for the following 2 subgroups of the population:

- First Nations people aged 20–24, of which there were 669 in the 2018–19 NATSIHS survey sample, with an equal number of men and women
- First Nations people aged 20–39 (expanding the age group increases the sample size by more than 4 times to 2,768, and thus offers greater statistical power to identify meaningful associations).

The modelled outcome was a binary variable coded as 1 if the reference individual had completed year 12 or equivalent, and as 0 otherwise. The main explanatory variables included the drivers identified in the literature review. However, not all drivers identified in the literature could be included in the analyses due to the limited types of variables available in the data source. For example, in the literature, the school environment, quality of education, educational aspirations, school attendance and prior school achievement of the student have been identified as key factors associated with year 12 attainment. These important variables could not be included in the model due to the unavailability of such measures in the survey data. (See Table S5.7 for the full list of variables included in the model and their distribution.)

Parental education has been shown to be an important driver of children's educational attainment. While the 2018–19 NATSIHS does not include any information on parental background, equivalised household income and house ownership can be used as a proxy to measure parental socioeconomic background for First Nations people aged 20–24. However, many of the respondents in the 20–39 age group are more likely to live on their own and be the key people from which the household-level data are derived. In this age group, household income and house ownership are more likely to reflect the educational status of the key household members and hence more likely to be an effect of year 12 attainment, rather than a driver. It must be noted that a similar reverse association between household income and ownership with education – where attainment of higher education can lead to greater household economic wellbeing – is also possible in the 20–24 age group, but it is less likely.

In the same manner, the association between geographic- and area-level measures of socioeconomic disadvantage and education can go in both directions. On one hand, living in less disadvantaged and non-remote areas may provide better opportunities to attain an education, but, on the other, a person with a higher level of education is also more likely to move to areas with better employment and economic opportunities.

It would be possible to estimate the direction of the causal associations using longitudinal or panel data. However, the 2018–19 NATSIHS is a cross-sectional survey conducted at one point in time and does not allow the direction of causal relationships to be assessed – which is a limitation of this analysis.

Regression models can provide biased estimates when reverse causality is present. Reverse causality is possible in the associations between household-level economic wellbeing and year 12 attainment. Another bias could arise from the fact that the location of the individual is where they currently live and not where they may have attended school.

One way to avoid introducing bias to the model predicting year 12 or equivalent attainment is to omit the measures of household- and area-level socioeconomic wellbeing. However, this would prevent us from assessing the important effect of parental education proxied by household-level economic wellbeing on education attainment, as well as accounting for any area-level differences. To avoid getting biased estimates of other predictors in the model while omitting important variables, we initially fit a model without socioeconomic wellbeing measures; in subsequent models, we first add measures of household-level socioeconomic wellbeing, followed by area-level geographic and socioeconomic disadvantage variables. For the 20–24 age group, household-level measures include household income and home ownership; however, these 2 variables are excluded for the 20–39 age group due to the higher likelihood of their being direct results of education.

Full results with stepwise addition of variables are presented in Table S5.8. The table shows that the effect of most variables from the baseline model (Model 1) do not change considerably when household- and area-level measures of socioeconomic wellbeing are added to the analyses. The only exception in the 20–24 age group model is the main language spoken at home, where speaking English at home increases the odds of year 12 attainment 2.2 times at a statistically significant level in the baseline model. However, subsequent models show that this effect is mainly explained by the remoteness and area-level socioeconomic disadvantage.

A similar change in the effect of the main language spoken at home is seen in the 20–39 age group model. Another change observed when the measures of socioeconomic wellbeing are added to the analysis in this model is in the effect of ever having been diagnosed with a mental health condition. Being diagnosed with a mental health condition is associated with 25% lower odds of year 12 attainment at a statistically significant level. However, in the final

model (Model 3, Table S5.8), the effect is no longer significant. It must be noted that association here is not indicating causation. While it is possible that a diagnosed mental health condition would prevent a person from attaining year 12 education, it is also possible that a person could have been diagnosed with a mental health condition after the age when year 12 is usually completed.

5.4.1 Multivariate logistic regression results

The results of the final logistic regression models including all variables for First Nations people aged 20–24 and 20–39 are shown in Table 5.2. It is important to note that while the results of the regression are presented for 20–24 and 20–39 year age groups, results for the 20–24-year-old group are more relevant as someone who was 39 in 2019 would have been 20 in 2000. The determinants of year 12 attainment in recent years are more relevant than what they were in 2000 noting that most people attain year 12 when they are young.

20–24 age group results

While there were notable differences between women and men in the Census results (see Figure 5.2), there was only a slight difference by sex in the survey sample – 60% of women completed year 12 or equivalent versus 58% of men (Table S5.7). In the regression model, the association between sex and the odds of completing year 12 or equivalent, net of other factors, was not statistically significant.

Variables relating to health and wellbeing were not statistically significant in the 20–24 age group model, though a high odds ratio was seen for educational disability, which measures whether an individual has a type of disability that restricts their ability to participate in education.

Among the cultural variables, identifying with a tribe, language group or clan had almost 3 times higher odds of having completed year 12 or equivalent than not doing so (including those who did not know or refused to answer the question, or who identified only with a mission or regional group).

A variable specifically indicating descendants of the Stolen Generations was included for the 20–24 age group model because First Nations people in this age group would not have themselves been part of the Stolen Generations. This variable, which indicates whether the respondent had a parent, (great) grandparents, aunties or uncles removed from their natural family, was not statistically significant in the model and had an odds ratio close to 1. However, the limitations of this survey data source discussed earlier should be considered when interpreting this result.

Among the household-level measures of socioeconomic wellbeing, living in households that were not overcrowded (where no additional bedrooms were required, or a spare bedroom was available) had almost 3 times the odds of having completed year 12 or equivalent compared with living in overcrowded households (where one or more additional bedrooms were required).

Among geographic variables, area-level measure of socioeconomic disadvantage and location of residence were found to be statistically significant:

- Living in the middle 3 deciles of the SEIFA IRSD had twice the odds of having completed year 12 or equivalent, compared with living in the bottom decile.
- Living in *Major cities* was associated with 4 times higher odds of completing year 12 or equivalent, compared with living in *Very remote* areas, controlling for other factors. This means that area-based measures have an independent impact on year 12 attainment.

- Living in Western Australia and South Australia were associated with about 65% lower odds of having completed year 12 or equivalent compared with living in New South Wales or the Australian Capital Territory. (The Australian Capital Territory was combined with New South Wales due to the small sample size in the survey for the Australian Capital Territory.)

20–39 age group results

When the age group was expanded to look at those aged 20–39, several additional variables had a statistically significant effect on year 12 or equivalent attainment. (Note that these models excluded household income and house ownership for reasons described earlier.)

Specifically:

- First Nations people living in couple households had 1.6 times higher odds of having completed year 12 or equivalent compared with First Nations people living in single-parent households
- First Nations people who did not have an education disability – a type of disability that restricts a person’s ability to participate in education – had more than 2 times the odds of having completed year 12 or equivalent compared with First Nations people who did have this form of disability
- none of the cultural and historical variables were statistically significant for the 20–39 age group model
- First Nations people living in the top 6 deciles of the SEIFA IRSD had 2.4 times higher odds of having completed year 12 or equivalent compared with First Nations people living in the bottom deciles of the SEIFA IRSD
- First Nations people living in Western Australia, South Australia or the Northern Territory had between 44–54% lower odds of completing year 12 or equivalent compared with First Nations people living in New South Wales/Australian Capital Territory.

An alternative model (results not shown) was estimated including both household income and house ownership. While there were no major differences, in this model higher equivalised household income levels and house ownership both statistically significantly increased the odds of First Nations people’s completing year 12 or equivalent. This is, however, more likely to be the effect of reverse causality, where First Nations people aged 20–39 who have completed year 12 or equivalent are more likely to have higher household income and hence also more likely to own a home.

As well, in the alternative model, differences between couple households and single-parent households were not statistically significant; however, the odds of completing year 12 or equivalent among First Nations people who identified with a cultural group were statistically significant higher when controlling for household income and house ownership in the model for the larger 20–39 age group.

Table 5.2: Logistic regression results on attainment of year 12 or equivalent, First Nations people aged 20–24 and 20–39, 2018–19 NATSIHS, odds ratio estimates and marginal effects

Explanatory variable (Reference category)	Comparison category	20–24		20–39	
		OR	P> t	OR	P> t
Age (25–39)	20–24	–	–	1.00	0.984
Sex (Male)	Female	1.24	0.442	1.25	0.147
Family composition (Single parent)	Couple only or couple with dependants/and other person	1.30	0.488	1.55*	0.022
	Other one or more families or lone person	1.42	0.365	1.45	0.089
Main language spoken at home (Aboriginal/Torres Strait language or other)	English	0.53	0.172	0.89	0.552
Self-rated health (Fair/poor)	Excellent/very good/good	1.49	0.360	1.12	0.595
Ever been diagnosed with a mental health condition (Yes)	No	1.05	0.888	0.88	0.449
Has educational disability (Yes)	No	1.98	0.096	2.22**	0.005
Social exclusion because Indigenous in the last 12 months (Yes)	No	1.14	0.748	0.94	0.776
Cultural identification (No)	Yes, tribal, language groups or clan	2.94**	0.001	1.29	0.114
Lives on homeland (No)	Yes	1.59	0.205	1.20	0.295
	Not applicable	1.69	0.128	1.03	0.887
Descendant of Stolen Generations (Yes) ^(a)	No	0.95	0.877	–	–
Removal from natural family (Self and/or relative removed)	Neither self nor relatives removed	–	–	1.12	0.481
	Unknown	–	–	0.97	0.902
Equivalised household income (Bottom 3 deciles)	Middle 4 deciles	1.46	0.284	–	–
	Top 3 deciles	1.21	0.701	–	–
	Not stated/Unknown	1.27	0.545	–	–
House ownership (Renter)	House owner	1.47	0.326	–	–
	Other tenure type	1.48	0.483	–	–
Lives in crowded household (Yes)	No	2.99**	0.003	1.72**	0.012
Lives in a house with major structural problem(s) (Yes)	No	1.76	0.067	1.22	0.199
Ran out of food in the last 12 months (Yes)	No	1.74	0.210	1.41	0.193
Ran out of money for basic necessities (Yes)	No	0.63	0.278	1.03	0.914
SEIFA IRSD SA1 Decile (Bottom decile) ^(b)	Middle 3 deciles	2.24**	0.009	2.01**	0.000
	Top 6 deciles	1.19	0.687	2.44**	0.000
Remoteness (Very remote)	Major cities	4.09**	0.007	1.99**	0.004
	Inner regional	0.83	0.725	1.05	0.836
	Outer regional	1.03	0.949	1.25	0.328
	Remote	1.39	0.502	1.02	0.902
State/territory (NSW/ACT)	Victoria	0.92	0.858	0.99	0.961
	Queensland	1.18	0.714	1.02	0.941
	Western Australia	0.33*	0.016	0.46**	0.007
	South Australia	0.34*	0.021	0.56**	0.014
	Tasmania	1.59	0.371	0.97	0.905
	Northern Territory	0.42	0.080	0.48**	0.004

OR = odds ratio; P>|t| = p-value.

(a) Only parents, (great) grandparents, aunts and/or uncles (but not self) were removed from natural family.

(b) Socioeconomic Indexes for Areas, Index of Relative Socioeconomic Disadvantage; calculated at the ABS Statistical Area 1 geography level. Statistical significance levels: *** : $p \leq 0.001$; ** : $0.001 < p \leq 0.01$; * : $0.01 < p \leq 0.05$.

Notes

1. 20–24 age group does not include age.

2. 20–39 age group does not include *Household income* and *House ownership*.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

5.4.2 Random forest analysis

The variable importance rankings obtained from 2 alternative methods (Method A and Method B) for First Nations people aged 20–24 and 20–39 are presented in Figure 5.9. For this study, all relevant independent variables in the logistic regression model for the 20–24 and 20–39 age groups predicting year 12 or equivalent attainment have been included in the random forest analysis. For simplicity of presentation – and taking account of potential biases of the random forest methodology when applied to relatively small survey data sets – the results of ranking the relative importance of the driver variables are grouped into a small number of categories ordered according to their importance (from more important to less important). Comparison of the rankings of all variables across both measures allows the predictors with consistent higher or lower relative importance to be identified.

The relative importance rankings of factors associated with year 12 or equivalent attainment for First Nations Youth aged 20–24 presented in Figure 5.9 show that:

- equivalised household income and remoteness feature in the highest 2 groups in terms of relative variable importance in both Method A and Method B
- among other drivers in the highest 2 groups in either Method A or Method B were local area SEIFA IRSD, state/territory and living in overcrowded households
- other drivers such as running out of food, living in a house with structural problems, home ownership, educational disability and sex featured in the third group of medium importance in either Method A or Method B
- variable groupings in the less important categories were not consistent across Method A and Method B.

Similarly, variable importance groupings for First Nations people aged 20–39 (Figure 5.9) show that local area SEIFA IRSD decile, remoteness, state/territory, living in overcrowded households, living in a house with major structural problems and main language spoken at home featured in the highest 2 groups in either Method A or Method B.

Compared with the results from the logistic regression models, some categories of remoteness, local area SEIFA IRSD, state/territory and living in overcrowded households also had a statistically significant association with year 12 attainment for both the 20–24 and 20–39 age groups. While equivalised household income did not have a statistically significant association with year 12 attainment for First Nations people aged 20–24 in the regression analysis, this variable featured in the highest group in random forest analysis in terms of relative variable importance.

Figure 5.9: Relative importance groupings of variables predicting Year 12 or equivalent attainment among First Nations people aged 20–24 and 20–39, 2018–19 NATSIHS

20–24 Age group		20–39 Age group		
Method A	Method B	Method A	Method B	
Remoteness Local area SEIFA Household income	Household income Remoteness	Local area SEIFA Remoteness State/territory	Local area SEIFA Remoteness State/territory Overcrowded household	More important
State/territory Overcrowded household	State/territory Local area SEIFA Overcrowded household Ran out of food House with major structural problem(s)	Main language Overcrowded household House with major structural problem(s) Ran out of food	Main language House with major structural problem(s)	
Ran out of food Education disability House ownership Sex	Ran out of money Cultural identification Family composition Education disability House ownership	Education disability Removal from natural family Social exclusion Family composition Self-rated health Cultural identification	Ran out of food Ran out of money Removal from natural family Family composition	
Self-rated health Main language Family composition Descendant of Stolen Generations House with major structural problem(s) Cultural identification Ran out of money	Descendant of Stolen Generations Sex Main language Self-rated health Mental health Social exclusion Lives on homelands	Sex Age Ran out of money Mental health Lives on homelands	Cultural identification Education disability	
Mental health Social exclusion Lives on homelands			Social exclusion Sex Self-rated health Age Mental health Lives on homelands	Less important

Notes

1. The 20–24 age group does not include *Age*.
2. The 20–39 age group does not include *Household income* and *House ownership*.
3. Based on a random forest model estimated in the R language using the ranger package (Wright and Ziegler 2017).
4. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values.
5. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017).
6. Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

5.5 Policy implications

Outcome 5 of the 2020 National Agreement on Closing the Gap is that Aboriginal and Torres Strait Islander students achieve their full learning potential. The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people aged 20–24 attaining year 12 or equivalent qualification to 96% by 2031, from a baseline of 63% in 2016.

Based on progress from the baseline, while the target shows improvement, it did not achieve the progress point for 2021 to be on track to meet the 2031 target. The progress point to have been achieved by 2021 along the trajectory specified for this target was 74% – which is 6 pp higher than the actual 2021 rate (68%) achieved.

This chapter provided a summary of year 12 or equivalent attainment rates by age, sex and geographical areas using the 2021 ABS Census. To align with the target, data were presented for First Nations people aged 20–24. The key results were:

- year 12 completion is the predominant way through which the 68% rate was achieved for this target in 2021. Only 8.6% of all First Nations people aged 20–24 had not completed schooling at year 12 but had completed a Certificate level III or above qualification
- the proportion completing year 12 or equivalent increased slightly with each additional year among those aged 20–24 suggesting that some First Nations students are completing year 12 or equivalent at later ages. This is particularly so for men where the proportion increased from 61% at age 20 to 66% at age 24
- the proportion completing year 12 or equivalent among those aged 20–24 was higher for women (75%) than men (64%)
- there were substantial variations by geography. The highest rates of attainment were found among those living in the Australian Capital Territory, non-remote areas (particularly *Major cities*) and the least disadvantaged areas of the IRSD. The lowest rates of attainment were found among those living in the Northern Territory, *Very remote* areas and in the most disadvantaged areas of the IRSD.

Findings from previous literature on year 12 attainment or educational achievement in general have shown that demographic, socioeconomic and health-related factors are all important drivers of attainment and achievement. More importantly, school environment, educational aspirations, school attendance and prior school achievement from a young age are key drivers of year 12 attainment, and have an impact on schooling outcomes into early adulthood. Some authors argue that there would be no differences by socioeconomic and cultural background if differences in early educational performance were eliminated (Mahuteau et al. 2015; McIntyre et al 1996).

The primary data analysis conducted in this chapter used the 2018–19 NATSIHS to identify the key factors associated with year 12 or equivalent attainment. We found that location factors (as measured by state/territory, remoteness area and SEIFA index) and household level socioeconomic factors (as measured by household overcrowding and household income) were key factors associated with lower attainment rates. In addition, health advantages (particularly not having any type of disability that restricted participation in education) and cultural identification with a tribe, language group or clan were shown to be statistically significantly associated with improved attainment among First Nations youth.

Strategies for improving attainment of year 12 or equivalent education

Based on findings from the literature review and primary analysis, policy programs aimed at improving year 12 or equivalent attainment among First Nations people may benefit from focusing on 5 specific areas of intervention:

1. Interventions targeting attendance and achievement in the early and middle levels of school should be strongly considered, based on a wealth of literature that suggests earlier years of educational attendance and achievement have a substantial direct influence on year 12 attainment (AIHW 2018b; Biddle 2014; Holzinger and Biddle 2015). Fostering connections with First Nations peers, mentors and communities may be one way to improve school attendance and achievement in earlier years (Pechenkina and Anderson 2011; Stahl et al. 2020; Wilks and Wilson 2015).
2. The practice of cultural safety and culturally responsive teaching should be considered paramount within the school environment. Our analysis indicated that identifying with a tribal group, language group or clan was associated with higher rates of year 12 attainment among First Nations people aged 20–24; other research confirms an association between positive First Nations cultural identity and educational aspiration (Bodkin-Andrews et al. 2017). To facilitate this, First Nations students need to be in a culturally safe and responsive school environment.
3. Greater support should be provided for First Nations students with disability, mental health conditions or other ongoing health conditions to complete school. Results from the logistic regression model using 2018–19 NATSIHS data indicated that, among the 20–39 age group, the association between not having an educational disability and having higher odds of attainment was statistically significant. Further, previous research literature found that disability, poor health, and mental health conditions are all associated with lower school attainment and achievement among First Nations people (Biddle 2007; Fleming and Grace 2016; Zubrick et al. 2006).
4. Policy interventions designed to reduce household overcrowding among First Nations people may improve the year 12 or equivalent attainment rate. Our primary analysis indicated that not living in an overcrowded household was statistically significantly associated with higher rates of attainment among both the 20–24 and 20–39 age groups. Further, previous research has found overcrowding (AIHW 2018b) and other intergenerational household-level socioeconomic factors (Boon 2008; Hancock et al. 2018; Lamb et al. 2004) have strong and long-lasting effects on academic achievement and attainment.
5. Improving educational resources in remote communities is likely to improve First Nations year 12 attainment outcomes. Our findings indicated that living in *Very remote* areas was statistically significantly associated with lower odds of year 12 attainment among First Nations youth, compared with *Major cities*. These findings aligned with previous research showing that the limited number of secondary schools available in remote areas, along with inadequate levels of resources and teachers in these areas, have a negative effect on year 12 attainment rates among First Nations people (AIHW 2018b; Biddle 2007, Biddle and Edwards 2018).

The limitation of the survey data (such as in the 2018–19 NATSIHS) analysed in this chapter is that they do not allow causal relationships between the drivers and the outcome to be determined. The survey also lacks information on school environment, school attendance, prior school achievement and educational aspirations, all of which have been shown in existing research literature to be associated with First Nations year 12 attainment. Had these

variables been available for us to include in our models, the effect of the geographical and socioeconomic differences in completing year 12 or equivalent may have been reduced. The survey data are also limited in that they do not allow us to examine systemic factors that affect year 12 attainment among First Nations people. Future research would benefit from more fully considering school environment, past attendance and achievement as well as systemic barriers that have an impact on First Nations students' achieving their full learning potential.

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Further education pathways

6

Summary

Target

The target associated with Outcome 6 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander people aged 25–34 who have completed a tertiary qualification (Certificate III and above) to 70% by 2031.

Background

- Higher education and training have substantial benefits for the health and wellbeing of Aboriginal and Torres Strait Islander (First Nations) people, their families and communities.
- As the level of education for First Nations people increases from secondary schooling to vocational education to a tertiary degree, the gap in employment between First Nations and non-Indigenous Australians narrows.
- The number of university enrolments and higher education completions by First Nations people has risen over time. Despite these increases, First Nations people are still considerably under-represented in universities, comprising 1.9% of the domestic higher education student population, compared with 3.3% of the total Australian population.
- The history of colonialism, trauma and transmission of intergenerational educational inequality – combined with differences in the value systems that inform First Nations ways of knowing and being, and those that underlie the Western education system – together with everyday and institutional experiences of racism, heavily affect educational outcomes among First Nations people.

Current status

- In the 2021 Australian Bureau of Statistics' (ABS's) Census of Population and Housing (Census), 47% of around 108,000 First Nations people aged 25–34 had completed tertiary education (Australian Qualifications Framework [AQF] Certificate III or above). This proportion has been steadily rising over the last 2 decades. Despite the increase, this target measure is below the projected 2021 value on the trajectory to meet the target by 2031.
- Among the 50,690 First Nations people aged 25–34 who have completed a Certificate III and above, the majority (about 63%) hold a Certificate III or IV, 15.6% a Diploma/Advanced Diploma and 16.5% a Bachelor degree; 2.3% and 2.9% hold a Graduate Diploma and postgraduate degree, respectively.
- New South Wales, Victoria and the Australian Capital Territory not only have the highest proportion of First Nations people aged 25–34 with a tertiary education but also recorded the largest percentage point increase over time. The Northern Territory has recorded the lowest proportion and the lowest increase over time.
- *Major cities* and socioeconomically less disadvantaged areas have rates at or above the 2021 national trajectory point. The proportion of First Nations people aged 25–34 with a tertiary education in *Remote* and *Very remote* areas – and in socioeconomically more disadvantaged areas – is still very low.
- Among First Nations people aged 25–34, about 51% of women had completed a tertiary education in 2021 compared with 43% of men.
- Nationally, the number and share of First Nations students among domestic students starting a Bachelor degree has increased over time, while their rate of first-year attrition has been decreasing.

- The proportion of First Nations students among Vocational, Education and Training (VET) enrolments grew from 4.9% in 2016 to 6.3% in 2019 but dropped to 5.5–5.6% in the 2 years that followed. In 2020, the number of First Nations VET enrolments was the lowest it had been in 6 years.
- Between 2016 and 2019, the rate of VET completions among First Nations students was on the rise in Victoria, Western Australia, South Australia and the Northern Territory, but was falling in New South Wales and the Australian Capital Territory, despite the Australian Capital Territory's having the highest rates of completion among all states and territories between 2016 and 2018.

Key findings

- The results of logistic regression show that net of other demographic and individual-level factors, household income, area-level socioeconomic disadvantage and state-level differences are statistically significantly associated with having completed a tertiary education among First Nations people, with equivalised household income ranking as the most important variable.
- Qualitative studies suggest that experiences of racism during tertiary education are negatively associated with students' sense of a supportive learning environment and general learning outcomes, general developmental outcomes and overall satisfaction.
- Among the most common reasons for considering leaving an educational institution are difficulties with study/life balance and workload; family responsibilities, such as family crises and supporting family members or younger children; and ill-health and death in extended families.

Key factors

Institutional support has been identified as the most crucial contributor to the success of First Nations students in higher education. Helping students to complete their degrees can take various forms, namely:

- valuing Indigeneity, particularly valuing First Nations people at the institution
- having First Nations and non-Indigenous academics who are knowledgeable about First Nations culture and history and maintaining a respectful First Nations culture throughout the university
- including First Nations culture in the curriculum
- having supportive First Nations or non-Indigenous academics and First Nations mentors
- encouraging more informal interactions with university staff; recognising the importance of family commitments and being flexible in enabling these to be met
- delivering blended courses, meaning students can pursue their studies from their home communities. However, online delivery of course material may disadvantage First Nations students if internet connections are slow and unreliable in remote areas.
- Policy and initiatives aimed at improving education pathways for First Nations young adults must focus on the factors affecting the educational gap, such as the cost of higher education, non-completion of schooling, low academic achievement, access to information, and educational aspirations – as well as factors affecting retention and completion.
- It is important to support First Nations youth throughout their secondary schooling for successful post-school transition, particularly in remote areas.

- Expanding and developing training and support services delivered by local First Nations organisations and trainers could provide the necessary cultural settings and learning styles for successful educational outcomes among First Nations students.

6.1 Introduction

Outcome 6 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander students reaching their full potential through further education pathways. The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people aged 25–34 who have completed a tertiary qualification (Certificate III and above) to 70% by 2031.

Outcome	Aboriginal and Torres Strait Islander students reach their full potential through further education pathways.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25–34 who have completed a tertiary qualification (Certificate III and above) to 70%.
Indicator	The proportion of Aboriginal and Torres Strait Islander people aged 25–34 who have completed qualifications at Certificate level III or above.
Measure	<i>Numerator</i> – number of Aboriginal and Torres Strait Islander people aged 25–34 who have completed non-school qualifications at Certificate level III or above based on the Australian Qualifications Framework (AQF). <i>Denominator</i> — total number of Aboriginal and Torres Strait Islander people in the population aged 25–34.

Higher education and training have substantial benefits for the health and wellbeing of Aboriginal and Torres Strait Islander (First Nations) students and their families and communities (Behrendt et al. 2012). Analysis of data over time shows improvements have been made in university enrolments and course completions for First Nations Australians. Altman and colleagues (2005) describe how, in 1971, only 3.2% of adults who identified as Aboriginal or Torres Strait Islander in the Census had completed qualifications after secondary school. By the 2001 Census, that proportion had risen to 18.2%. Continuing the trend, between 2011 and 2021, the number of First Nations students enrolled in universities almost doubled, from 11,800 to 24,000, with a 97% increase in the number of higher education course completions by First Nations students (from 1,800 to 3,500) (AIHW 2023).

Despite these increases, First Nations people are still considerably under-represented in universities, comprising 2.4% of the domestic higher education student population compared with 3.8% of the total Australian population (AIHW 2023).

The agreed indicator for measuring progress towards the outcome that First Nations students reach their full potential through further education pathways is the proportion of First Nations people aged 25–34 who have completed qualifications at Certificate level III or above, based on the AQF. The target is to increase this proportion to 70% by 2031.

The main data source for assessing progress towards the target is the Census. Data are available every 5 years and enable relatively detailed disaggregation by geography and other characteristics. At the time of analysis, 2021 data were the most recent Census data available for inclusion in this chapter.

Supplementary data are also available from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), most recently conducted in 2018–19. For this chapter, the 2018–19 NATSIHS is used only for the regression-based primary data analysis identifying key

factors associated with this target (see Section 6.4); this is due to small sample sizes and sampling error associated with survey data, limiting the extent to which data can be disaggregated and meaningful differences detected over time or between subpopulations.

To understand the key factors associated with obtaining a tertiary education, the current report presents:

- current and historical trend data on target indicators at the national, state and territory level, and disaggregated by other sociodemographic and geographic characteristics, as well as the rate of commencements, attrition and completion for First Nations students
- review of national and international literature on the determinants of tertiary education among First Nations people
- outcomes of primary data analysis on tertiary education attainment, using the unit record data of the 2018–19 NATSIHS and modelling the effects of various individual-, household- and community-level demographic, socioeconomic and cultural characteristics.

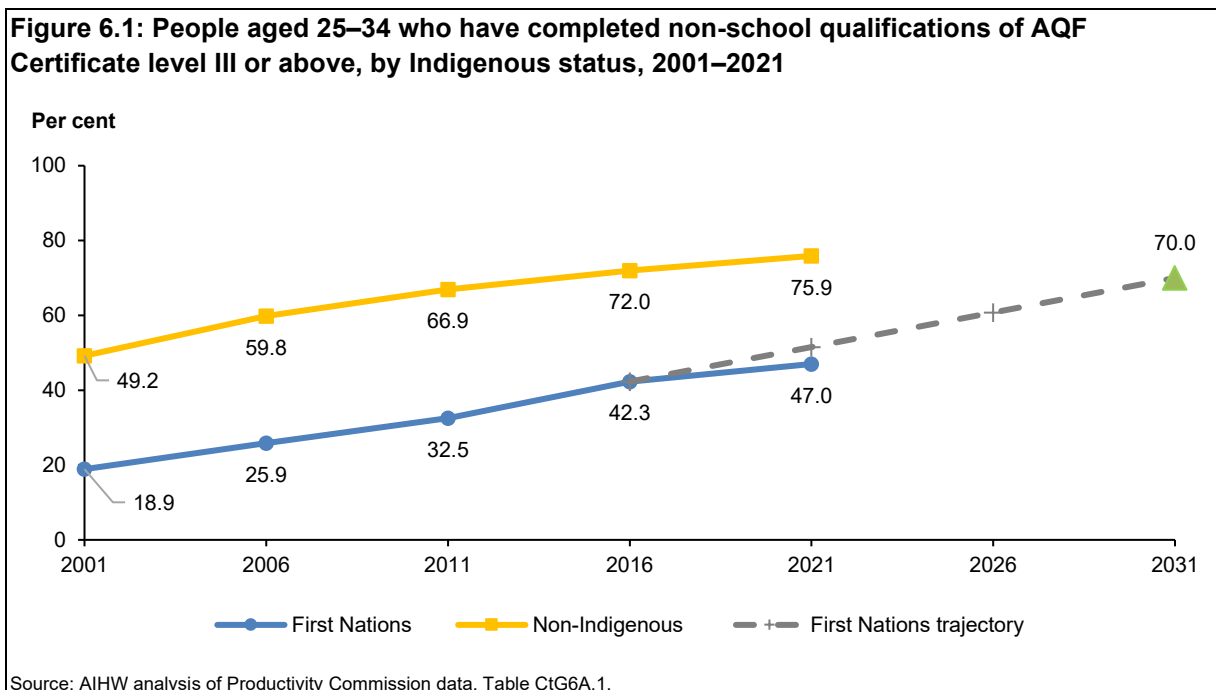
6.2 Further education pathways target: current picture and time trends

This section presents the data available on tertiary education completion rates, and progress towards the target. To align with the target, analyses are limited to First Nations people aged 25–34.

6.2.1 National

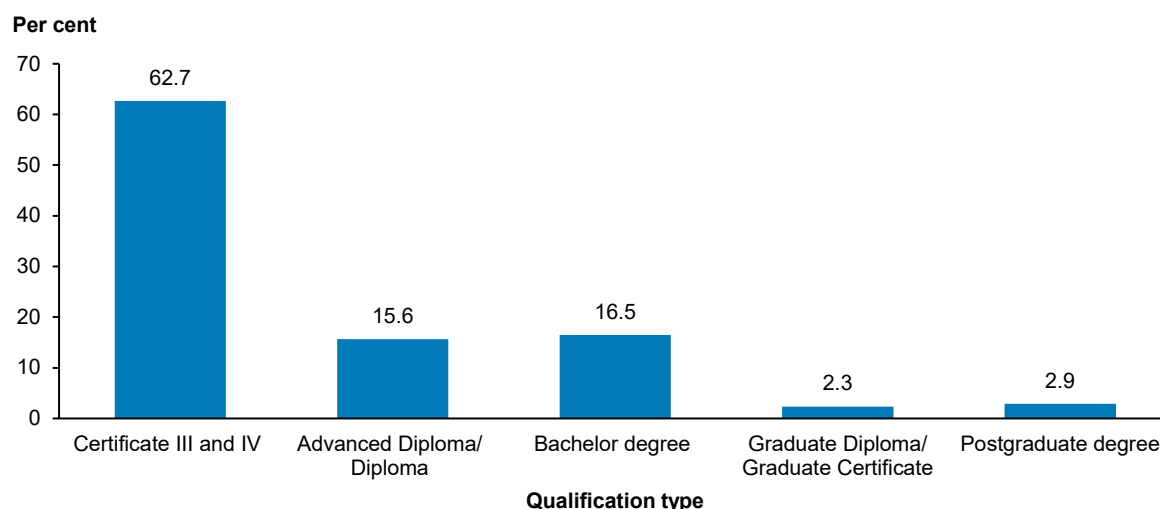
In the 2021 Census, 47% of about 108,000 First Nations people aged 25–34 had completed tertiary education (AQF Certificate III or above) (Figure 6.1; supplementary Table S6.1). This proportion has been steadily increasing over the last 2 decades, by about 7 percentage points (pp) on average between Census years, with the largest increase of about 10 pp seen between the 2011 and 2016 Censuses. However, the outcome for this target from the 2021 Census shows that the projected 2021 progress point of 51.5% (on the trajectory to reach the 70% target in 2031) was not met (Productivity Commission 2021).

The projected number of First Nations people aged 25–34 in 2031 is about 202,500 (ABS 2011-to-2031). To meet the 70% target, about 65,500 additional First Nations people in this age group will need to have completed tertiary education by 2031. This equates to a 2.3 pp annual increase in the proportion of First Nations people aged 25–34 with a tertiary education between 2021 and 2031.



Among the 50,690 First Nations people aged 25–34 who have completed a Certificate III and above in 2021, the majority (about 63%) hold a Certificate III or IV, 15.6% a Diploma/Advanced Diploma and 16.5% a Bachelor degree; only about 2.3% and 2.9%, respectively, hold a Graduate Diploma and postgraduate degree (Figure 6.2).

Figure 6.2: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by qualification type, 2021



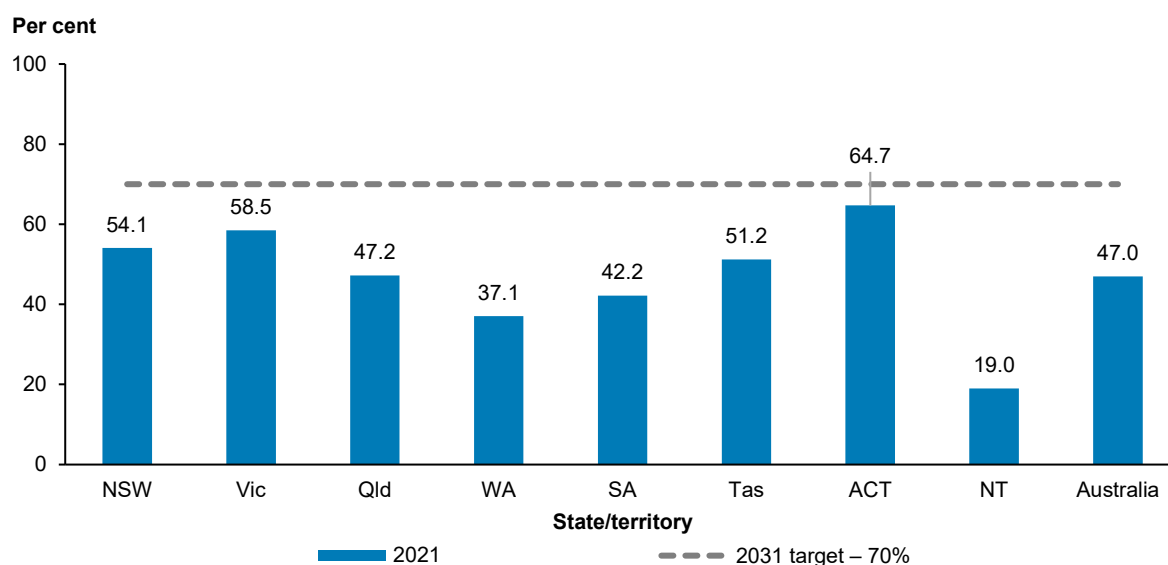
Source: AIHW analysis of Productivity Commission data, Table CtG6A.6.

6.2.2 State and territory

Disaggregation of the proportion of First Nations people aged 25–34 with a tertiary education by jurisdiction shows a considerable variation between the states and territories. (Note, however, that the place of residence recorded in the Census may differ from the place where a person lived while obtaining their tertiary education.)

In 2021, the proportion of First Nations people aged 25–34 with a tertiary education was highest in the Australian Capital Territory (65%), followed by Victoria (59%) and New South Wales (54%). The lowest proportion was seen in the Northern Territory, at 19% (Figure 6.3).

Figure 6.3: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by jurisdiction, 2021

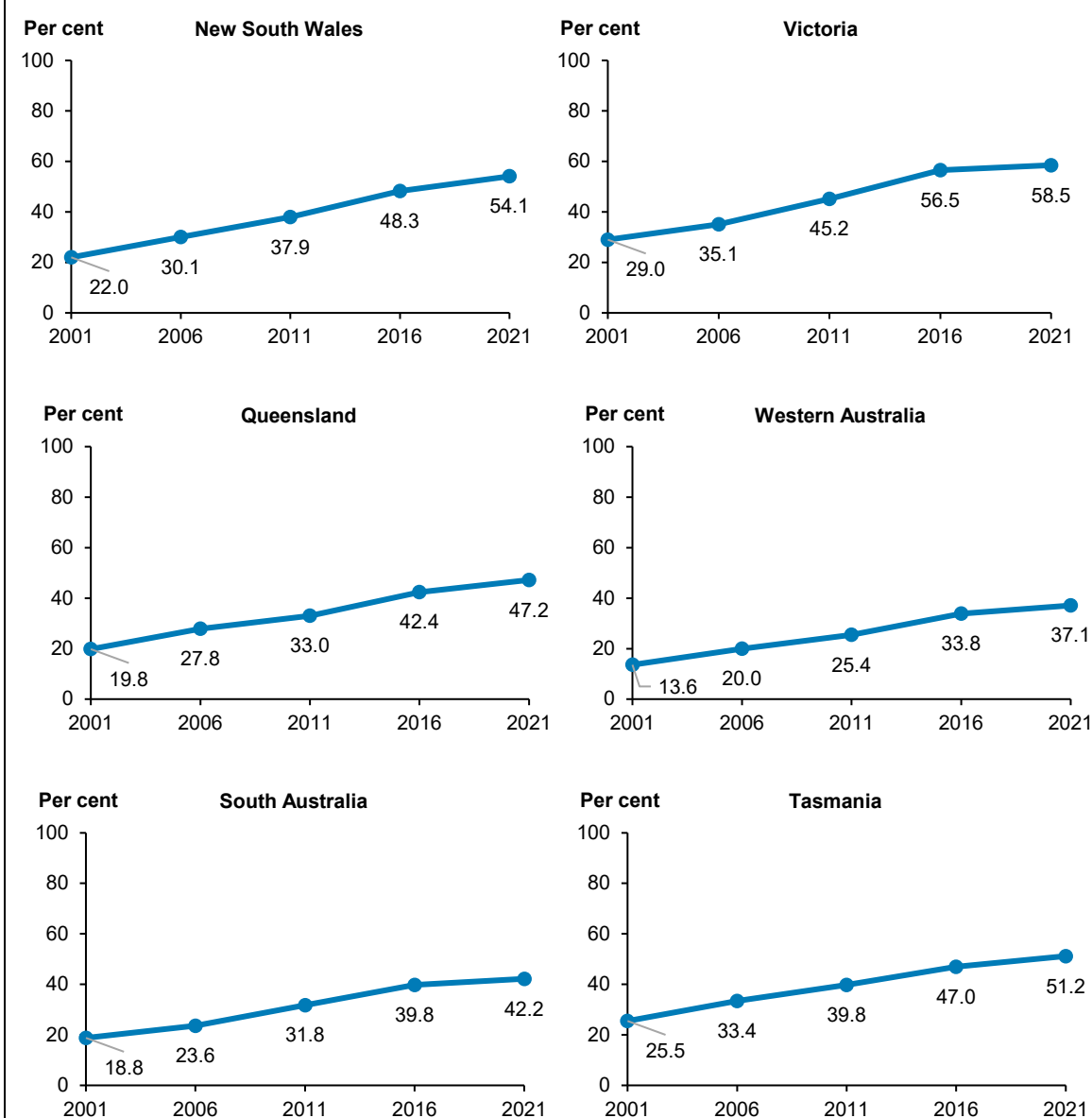


Source: AIHW analysis of Productivity Commission data, Table CtG6A.1.

This variation by state and territory has been consistent over the last 2 decades, with the Australian Capital Territory and Victoria having the highest proportion of First Nations people aged 25–34 with a tertiary education and the Northern Territory, the lowest (Figure 6.4).

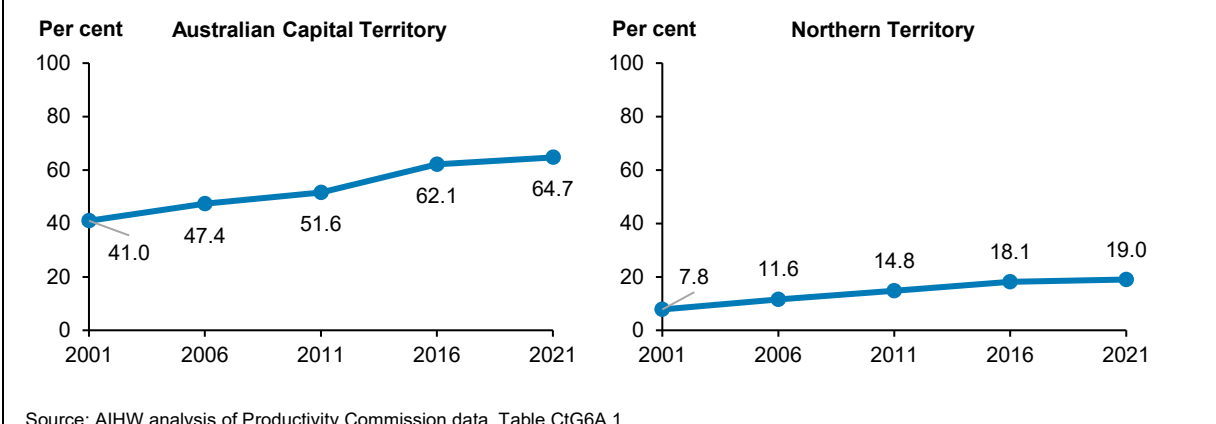
Figure 6.4 shows that the largest increase over time occurred in New South Wales (16 pp since 2011, and 32 pp since 2001), followed by Victoria (13 pp since 2011, and 30 pp since 2001). The increase in the proportion of First Nations people with a tertiary education in the Northern Territory has been the lowest – at 4.2 pp since 2011, and 11 pp since 2001.

Figure 6.4: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by jurisdiction, 2001–2021



(continued)

Figure 6.4 (continued) First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by jurisdiction, 2001–2021

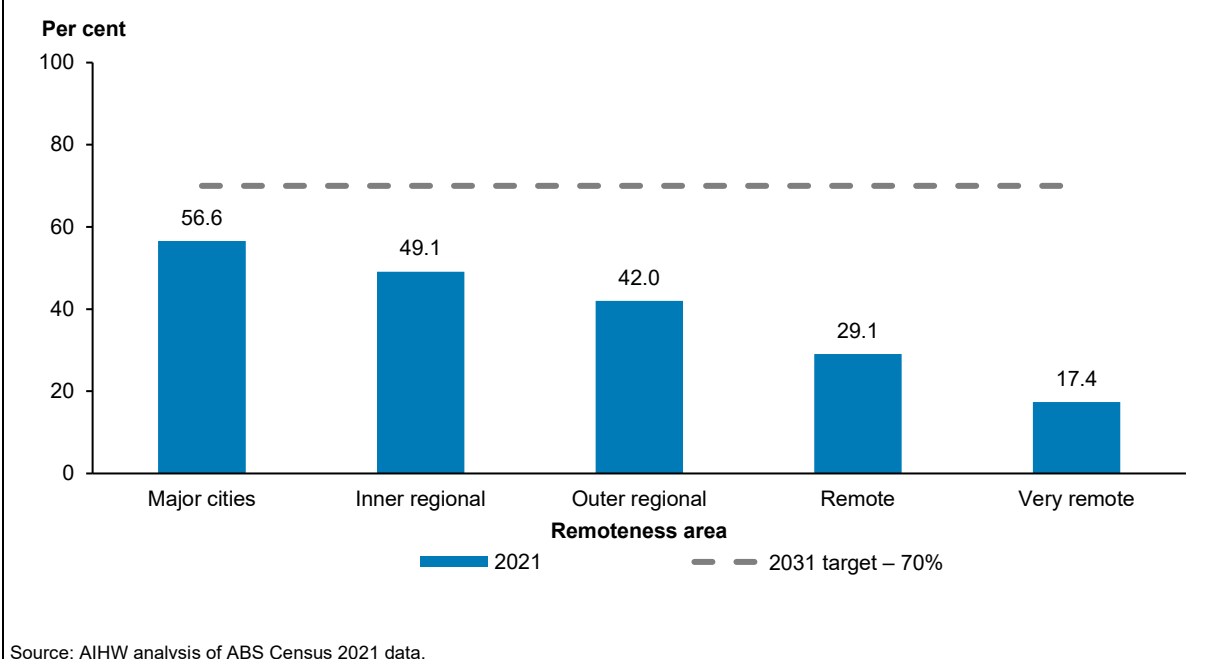


6.2.3 Remoteness area

The proportion of First Nations people aged 25–34 with a tertiary education varies considerably by remoteness area. In *Major cities*, this proportion was about 57%, decreasing gradually by remoteness to about 17% in *Very remote* areas in 2021 (Figure 6.5; Table S6.2). With the exception of *Major cities*, the proportion of First Nations student with tertiary education in other remoteness areas in 2021 were below the national trajectory value of 51.5% for 2021.

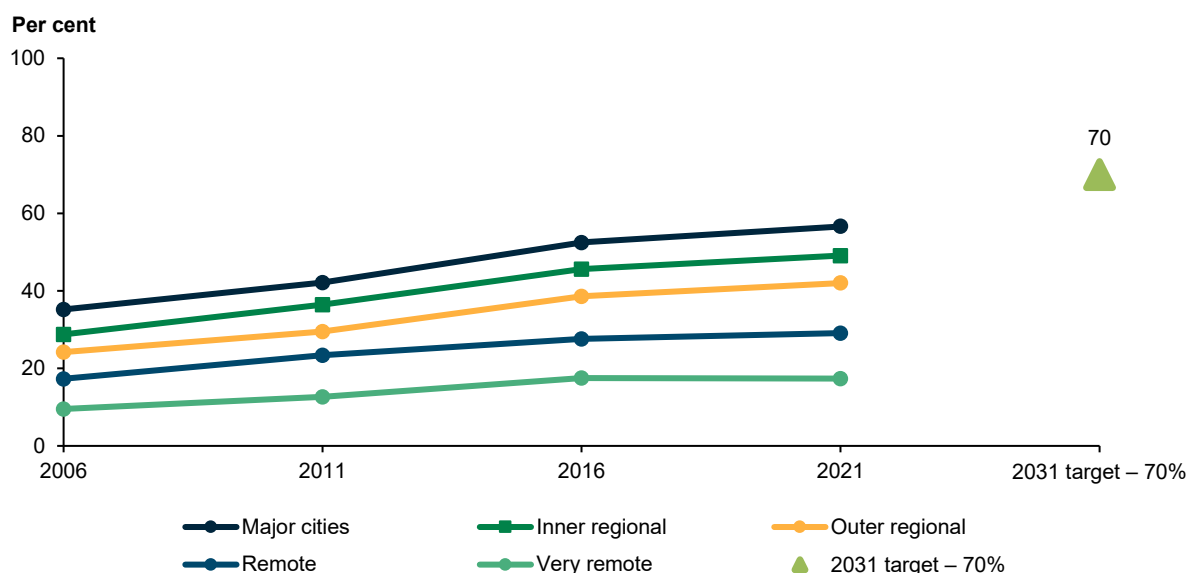
Around 55% (or over 59,000) of First Nations people aged 25–34 live outside of *Major cities*, including 40% in *Inner and outer regional* areas and 15% in *Remote and very remote* areas.

Figure 6.5: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by remoteness, 2021



The distribution of the proportion of First Nations people aged 25–34 with a tertiary education by remoteness over time shows that *Major cities* have seen the largest increase of 14 pp in the proportion of First Nations people with tertiary education since 2011; this compares with a 4.7 pp increase in *Very remote* areas (Figure 6.6). This means that the differences in First Nations tertiary education attainment between remoteness areas have increased over time.

Figure 6.6: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by remoteness, 2006–2021



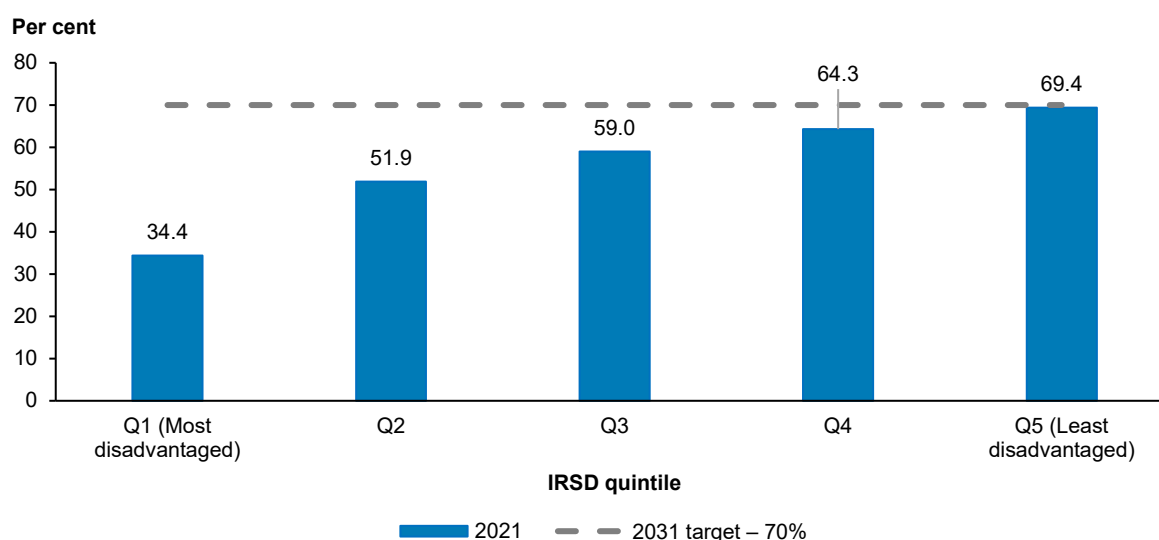
Source: AIHW analysis of ABS Census 2021 data.

6.2.4 Socioeconomic index

Large variations were seen in the proportion of First Nations people aged 25–34 with a tertiary education by the ABS-derived Index of Relative Socioeconomic Disadvantage (IRSD), presented in quintiles (fifths). The bottom quintile represents the socioeconomically most disadvantaged areas (the bottom 20%) and the top quintile, the socioeconomically least disadvantaged areas (top 20%) (Figure 6.7; Table S6.3).

In 2021, the proportion of First Nations people aged 25–34 with a tertiary education was about 34% in the socioeconomically most disadvantaged areas compared with about 69% in the socioeconomically least disadvantaged areas. In fact, except for the socioeconomically most disadvantaged areas (Q1), the proportions in all other areas were above the national trajectory point of 51.5% projected for 2021. However, in 2021, 41% (or about 43,000) of First Nations people aged 25–34 lived in socioeconomically most disadvantaged areas (Q1).

Figure 6.7: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by IRSD quintile, 2021

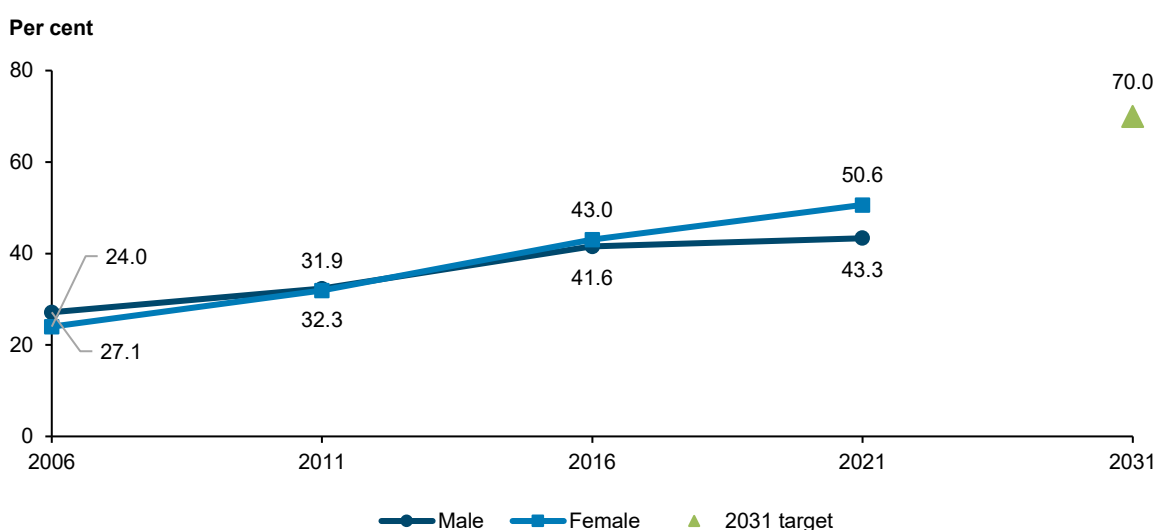


Source: AIHW analysis of Productivity Commission data, CtG6A.4.

6.2.5 Sex

Nationally, the proportion of First Nations women with a tertiary education was higher than that of First Nations men in 2021 (Figure 6.8; Table S6.4) – among those aged 25–34, about 51% of women had a tertiary education compared with about 43% of men. Before the 2016 Census, a higher proportion of First Nations men had a tertiary education than First Nations women. The female proportion was only about 2 pp higher in 2016, while in the 2011 and 2006 Censuses, the male proportions were slightly higher. Similar trends by sex were observed among non-Indigenous people over time.

Figure 6.8: First Nations people aged 25–34 who have completed non-school qualifications of AQF Certificate level III or above, by sex, 2001–2021



Source: AIHW analysis of Productivity Commission data, CtG6A.2.

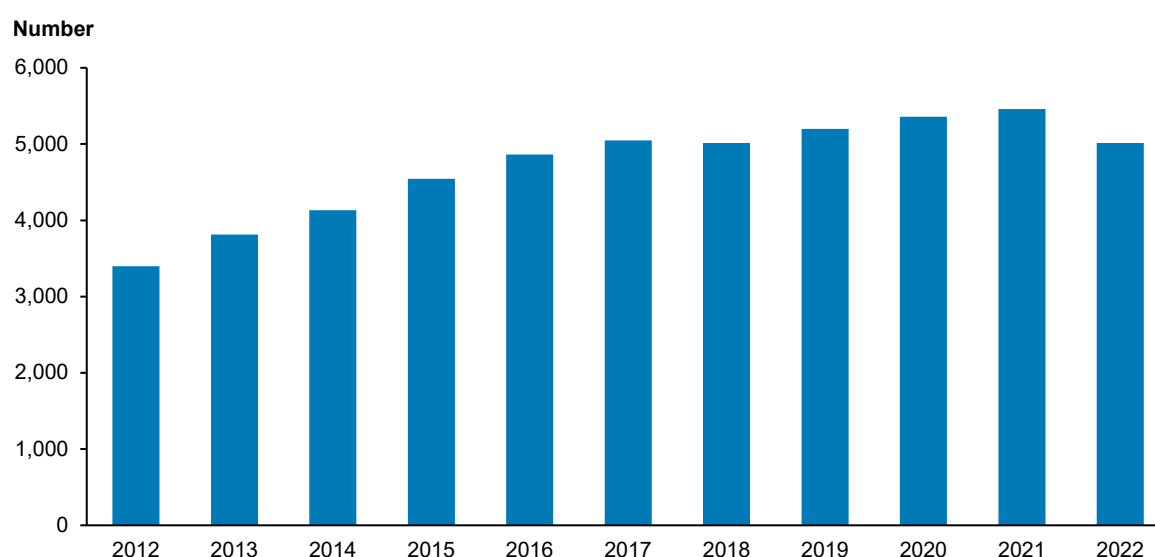
6.2.6 Higher education commencement, attrition and completion rates

Commencement

A commencement in higher education is an enrolment that starts at any point during a year. If it extends into the following year, it will be recorded solely as an enrolment for that subsequent year.

Nationally, the number of First Nations students among commencing domestic Bachelor students increased between 2012 and 2022 (Figure 6.9). In 2022, over 5,000 First Nations students commenced studies for a Bachelor degree, compared with about 3,400 First Nations students in 2012.

Figure 6.9: First Nations commencing domestic Bachelor students, Australia, 2012–2022



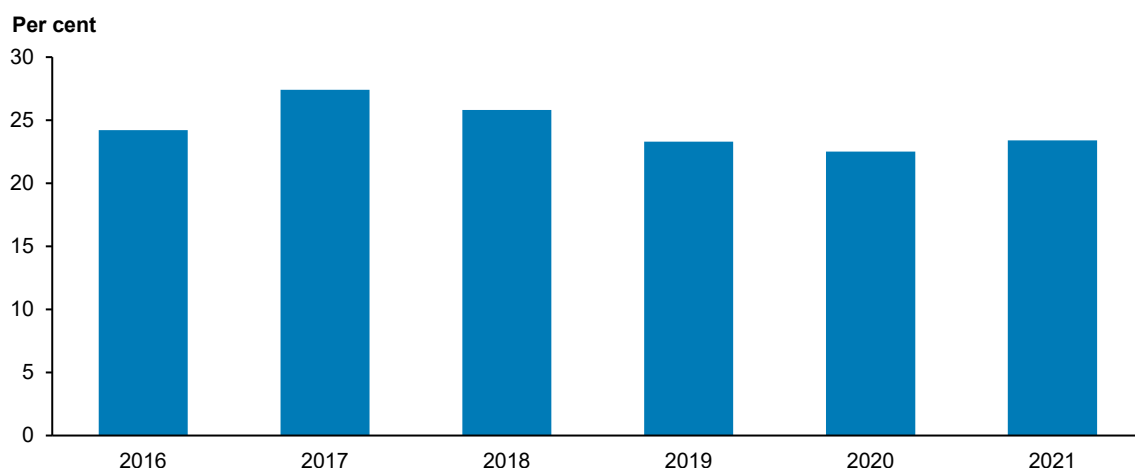
Source: AIHW analysis of Department of Education, Skills and Employment (unpublished) Higher Education Statistics Collection, as published by the Productivity Commission, SE6a.1.

Attrition

The attrition rate for any particular year is the proportion of students who commenced a Bachelor course in that year but neither completed nor returned to study in the following year.

The rate of first-year attrition for First Nations domestic commencing Bachelor students has been declining since 2017; it was 27% in 2017, falling to 23% in 2021 (Figure 6.10).

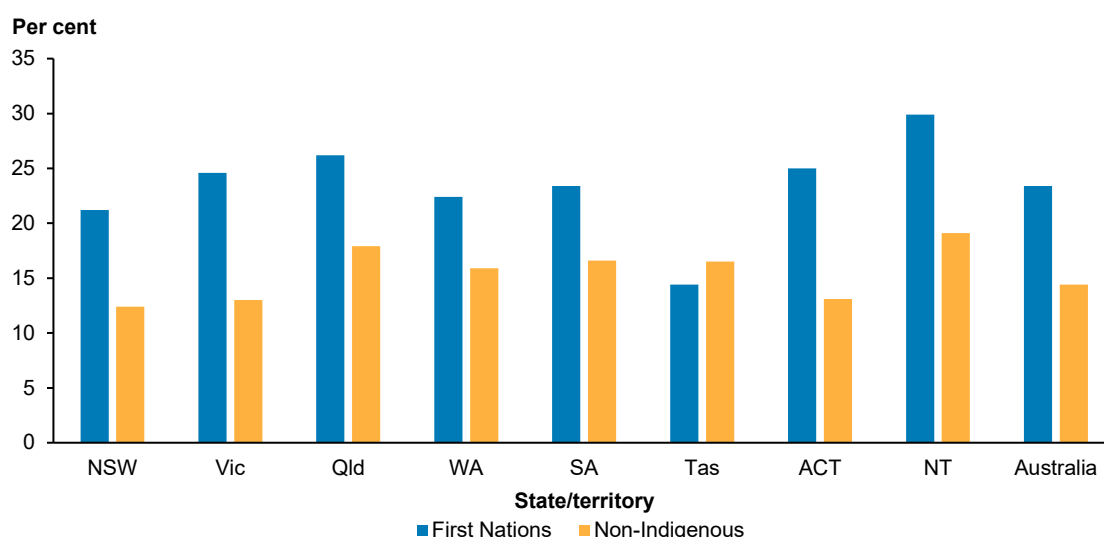
Figure 6.10: First-year attrition rates for First Nations domestic commencing Bachelor students, 2016 to 2021



Source: AIHW analysis of Department of Education, Skills and Employment (unpublished) Higher Education Statistics Collection, as published by the Productivity Commission, SE6a.2.

The first-year attrition rate of First Nations commencing Bachelor students varies considerably between the states and territories: the highest rate was seen in the Northern Territory (30%) and the lowest in Tasmania (14%) (Figure 6.11). Among non-Indigenous students, the attrition rate by jurisdiction varied from 12% to 19%, with the highest rate observed again in the Northern Territory and the lowest rate in New South Wales, Victoria and the Australian Capital Territory (Figure 6.11). The latter 2 jurisdictions also had the largest differences in the attrition rate between First Nations and non-Indigenous students.

Figure 6.11: First-year attrition rate for domestic commencing Bachelor students, by Indigenous status, states and territories and Australia, 2021



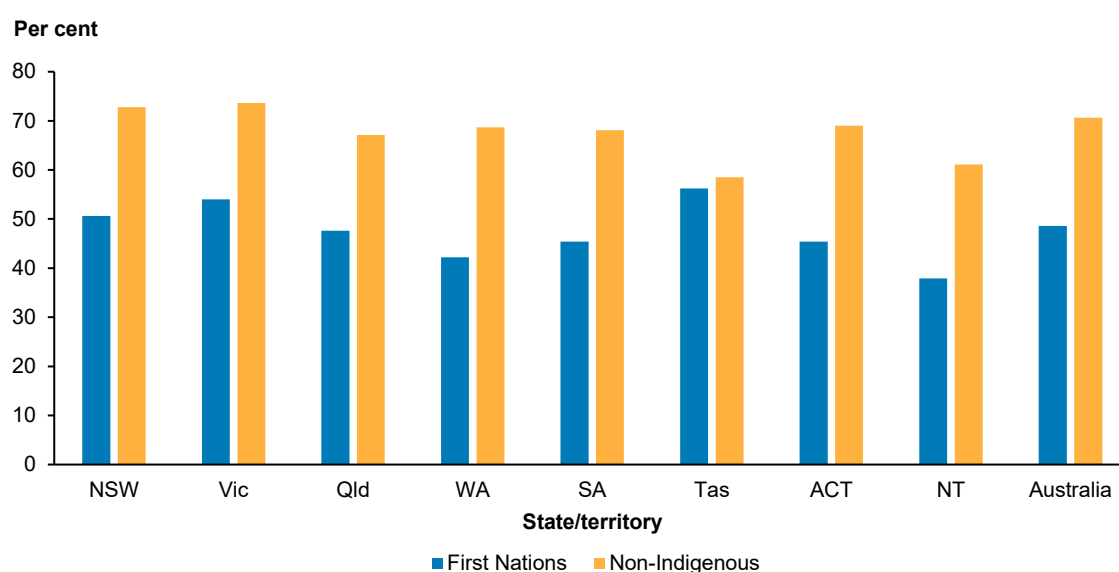
Source: AIHW analysis of Department of Education, Skills and Employment (unpublished) Higher Education Statistics Collection, as published by the Productivity Commission, SE6a.2.

Completion

University completion is measured at the end of 4, 6 and 9 years to capture rates among students who complete a degree within 4 years of full-time continuous study, and among students who study part time and/or with breaks. Figure 6.12 presents university completion rates over a 9-year period for First Nations students who commenced university study in the years from 2014 to 2022. On average, about 49% of First Nations students commencing Bachelor degrees complete their degree within 9 years, compared with 71% among non-Indigenous students.

Figure 6.12 shows that completion rates among First Nations commencing domestic Bachelor students varies across states and territories – in 2022, the highest completion rate over a 9-year period was in Tasmania (56%), while the lowest was in the Northern Territory (38%). Among non-Indigenous commencing Bachelor students, the highest rate of completion was observed in Victoria and New South Wales (about 73% in each), and the lowest in Tasmania (59%). The largest difference in the completion rates over a 9-year period between First Nations and non-Indigenous students was in Western Australia (27 pp), and the smallest in Tasmania (2 pp) in 2022.

Figure 6.12: University completion over a 9-year period (2014–2022), commencing domestic Bachelor students, by Indigenous status, state and territory and Australia, 2022



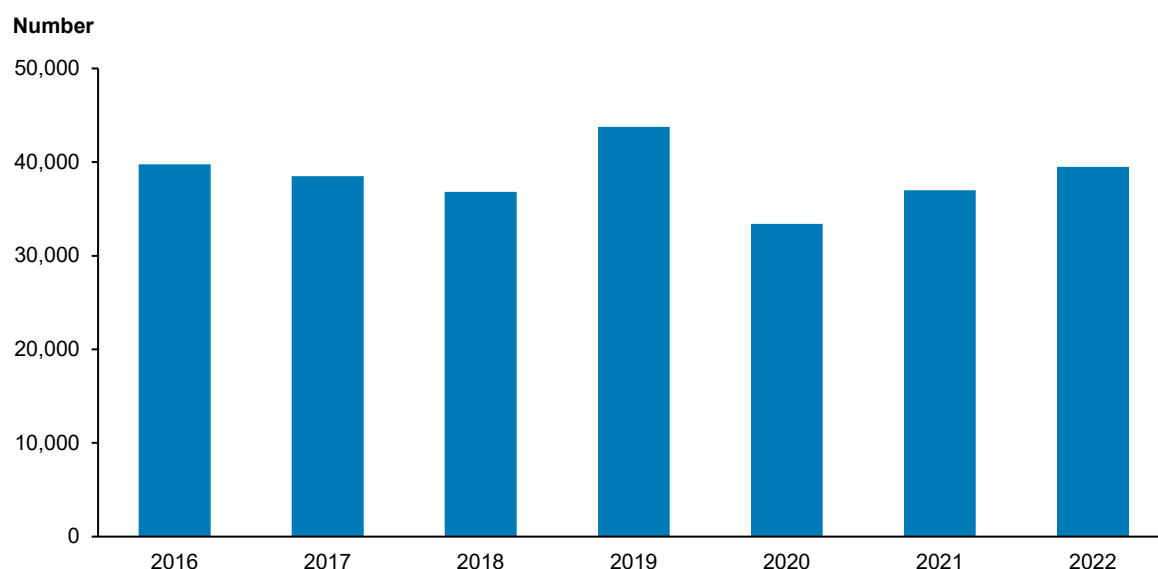
Source: AIHW analysis of Department of Education, Skills, and Employment (unpublished) Higher Education Statistics Collection, as published by the Productivity Commission, SE6a.4.

6.2.7 Vocational Education and Training commencement and completion rates

Commencement

In 2022, there were about 39,500 domestic VET commencing qualification enrolments (AQF Certificate level III and above) among First Nations students aged under 35 (Figure 6.13). Over time, this number has fluctuated slightly, with no clear trend. Between 2016 and 2022, the highest number of VET commencements was seen in 2019 (about 43,800 students) and the lowest in 2020 (33,400).

Figure 6.13: Domestic VET commencing AQF Certificate III or above qualification enrolments, students aged under 35, First Nations people, by commencing year

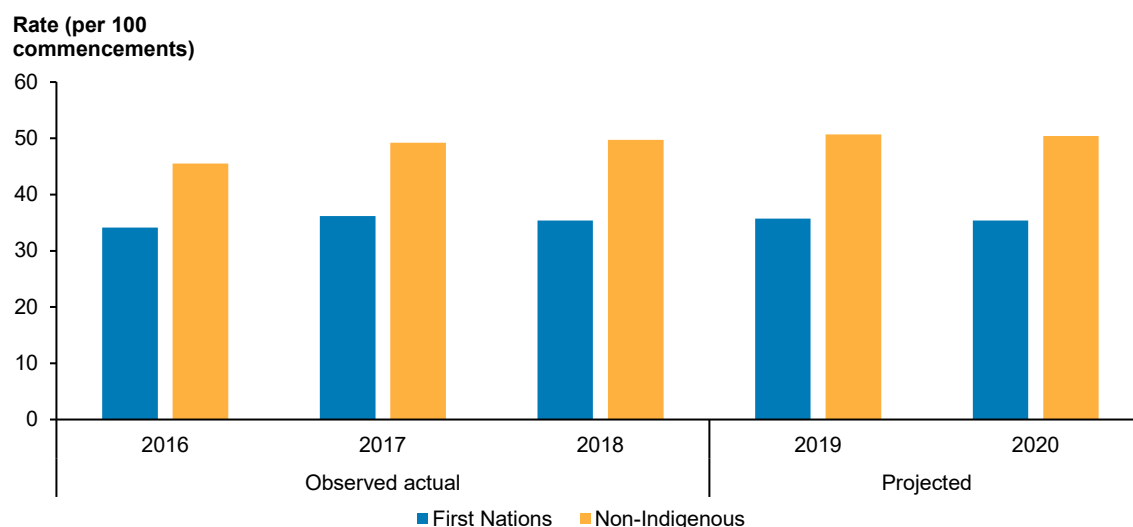


Source: AIHW analysis of National Centre for Vocational Education Research (unpublished) Total VET Students and Courses, as published by the Productivity Commission, SE6c.1.

Completion

Nationally, the projected rate of VET completions in 2020 among First Nations students aged under 35 was about 35 per 100 qualification commencements and this rate has been relatively consistent since 2017 (Figure 6.14). In comparison, the projected rate of VET completions among non-Indigenous students was around 50 per 100 commencements in the same year.

Figure 6.14: Domestic VET completion rate, First Nations students aged under 35, by commencing year

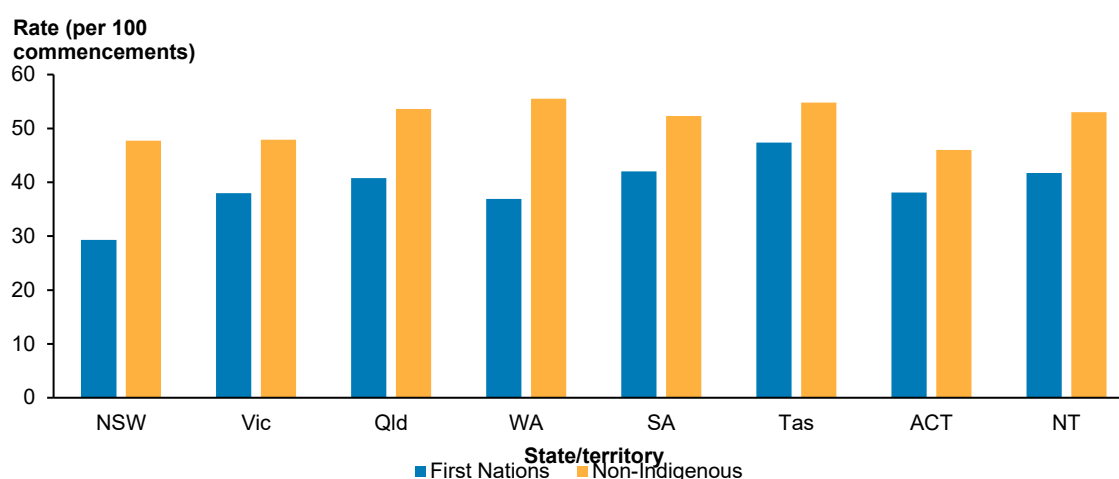


Note: Presents observed actual data for 2016–2018, and projected numbers for 2019 and 2020.

Source: AIHW analysis of National Centre for Vocational Education Research (unpublished) VET Qualification Completion Rates, as published by the Productivity Commission, SE6c.2

Some variation in VET completion rates was recorded by jurisdiction (Figure 6.15). In 2020, the highest VET completion rates among First Nations students were projected in Tasmania (47 per 100), South Australia (42 per 100) and the Northern Territory (42 per 100), while the lowest were in New South Wales (29 per 100) and Western Australia (37 per 100). Among the non-Indigenous students commencing in 2020, the projected VET completion rate was the highest in Western Australia (56 per 100) and lowest in the Australian Capital Territory (46 per 100), New South Wales and Victoria (both 48 per 100).

Figure 6.15: Domestic VET completion rate (projected), First Nations students aged under 35, by Indigenous status, state and territory, 2020



Note: Presents observed actual data for 2016 and 2017, and projected numbers for 2018 and 2019.

Source: AIHW analysis of National Centre for Vocational Education Research (unpublished) VET Qualification Completion Rates, as published by the Productivity Commission, SE6c.2.

6.3 Literature review

Successful completion of a university degree can lead to substantial personal and community benefits for First Nations people. As the level of education for First Nations people increases from secondary schooling to vocational education to a tertiary degree, the gap in employment between First Nations people and non-Indigenous Australians narrows (Department of the Prime Minister and Cabinet 2017; Gore et al. 2017; Shalley et al. 2019). Access to higher education has also been linked to declines in poverty (Swail 2003; Shalley et al. 2019).

However, colonisation has excluded or restricted educational opportunities for First Nations people in Australia. For much of colonial history, First Nations people were excluded from education or received education that was limited to preparing for domestic service or manual labour (Zubrick et al. 2006). Furthermore, First Nations students who attended school were forced to pursue their education in a foreign language that had been used to denigrate them, and they were forbidden from, or ridiculed for, using their native languages (Zubrick et al. 2006). This legacy of trauma continues to affect the ability of families (particularly parents and grandparents) to interact positively with Australia's education system. It also led to the transmission of intergenerational educational inequality that is reflected in First Nations people's access to preschool, their literacy and numeracy in primary school, their engagement with secondary school, and their participation in and completion of higher education (Zubrick et al. 2006).

Successful completion of a university degree may give rise to cultural conflict for some First Nations students who have ways of being, thinking and valuing systems that may be at odds with customary (Western) education (Wilks et al. 2020). This leads some students to report that institutional learning, such as in a university, is 'white man's way' (DiGregorio et al. 2000:304) and completing a university degree means adapting to a culture that may conflict with First Nations culture (DiGregorio et al. 2000; Folds 2001, cited in Biddle et al. 2004). Students who perceive that formal Western education is not relevant for First Nations people may not be strongly committed to pursuing it (Schwab 1996, cited in Biddle et al. 2004).

Biddle and colleagues (2004) argue that efforts to increase First Nations participation in university must take account of cultural preferences and local history and note that these can differ substantially between different Consolidated Indigenous Areas.

Success in higher education is generally measured by the number of students who successfully complete courses and go on to attain their degree. However, it has been noted that there are large discrepancies between First Nations enrolment and completion numbers across universities. Pechenkina and Anderson (2011) observe that while the Group of Eight (Australia's leading research-intensive) universities dominate rankings for high First Nations completion rates, none of them have high First Nations enrolment numbers.

Leaving an educational institution early without attaining a degree or higher qualification is often viewed as failure. However, Kinnane and colleagues (2014) posit that students who fail subjects in their first year may go on to do very well once they adjust to university expectations. Bennett and colleagues (2015) note that students may leave higher education for reasons other than academic performance, such as unsustainable time pressures, financial difficulties, health problems, social responsibilities or lack of engagement or motivation. Students may also leave to take up employment, caring responsibilities or other forms of study. Choosing not to attain their degree may be the consequence of choosing to prioritise other aspects of their lives (Bennett et al. 2015). However, James and Devlin (2006) argue that while some good outcomes may be achieved even when First Nations students do

not complete their degree, this does not mean we should accept higher attrition rates among First Nations students.

6.3.1 Drivers of successful completion

A recent study, employing cohort analysis for all First Nations students commencing in Australian universities from 2005 through to 2012 (7,849 First Nations students), looked at the determinants of successful completion of a degree (Shalley et al. 2019).

After 10 years, the cohort analysis showed that:

- students from metropolitan and regional areas had higher completion rates than those from remote areas
- female students had higher completion rates than male students
- in general, students aged 35 and over had the highest completion rates, followed by students aged under 20
- students admitted via an Australian Tertiary Admission Rank (ATAR)-based enrolment pathway completed at higher rates than those admitted via other pathways, although completion of secondary education even without an ATAR was important to successful completion of university
- Government scholarship holders had higher rates of successful completion, although the effect was marginal
- students from a non-English speaking background appeared to have lower completion rates, although small numbers make the results potentially unreliable
- living in a higher socioeconomic area was associated with a higher completion rate. However, the association between remoteness and completion rates was greater than the association between the socioeconomic area of residency and completion rates
- students studying externally (remotely) had the lowest completion rates, while those studying internally (on campus) had the highest completion rates, followed by those engaged in inter-modal study
- students who completed a prior enabling course (within 5 years of commencing study) had a lower completion rate than students who had not completed an enabling course.

Shalley and colleagues (2019) note that, except for age and language background, the demographic and study factors that affect successful completion of a qualification for First Nations students are similar to those affecting completion rates for all students (First Nations and non-Indigenous).

Gibbs and colleagues (2022) observe that the literature on First Nations people's higher education participation and completion tends to focus on individual-level factors. They suggest that focusing on the discourse this way can neglect the importance of institutional or systemic factors. However, focusing purely on institutional or systemic factors neglects the important role of individual strengths, resources and capacity. The authors suggest that discussions of strategies to support the engagement and success of First Nations students need to consider possible interactions between student's personal qualities, barriers such as systemic racism, and enablers such as First Nations support programs.

6.3.2 Barriers for degree completion

James and Devlin (2006) found that First Nations students describe social or cultural alienation as one of the factors causing them to withdraw from their course. Gibbs and

colleagues (2022) in a study of 63 First Nations students, examined perceptions of exclusion and racism on campus and the impact of this on educational engagement and consequent academic achievement. The authors showed that experiences of racism during tertiary education were negatively associated with students' sense of a supportive learning environment and general learning outcomes, general developmental outcomes and overall satisfaction. Nonetheless, the authors found that greater experiences of racism were not associated with students' considering leaving their current institution; the most common reasons cited for this were difficulties with study/life balance, workload and 'other reasons' (Gibbs et al. 2022).

Participants the 2016 study conducted by West and colleagues described racism as one of the most debilitating barriers to successful course completion (see also Usher et al. 2005). Kinnane and colleagues (2014) describe how First Nations students face the outcomes of a 'deficit' model that includes low expectations, racism and assumed assimilation or lack of cultural legitimacy in attending university.

Pechenkina and Anderson (2011) cite a host of misconceptions around First Nations education and First Nations students at universities among the issues impeding their success. For example, the authors cite findings from the 2010 workshops conducted by the Aurora Project (2010) (an organisation funded by the Australian Government and corporations to operate several training and scholarship programs to strengthen First Nations organisations and improve education and employment outcomes) – namely, that perceptions that First Nations students take advantage of special entry schemes and equity-based scholarships can lead some First Nations students to question their ability to successfully function at university and complete their degrees.

Among other barriers, family responsibilities, such as supporting family members in crises, ill health and death in extended families or helping with younger children, can result in students getting 'sucked out of university' (Kinnane et al. 2014:57; Usher et al. 2005). At the same time, families may not understand the student's need to be away from family to pursue tertiary education, and may perceive the student as being selfish (Kinnane et al. 2014).

6.3.3 Supporting First Nations students to succeed

Students' sense of a supportive learning environment has been shown to be associated with the university's ability to help students succeed academically (Coates 2011).

Qualitative studies have revealed a number of factors that First Nations students report are associated with their success in tertiary education. These include:

- student characteristics
 - students' motivation to succeed and the resilience and resources they have to devote time, effort and focus to studying (Gwynne et al. 2020; Pugh et al. 2018)
 - imperatives to 'make a difference'; capacity to build supportive connections, to embrace support such as study skills courses, and to be resilient in the face of failure or racism; positive expectations for the future (West et al. 2016)
 - desire to help their communities; financial security; family pride; being a positive role model for younger siblings. proving to others they could do it, and proving racist teachers wrong (Barney 2016)
- academic support
 - having the appropriate amount of support. Oliver and colleagues (2013) note that First Nations students have diverse needs and vary in the level and type of support they need. For example, those with a family member who had attended university

needed less support; conversely, those who were the first in their family to attend university were more likely to require assistance as their lack of family role models and family experiences with university may make the transition to university difficult (Kinnane et al. 2014)

- family and peers
 - affirming and supportive relationships with peers, family and the community, which help students overcome challenges such as racism (Barney 2016; Milne et al. 2016; Usher et al. 2005; West et al. 2016). Participants in the 2016 study by Milne and colleagues noted that support was the most crucial factor contributing to the success of First Nations students in higher education (see also Oliver et al. 2013)
- financial support
 - financial support, which is seen as crucial to completing university courses (Barney 2016; Cameron and Robinson 2014; James and Devlin 2006; Kinnane et al. 2014; Pugh et al. 2018; Usher et al. 2005; West et al. 2016). Milne et al. (2016) note that it needs to include support for a student's academic, travel, study materials (including books and computers) and living costs
- institutional support
 - valuing Indigeneity, particularly valuing First Nations people at the institution (West et al. 2016)
 - First Nations and non-Indigenous academics having knowledge of First Nations culture and history (Usher et al. 2005; West et al. 2016); respectful presence of First Nations culture through the university (Milne et al. 2016)
 - First Nations culture included in the curriculum (West et al. 2016)
 - supportive First Nations or non-Indigenous academics (Cameron and Robinson 2014; Usher et al. 2005; West et al. 2016) and First Nations mentors (Usher et al. 2005)
 - more informal interactions with university staff; recognition of and flexibility around the importance of family commitments (Milne et al. 2016)
 - blended delivery of courses, meaning students can pursue their studies from their home communities (Milne et al. 2016). However, online delivery of course material may disadvantage First Nations students if internet connections are slow and unreliable in remote areas (Kinnane et al. 2014)
- First Nations student support centres
 - a venue for networking, mentorship and pre-orientation programs, a safe space where First Nations students are surrounded by First Nations culture and can feel comfortable with First Nations peers (Cameron and Robinson 2014; Usher et al. 2005)
 - support with assessments from early in a student's university career (Kinnane et al. 2014); help through targeted programs such as the Indigenous Tutorial Assistance scheme (Wilks et al. 2017).

James and Devlin (2006) report that First Nations students who did not complete their course cited the academic demands of study and insufficient academic support as reasons for withdrawing, while students in the 2005 study by Usher and colleagues identified poor study skills and a lack of adequate educational preparation as challenges to course completion. Milne and colleagues (2016) note the importance of tutorial support for First Nations students as they are often the first in their family to attend university and need academic support and help in developing academic styles of writing. First Nations students also face challenges if

their home language differs from the language of the educational institution (Oliver et al. 2013).

6.4 Modelling factors affecting tertiary education

The factors associated with tertiary education among First Nations people are modelled in this section, using unit record data from the 2018–19 NATSIHS. The primary data analyses are limited to survey participants aged 25–34, the age group defined for this target.

The statistical analyses comprised 2 approaches (for more information about methods see Appendix A):

- logistic regression analyses to identify and quantify the determinants of tertiary education. Marginal effects were also estimated and presented (Table S6.6). However, the discussion of the results in this chapter is restricted to odds ratios only
- random forests analyses to assess the relative importance of the predictors of tertiary education in the target population.

In the logistic regression model, the outcome is whether or not a person had completed Certificate III or above (coded as 1 if yes and as 0 otherwise). The selection of independent variables was based on factors identified in the literature to be associated with tertiary education among First Nations population. These included geographic-, household- and individual-level demographic, socioeconomic and health-related characteristics, as well as measures of cultural identification, trauma and experience of discrimination. Table S6.5 provides a description and distribution of the full list of the variables included in the analysis.

Among the independent factors included in the regression analysis, measures of socioeconomic wellbeing such as household income and financial stress – and geographic measures – may have a reverse causal association with the outcome. For example, on the one hand, attainment of tertiary education may depend on the availability of resources and ability to cover the costs associated with relocation, tuition, living expenses and educational materials. On the other hand, higher education increases the economic wellbeing of individuals and their households. Another example is the place of residence of the individual. While living in less disadvantaged and non-remote areas provides better opportunities to attain tertiary education, a person with a higher education is also more likely to move to areas with better employment and economic opportunities. It would be possible to estimate the direction of the causal associations using longitudinal or panel data. However, the 2018–19 NATSIHS is a cross-sectional survey conducted at one point in time and does not allow the direction of causal relationships to be assessed. This is acknowledged as a major limitation of this analysis.

Regression models can provide biased estimates when reverse causality is present. One way to avoid introducing bias to the model predicting tertiary education is to omit the measures of socioeconomic wellbeing. However, the literature suggests that the measures of individual and household socioeconomic wellbeing are important factors associated with tertiary education. And since we are not able to confirm or reject the presence of reverse causation due to the cross-sectional nature of the data – and want to avoid omitting important variables from the model – we offer a compromise by fitting 2 models (see the next section for details).

6.4.1 Multivariate logistic regression results

The results of the 2 logistic regression models predicting the odds of having completed Certificate III or above among First Nations people aged 25–34 are presented in Table 6.1.

Model 1 presents the outcomes of the model controlling only for demographic characteristics, health, cultural identification, and experiences of trauma and discrimination factors. In Model 2, factors associated with socioeconomic wellbeing and geographic location are added to the analyses (in addition to the variables already controlled for in Model 1). (Note, though, that the results of Model 2 should be interpreted with considerable caution.)

An odds ratio (OR) value above 1 indicates a positive association with the outcome, and a value below 1 indicates a negative association. Where the test statistic associated with the OR estimate shows a probability value (p) less than 0.05, the effect associated with that OR is considered to be statistically significant.

The results in Table 6.1 show that, net of other factors, only main language spoken at home is statistically significantly associated with tertiary education in Model 1. The odds of having completed tertiary education is 4.8 times higher if the main language spoken at home is English, rather than a First Nations or other language. However, when socioeconomic and geographic variables are added to the analysis in Model 2, this effect is no longer statistically significant. Further exploration showed that the effect of main language spoken at home on tertiary education is mostly explained by remoteness and area-level socioeconomic disadvantage.

The associations between all other independent variables and the outcome observed in Model 1 do not change considerably when household-level economic variables are added to the analysis in Model 2. In the full model (Model 2), measures of household economic wellbeing, area-level socioeconomic disadvantage and state-level effects are statistically significantly associated with the model outcome. However, as already noted, these results need to be interpreted with caution due to the possible presence of reverse causation between these variables and the outcome.

The model outcomes indicate that, net of other factors:

- living in households with an income among the middle 4 and top 3 deciles have over 3 and 6 times a statistically significantly higher odds, respectively, of having completed tertiary education than living in households with an income in the bottom 3 deciles (OR=3.2 for the middle 4 deciles and OR=6.6 for the top 3 deciles)
- being able to raise \$2,000 in an emergency is associated with 1.9 times increased odds of having completed tertiary education
- living in socioeconomically less disadvantaged areas is associated with statistically significantly increased odds of having completed tertiary education compared with living in areas with a Socioeconomic Indexes for Areas (SEIFA) index score in the lowest decile (OR=2.0 for the middle 3 deciles and OR= 2.5 for the top 6 deciles)
- the odds of having tertiary education are statistically significantly lower for 25–34-year-old First Nations people living in South Australia and the Northern Territory, compared with living in New South Wales (OR=0.3 and 0.2, respectively). The odds of having completed tertiary education are also lower in the Australian Capital Territory compared with New South Wales. However, the effect is only marginally significant (OR=0.3; $p<0.055$).

Table 6.1 Estimated odds ratios of regression modelling predicting First Nations people aged 25–34 having completed Certificate III and above

Independent variables (reference category)		Model 1		Model 2	
		OR	p-value	OR	p-value
Demographic	Women (ref. men)	1.08	0.694	1.52	0.061
	Main language spoken at home is English (ref. Aboriginal or other language)	4.86**	<0.0001	1.06	0.874
	Household type (ref. One family household)				
	More than one family household	0.87	0.657	0.85	0.663
	Lone person household	0.68	0.276	0.54	0.129
Health	Self-rated health is good/very good/excellent (ref. fair/poor)	1.21	0.448	0.68	0.132
	Never been diagnosed with a mental health condition (ref. Has been diagnosed with a mental health condition)	0.83	0.355	0.81	0.373
Cultural identity	Lives on homelands (ref. No)				
	Yes	0.79	0.274	0.85	0.531
	Does not recognise homelands/refused to answer	1.40	0.233	1.14	0.657
	Identifies with a cultural group (ref. No/Not applicable/Unknown/Refused to answer)	1.23	0.375	1.49	0.104
Trauma and discrimination	Have not had unfair treatment and/or avoided situations due to past unfair treatment in last 12 months (Ref. Yes)	0.99	0.958	0.87	0.538
	Neither self nor relatives were removed from natural family (ref. Self and/or relatives were removed)	0.84	0.417	0.85	0.506
Socioeconomic wellbeing	Equivalised household income – deciles (ref. Bottom 3 deciles)				
	Middle 4–7 deciles			3.23**	<0.0001
	Top 3 deciles			6.58**	<0.0001
	Could raise \$2,000 in an emergency (ref. No)			1.94**	0.004
	Not a crowded household – does not require any additional bedrooms (Ref. Required one or more additional bedrooms)			0.97	0.926
Geographic	Remoteness (ref. Major cities)				
	Inner regional			0.80	0.458
	Outer regional			1.54	0.225
	Remote			0.99	0.986
	Very remote			1.02	0.966
	SEIFA IRSD index (ref. Bottom decile)				
	Middle 3 deciles			1.99**	0.005
	Top 6 deciles			2.48**	0.002

(continued)

Table 6.1 (continued): Estimated odds ratios of regression modelling predicting First Nations people aged 25–34 having completed Certificate III and above

Independent variables (reference category)	Model 1		Model 2	
	OR	p-value	OR	p-value
State (ref. NSW)				
Vic			0.97	0.933
Qld			0.72	0.308
WA			0.60	0.157
SA			0.32**	0.006
Tas			0.53	0.112
ACT			0.26	0.055
NT			0.18**	<0.0001

Significance levels: * p<0.05; ** p<0.01.

Note: The sample for the regression model was 1,494 First Nations people aged 25–34. The analysis is weighted using person level weights. Variables 'removal from natural family', 'equivalised household income' and 'could raise \$2,000 in an emergency' include an 'unknown' category; the results are presented in Table S6.6

Source: AIHW analysis of 2018–19 NATSIHS.

Despite the strong associations observed between socioeconomic factors and tertiary education, the direction of the association remains unexplained. If reverse causation is present, these results would be biased. However, previous evidence in the literature suggests that the association between economic variables and tertiary education goes in both directions. While it is possible that living in socioeconomically less disadvantaged areas and having better economic wellbeing can provide students with better opportunities and financial support to complete their studies, it is also possible that those who have completed tertiary education have higher incomes and less financial stress and live in socioeconomically less disadvantaged areas with more economic opportunities. There may also be bi-directional causation where a mix of these pathways are in effect.

For the cultural measures, including living on homelands, cultural identification, removal from family and experiences of unfair treatment – which literature suggests are major factors associated with tertiary education – there was not enough evidence to suggest that these variables were significantly associated with having completed tertiary education among First Nations people aged 25–34, controlling for other factors. More data are needed to explore these associations further.

6.4.2 Random forest analysis

Random forest analyses were conducted for the models presented in section 6.4.1. Based on the outcomes of the random forest analyses, the variables were classified into 4 groups, ranked from high to low importance, based on both measures of importance (Figure 6.16).

In the limited model not controlling for socioeconomic variables, main language spoken at home ranked in the top group of highest importance across both methods (Method A and Method B, see Figure 6.16), consistent with the regression outcomes. However, the results varied between the methods for the rest of the variables in this model.

In the full model (see Figure 6.18), equivalised household income ranked as the most important variable, explaining the variance in having completed tertiary education in First Nations people aged 25–34 across both methods (Method A and Method B). These results are also consistent with the regression model, where household income had a very strong significant effect on the outcome in the full model.

Again, in the full model, the measure of financial stress, proxied by the ability to raise \$2,000 in an emergency, ranked in the second highest group of importance according to both methods (Method A and Method B, Figure 6.16). Geographic variables, such as SEIFA measures of area-level disadvantage, remoteness and jurisdiction, also ranked in the second highest group of importance based on Method B, but were in the third group of importance based on Method A.

The rest of the variables – including sex, language spoken at home, household type, health and cultural identification, living on homelands, trauma and discrimination – were ranked as having relatively low or very low importance in explaining the variance in having completed tertiary education among First Nations people aged 25–34.

Figure 6.16: Relative importance groupings of variables predicting First Nations people aged 25–34 having completed Certificate III and above, 2018–19 NATSIHS

Limited model		Full model		
Method A	Method B	Method A	Method B	
Main language spoken at home	Main language spoken at home	Household equivalised income	Household equivalised income	More important
Self-rated health	Lives on homelands	Could raise \$2,000 in an emergency	Could raise \$2,000 in an emergency	
Identifies with a cultural group	Removal from natural family	SEIFA deciles Remoteness Main language spoken at home State/territory	SEIFA deciles Remoteness State/territory	
Sex Lives on homelands Household type Diagnosed with mental health condition Removal from natural family Unfair treatment/exclusion	Unfair treatment/exclusion Diagnosed with mental health condition Self-rated health Identifies with a cultural group Sex Household type	Self-rated health Crowding (requirement for extra bedrooms) Lives on homelands Sex Unfair treatment/exclusion Household type Removal from natural family Diagnosed with mental health condition Identifies with a cultural group	Main language spoken at home Lives on homelands Sex Removal from natural family Self-rated health Diagnosed with mental health condition Crowding (requirement for extra bedrooms) Unfair treatment/exclusion Household type Identifies with a cultural group	Less important

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method, based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: AIHW analysis of 2018–19 NATSIHS.

6.5 Policy implications

The target of the sixth socioeconomic outcome in the 2020 National Agreement on Closing the Gap is to increase the proportion of Aboriginal and Torres Strait Islander people aged 25–34 who have completed a tertiary qualification (Certificate III and above) to 70% by 2031. Despite the increase over time in the number of university enrolments and completions by First Nations students, the latest available data from the 2021 Census for this target measure shows it is lagging behind the projected 2021 value on the trajectory to meet the target by 2031.

This chapter included a detailed discussion of the trends and changes in:

- the target indicator at the national, state and territory levels, by remoteness, by IRSD, and by sex
- the university and vocational commencement, attrition and completion rates of First Nations students.

Large variations were seen in the proportion of First Nations people aged 25–34 with a tertiary education by jurisdiction, remoteness and by index of relative socioeconomic disadvantage for areas. New South Wales, Victoria and the Australian Capital Territory have been leading the charts, both in having the highest proportion of First Nations people aged 25–34 with a tertiary education and in recording the largest increase in proportions over time. The Northern Territory has recorded the lowest proportion and the lowest increase over time. *Major cities* and socioeconomically less disadvantaged areas also recorded proportions at or above the national trajectory point for 2021. However, the proportions of First Nations people aged 25–34 with a tertiary education in *Remote and very remote* areas, as well as in socioeconomically more disadvantaged areas, are still very low.

Previous research on the factors associated with tertiary education among First Nations people has identified that individual-, household- and community-level socioeconomic determinants are strongly associated with successful outcomes (Shalley et al. 2019). There is also evidence to suggest that even after controlling for social and economic wellbeing, such as family income, parental education and occupation, as well as SEIFA IRSD index and remoteness, First Nations young people are considerably less likely to participate in higher education than non-Indigenous people (AIHW 2023b). Gibbs and colleagues (2022) argue that focusing simply on individual characteristics can neglect the importance of institutional or systemic factors. The history of colonialism, trauma and transmission of intergenerational educational disadvantage, combined with differences in the ways of being, thinking, doing and value systems between First Nations people and the Western education system – as well as everyday and institutional experiences of racism – have a heavy impact on educational outcomes among First Nations people.

This chapter presented the outcomes of regression modelling predicting completion of tertiary education among First Nations people aged 25–34 using 2018–19 NATSIHS data. The results indicate that tertiary education is statistically significantly associated with household- and community-level socioeconomic determinants. Previous research on participation in higher education using linked data from MADIP has also indicated that measures of social and economic wellbeing including family income and parental education are strongly associated with higher education participation among Australian youth (AIHW 2023b).

However, the findings from our analysis should be interpreted with caution. Association in this context does not imply causation. Indeed, students from less disadvantaged households and areas are more likely to be able to afford the financial costs associated with tertiary education attainment and completion. However, it is also likely that tertiary education can

lead to better employment opportunities, which, in turn, improves socioeconomic wellbeing. It is, however, not possible to assess the direction of the association, due to the cross-sectional design of the 2018–19 NATSIHS. The measures of socioeconomic wellbeing relate to the time and location where individuals lived after tertiary education attainment are recorded at the time of the survey limiting the ability of the analysis to provide conclusive evidence on the significant factors associated with tertiary education among First Nations people. This must be acknowledged as a major shortcoming of our analysis.

Despite this shortcoming, the substantial differences in tertiary education completion rates among First Nations people by geographic and socioeconomic disadvantage areas – accounting for individual differences – indicate the need for further research to understand the drivers behind these differences. While remoteness has been reported as one of the major contributing factors (Behrendt et al. 2012), high rates of poverty and the associated educational disadvantages significantly affect educational attainment among First Nations people (ABS 2006; Indigenous Higher Education Advisory Council 2008). Understanding these factors and the ways to manage them would inform social policy and help in designing a targeted approach that focuses on providing more opportunities to people in areas with greatest need. This would be possible to achieve by replicating the research done by Zając and Tomaszewski (AIHW 2023b), who studied the relative influence of different measures of socioeconomic wellbeing on higher education participation using PLIDA linked data and limiting the analysis to First Nations young people.

The outcomes of the current analysis did not provide enough evidence to suggest that cultural factors – such as measures of First Nations identification, removal from family, and individual experiences of racism and exclusion – were associated with tertiary education. However, it must be noted that our analysis was limited by the quality and availability of these measures in the data.

Previous evidence from qualitative studies indicates that perceptions of exclusion and racism are among the most debilitating barriers to successful course completion, while institutional support has been identified as helping students to complete their degrees (West et al. 2016). Gibbs and colleagues (2022) note that appropriate means of cultural support need to be investigated to improve First Nations engagement and success at university in the face of racism and cultural incompetence. Future research would also benefit from considering possible interactions between the student's personal qualities, barriers such as systemic racism, and enablers such as First Nations support programs (Gibbs et al. 2022).

Strategies for improving tertiary education outcomes

Policy and initiatives aimed at improving education pathways for First Nations young adults must consider and mitigate the factors affecting the educational gap, such as the cost of higher education, non-completion of schooling, low academic achievement, access to information, and educational aspirations, as well as factors affecting retention and completion (AIHW and NIAA 2023).

Previous research suggests that expanding and developing training and support services delivered by local First Nations organisations and trainers could provide the necessary cultural settings and learning styles for successful educational outcomes among First Nations students (AIHW and NIAA 2023). Two examples of successful programs supporting First Nations students to enrol and complete higher education degrees are the INMED program launched in 1973 at the University of Dakota (in Grand Forks, North Dakota, United States) and the Yapug program at the University of Newcastle:

- The INMED program provides American Indian and Alaska Native students with educational, financial, cultural and social support to complete a degree program and obtain skills in health care.
- The Yapug program provides a pathway for First Nations young adults to develop academic skills and a guaranteed admission into an undergraduate program, along with support services including counselling, tutoring, health support and a cultural program.

It is important to support First Nations youth throughout their secondary schooling for successful post-school transition, particularly in remote areas. More research using longitudinal and linked administrative data could help in understanding the pathways from secondary school to higher education and employment for First Nations young adults and design interventions that would encourage them to complete school or post-school studies (Biddle and Cameron 2012).

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Youth engagement

7

Summary

Target

The target associated with Outcome 7 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander youth (aged 15–24) who are in employment, education or training to 67% by 2031 from a 2016 baseline of 57%.

Background

- Participation in employment, education and training is vital to improving health, social and economic outcomes for Aboriginal and Torres Strait Islander (First Nations) people.
- Transition to adulthood is a crucial time for young people's development and wellbeing, offering the prospect of social and economic independence. However, young First Nations people may face extra challenges when doing so including intergenerational trauma; racism and discrimination; experience of being in out-of-home care; caring responsibilities; and, for those living in more remote areas, poorer access to educational and employment opportunities.
- There have been improvements in a range of indicators relating to the education of young First Nations people, including participation in early childhood education, attainment of year 12 or an equivalent qualification, and completion of a tertiary qualification at Certificate III level or higher. The proportion of First Nations people aged 25–64 who were employed has also showed good improvement and is on track to meet the target by 2031.

Current status

- Nationally, the proportion of First Nations youth fully engaged in employment, education or training (EET) has increased steadily, from 48% in 2001 to 58% in 2021. However, the rate in 2021 was below the required trajectory for 2021 to meet the 2031 target.
- The largest increases between 2006 and 2021 were in New South Wales (7 percentage points (pp)), Western Australia (7 pp) and South Australia (5 pp).
- In 2021, the proportion of First Nations youth fully engaged in EET was highest in *Major cities* at 64% – it fell with increasing remoteness to 30% in *Very remote* areas.
- The proportion of First Nations youth fully engaged in EET was the highest (82%) among those living in the least disadvantaged areas, and the lowest (39%) among those living in the most disadvantaged areas.
- Rates of full engagement in EET for First Nations females and First Nations males diverge from the age of 19, with rates for men gradually increasing and rates for women generally remaining relatively flat. This gender gap emerges around the time that many First Nations women begin having children.

Key findings

- The results of the logistic regression predicting the odds of full engagement in EET suggest that statistically significant factors include:
 - for 15–24-year-olds – remoteness, area-based level of relative socioeconomic disadvantage, tenure type, age and parental status
 - for 18–24-year-olds – experience of financial stress, in addition to the factors listed for 15–24-year-olds.
- The results of random forest analysis indicate that highly important factors among these were:

- for 15–24-year-olds – age and parental status
- for 18–24-year-olds – experience of financial stress and area-based level of socioeconomic disadvantage.

Key factors

- Coordinated strategies within and beyond schools that could support increased school attendance among First Nations youth include:
 - increasing recruitment and professional development of First Nations teachers and school leaders
 - fostering culturally responsive teaching
 - expanding options for young people to stay engaged with school education through vocational education and training programs.
- To close the gender gap, First Nations female students who are caring for children need improved access to affordable, culturally competent child care. Many women may prefer to work or study part time while they care for their children. Others may prefer to be fully engaged in EET but are unable to access high-quality, culturally competent child care due to a lack of availability, unaffordability, or other barriers. Students with children may experience financial pressures and difficulties in accessing child care and student accommodation.
- Some initiatives and programs that support successful transitions to university for First Nations youth include mentoring, university-school-community engagement, outreach programs, 'Elders in residence' programs, preparation and pre-orientation courses to help students with the transition, and university-wide cultural competency programs. Regional study hubs may provide more options for First Nations students to access university study while retaining their connection to their community.
- Other strategies identified with potential to increase employment rates among First Nations people more generally include:
 - increasing skill and education levels
 - providing pre-employment assessment and training
 - changing recruitment strategies to increase job opportunities for First Nations people
 - providing cross-cultural training in workplaces aimed at reducing racism and discrimination against First Nations Australians
 - offering flexible work arrangements to enable First Nations employees to meet family, community or cultural obligations
 - providing intensive support to overcome multiple barriers, such as health issues, drug and alcohol issues, or family violence
 - implementing wage subsidy programs
 - setting First Nations employment goals in government programs that deliver goods or environmental or personal services.
- Culturally relevant driver licensing programs may promote access to employment and foster social inclusion more broadly among young unemployed First Nations people.

7.1 Introduction

Outcome 7 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander youth being engaged in employment or education.

The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander (First Nations) youth (aged 15–24) who are in employment, education or training to 67% by 2031 from a 2016 baseline of 57%.

Outcome	Aboriginal and Torres Strait Islander youth are engaged in employment or education.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander youth (aged 15–24) who are in employment, education or training to 67%.
Indicator	The proportion of Aboriginal and Torres Strait Islander youth aged 15–24 who are fully engaged in employment, education or training.
Measure	<i>Numerator</i> – number of Aboriginal and Torres Strait Islander people aged 15–24 who are engaged in full-time work, full-time study and/or full-time training or a combination of work and study and training. <i>Denominator</i> – total number of Aboriginal and Torres Strait Islander people in the population aged 15–24.

Participating in employment, education or training (EET) is vital to improve health, social and economic outcomes for Aboriginal and Torres Strait Islander (First Nations) people (Gray et al. 2014). Increasing the level of educational participation and employment among First Nations people can potentially:

- bring financial security, wellbeing and autonomy to individuals
- build the capacity for leadership and decision-making within First Nations communities
- draw on the perspectives, experience and expertise of First Nations people
- contribute to national productivity and social progress (Behrendt et al. 2012; Bradley et al. 2008; Crawford and Venn 2018; Gray et al. 2014).

Young people's transitions to adulthood have become increasingly diverse in response to social and economic changes over the past 5 decades (Cuervo and Wyn 2011). While the pathway from school to further education and employment may have become more complex to navigate, the transition to adulthood remains a crucial one for young people's development and wellbeing, offering the prospect of social and economic independence (Dietrich et al. 2021; Mathys 2020). Young First Nations people may face extra challenges in making this transition including intergenerational trauma; racism and discrimination; experience of being in out-of-home care; caring responsibilities; and, for those living in more remote areas, poorer access to educational and employment opportunities (AIHW 2018; Fernandez 2014).

As well as youth engagement in EET, there have been improvements in a range of indicators relating to education of young First Nations people including:

- participation in early childhood education
- attainment of a year 12 or equivalent qualification

- completion of a tertiary qualification at Certificate III level or higher (among those aged 25–34) (Ackehurst et al. 2017; Crawford and Biddle 2018; Crawford and Venn 2018; Productivity Commission 2023; Venn 2018).

The proportion of First Nations people aged 25–64 who are employed has also showed good improvement and is on track to meet the target by 2031 (Productivity Commission 2023).

The agreed indicator for measuring progress towards the outcome that First Nations youth are engaged in employment or education is the proportion of First Nations youth aged 15–24 years who are fully engaged in EET. The target is to increase this proportion to 67% by 2031.

The main data source for assessing progress towards this target is the Australian Bureau of Statistics (ABS) Census of Population and Housing. Data are available every 5 years and enable detailed disaggregation by geography and other characteristics. At the time of analysis, 2021 data were the most recent Census data available for inclusion in this chapter.

Supplementary data are also available from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), most recently conducted in 2018–19 at the time of this analysis. For this chapter, the 2018–19 NATSIHS is used only for the regression-based primary data analysis identifying key factors associated with this target (see Section 7.4). This is because of the small sample sizes and sampling error associated with survey data, which limit the extent to which data can be disaggregated and meaningful differences detected over time or between subpopulations.

The structure of the rest of this chapter is as follows:

- Section 7.2 presents current and historical trend data on target indicators at the national, state and territory level, disaggregated by other sociodemographic and geographic characteristics.
- Section 7.3 reviews national and international literature on the determinants of youth engagement in EET among First Nations people.
- Section 7.4 presents the outcomes of primary data analysis on youth engagement in EET, using unit record data of the 2018–19 NATSIHS and modelling the effects of various individual, household and community-level demographic, socioeconomic and cultural characteristics.
- Section 7.5 concludes with a summary and discussion of policy implications of the findings.

7.2 Youth engagement in EET target: current picture and time trends

This section presents the data available on the proportion of First Nations youth engaged in EET, and progress towards the Closing the Gap target. To align with the target, analyses are limited to First Nations people aged 15–24.

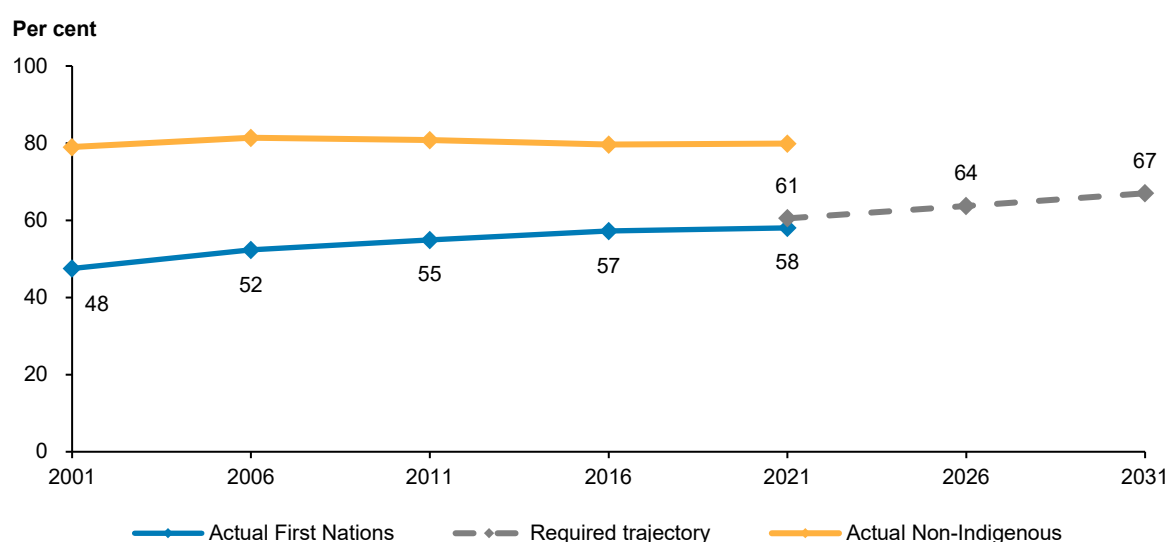
7.2.1 National

In 2021, there were 150,100 Aboriginal and Torres Strait Islander people aged 15–24 (First Nations youth) in the Census count. EET status was determined for 138,800 First Nations youth in 2021 and, of these, 58% (or 80,500) were fully engaged in EET (supplementary tables S7.1 and S7.2). Nationally, the proportion of First Nations youth fully engaged in EET increased steadily from 48% in 2001 to 58% in 2021 (Figure 7.1; Table S7.5).

Achieving the 2031 target from the baseline year of 2016 would require an increase of 3.3 pp in the proportion of First Nations youth fully engaged in EET for each of the 5-year increments from 2016 to 2021, from 2021 to 2026 and from 2026 to 2031 ('required trajectory'). However, the observed increase from 2016 to 2021 did not align with the required trajectory, according to Census data (Figure 7.1; Table S7.5).

In order to achieve the target of 67% in 2031, the number of young First Nations people fully engaged in EET would need to increase by about 4,100 per year from 2021 to 2031. This number was estimated by first applying the targeted 67% to the projected population of First Nations youth in 2031 (about 219,200) (ABS 2011-to-2031). This gives 146,800 youth needing to be fully engaged in EET in 2031 to achieve the target. The difference between this number and the estimated number of young First Nations people fully engaged in EET in 2021 (58% multiplied by the estimated population of First Nations youth in 2021) was then divided by the number of years between 2021 and 2031.

Figure 7.1: First Nations and non-Indigenous youth fully engaged in EET 2001–2021, and required trajectory to Closing the Gap target 2021–2031



Sources: AIHW analysis of 2021 Census of Population and Housing (ABS 2021b); Productivity Commission (2022).

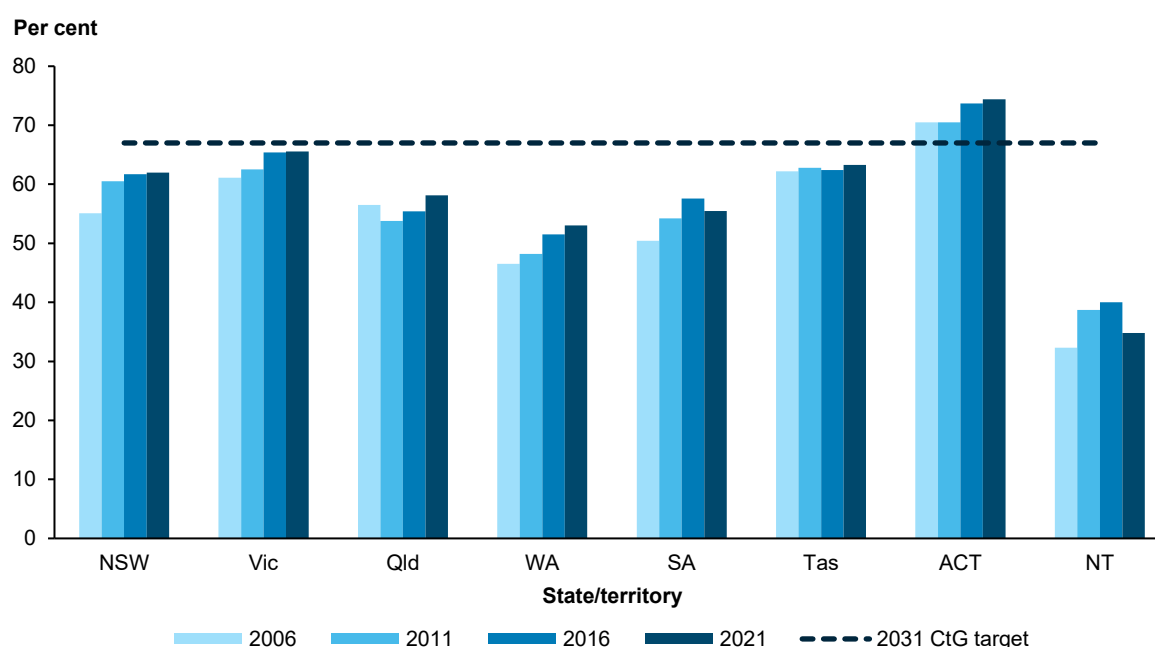
7.2.2 State and territory

In 2021, the proportion of First Nations youth fully engaged in EET was above the national target for 2031 in the Australian Capital Territory (74% or around 1,300), and above the required trajectory at the national level for 2021 in Victoria (66%), Tasmania (63%) and New South Wales (62%). However, the proportion of First Nations youth fully engaged in EET was much lower than the national target or the required trajectory for 2021 in the Northern Territory (35% or around 3,600).

In 2021, the proportion of First Nations youth fully engaged in EET was higher than it had been in 2006 in all states and territories, although the proportion dropped recently (from 2016 to 2021) in South Australia and the Northern Territory.

The largest increases between 2006 and 2021 were in New South Wales (7 pp), Western Australia (7 pp) and South Australia (5 pp) (Figure 7.2; Table S7.2).

Figure 7.2: First Nations youth fully engaged in EET, by state and territory, 2006–2021



CtG = Closing the Gap.

Source: AIHW analysis of ABS 2006–2021 Censuses of Population and Housing (ABS 2006, 2011, 2016, 2021e).

While the Closing the Gap target is framed in terms of full engagement in EET, the Productivity Commission's Closing the Gap Information Repository reports some results for those not engaged in employment, education or training (NEET) (see www.pc.gov.au/closing-the-gap-data). To help achieve the Closing the Gap target, it is important to understand the characteristics of those who are NEET, as this can help to inform policy aimed at addressing reducing barriers to engagement in EET.

In 2021, the largest numbers of First Nations youth who were NEET (based on the Census count) were in Queensland (11,800), New South Wales (11,700), the Northern Territory (5,900) and Western Australia (5,200). This is due to relatively large First Nations populations in these jurisdictions, combined with higher NEET rates (in Queensland, New South Wales and Western Australia), and a very high NEET rate (despite a smaller First Nations population) in the Northern Territory (tables S7.1 and S7.2).

7.2.3 Remoteness area

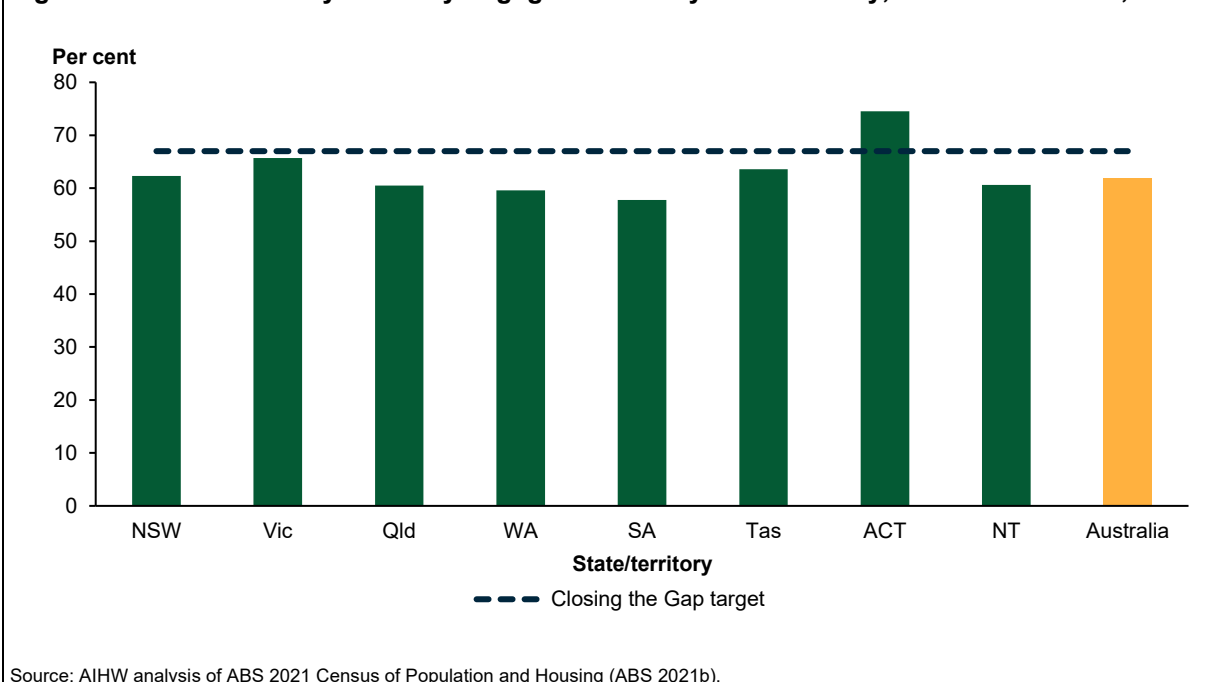
In 2021, the proportion of First Nations youth fully engaged in EET was highest in *Major cities* at 64% (around 38,800); the proportion declined with increasing remoteness. The proportions of First Nations youth fully engaged in EET in other remoteness areas were:

- 60% (20,800) in *Inner regional* areas
- around 58% (14,000) in *Outer regional* areas
- around 45% (3,000) in *Remote* areas
- around 30% (3,800) in *Very remote* areas (tables S7.6 and S7.7).

The patterns of First Nations youth economic engagement by state/territory and by remoteness area described above reflect similar well-documented patterns of participation in education and employment among the First Nations population more broadly. Rates of attainment of higher educational qualifications are highest in New South Wales and the Australian Capital Territory and lowest in the Northern Territory, and are higher in non-remote areas than in remote areas (AIHW and NIAA 2022a). So, the results presented above are not surprising.

Looking at non-remote and remote areas within states and territories, the results are more surprising. The Northern Territory has the lowest proportion of First Nations youth fully engaged in EET compared with other states and territories. However, compared with the non-remote areas of other states and territories, the non-remote part of the Northern Territory ranks in the middle of the range (Figure 7.3; tables S7.10 and S7.11).

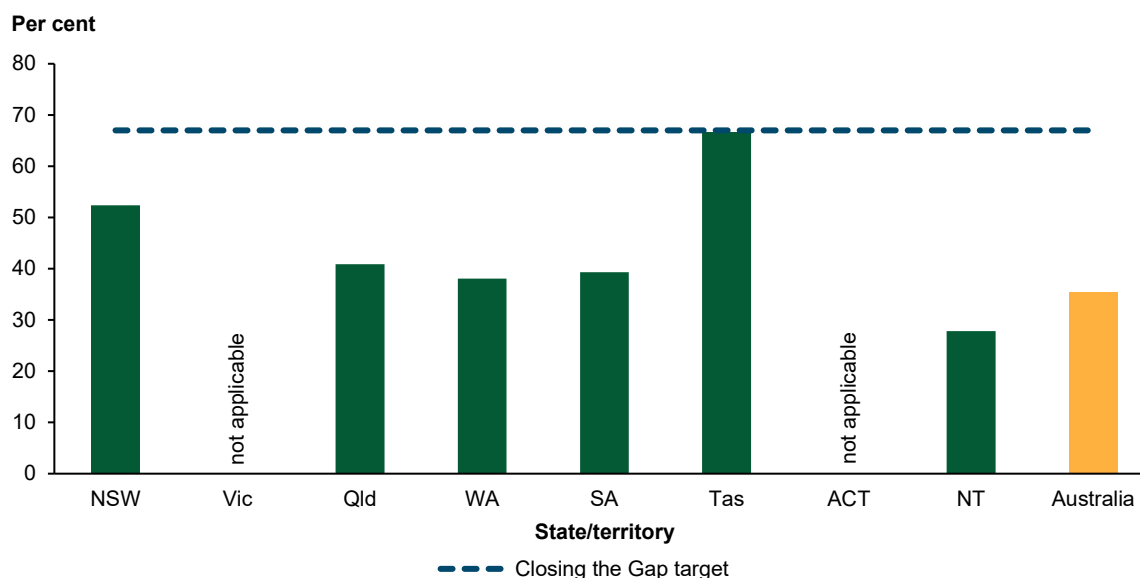
Figure 7.3: First Nations youth fully engaged in EET by state/territory, non-remote areas, 2021



Source: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b).

The non-remote area of the Northern Territory is essentially Darwin. From Figure 7.4 it is clear that First Nations youth in Darwin are as likely to be fully engaged in EET as First Nations youth in non-remote parts of other jurisdictions that have large First Nations populations (such as New South Wales and Queensland). So, the overall low proportion of being fully engaged in EET for the whole of the Northern Territory is driven by outcomes for the *Remote* and *Very remote* parts of the Northern Territory (Figure 7.4; Table S7.11).

Figure 7.4: First Nations youth fully engaged in EET, by state/territory, remote areas, 2021



Sources: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b); Productivity Commission (2022).

7.2.4 Socioeconomic index

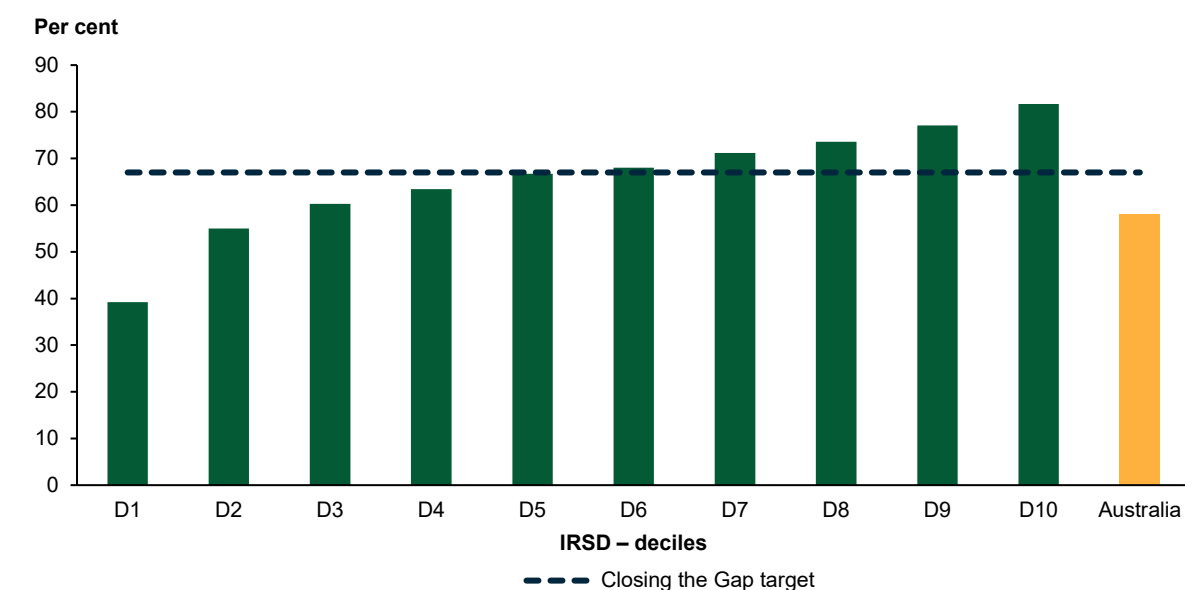
Large variations were seen in the proportion of First Nations youth fully engaged in EET by the ABS derived Index of Relative Socioeconomic Disadvantage (IRSD), presented in deciles. The bottom decile represents the most disadvantaged areas (the bottom 10%) and the top decile, the least disadvantaged areas (top 10%).

As the level of socioeconomic disadvantage of their area of usual residence fell, the proportion of First Nations youth fully engaged in EET rose.

The proportion of First Nations youth fully engaged in EET was:

- 82% among those living in the least disadvantaged areas (decile 10), (3,300 fully engaged in EET of a total of 4,100 in decile 10 whose EET status was determined)
- 39% among those living in the most disadvantaged areas (decile 1), (14,500 fully engaged in EET of a total of 36,900 in decile 1 whose EET status was determined) (Figure 7.5; tables S7.12 and S7.13).

Figure 7.5: First Nations youth fully engaged in EET, by IRSD decile, 2021



D = decile.

Source: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b).

In 2021, First Nations youth were over-represented in disadvantaged areas, with around 42% (compared with less than 18% of non-Indigenous youth) living in an area ranked among the most disadvantaged 20% in Australia. Around 7% of First Nations youth lived in an area ranked among the least disadvantaged 20% of areas in Australia, compared with 22% of non-Indigenous youth (Table S7.12).

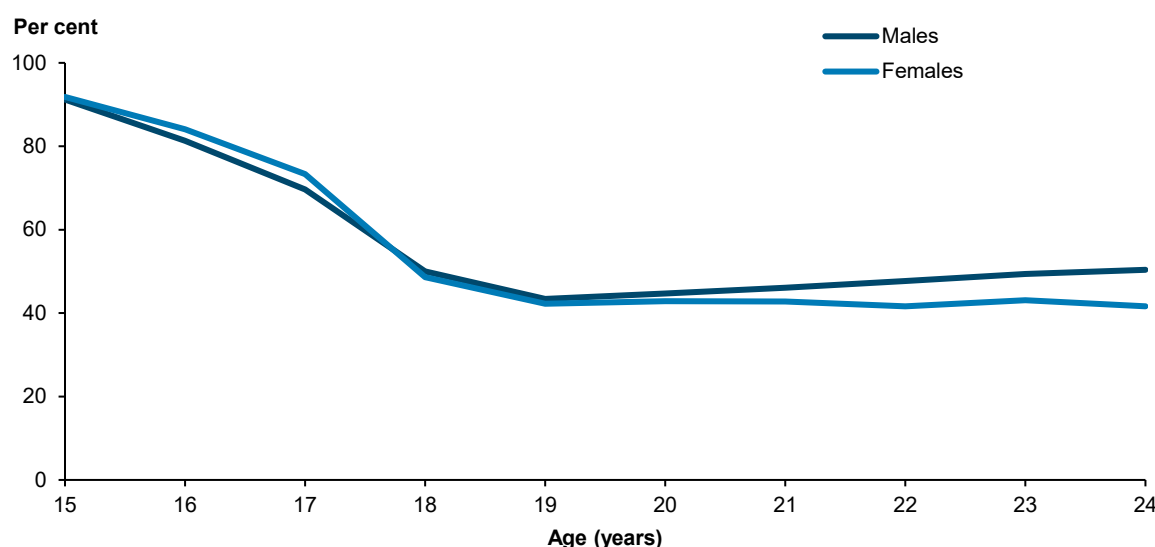
7.2.5 Age and sex

The proportion of First Nations youth fully engaged in EET in 2021 was much higher among those aged 15–17, as many young people in this age group would still be attending secondary schooling full time and, in that case, are, by definition, fully engaged in EET. The proportion was highest for those aged 15, at 92%, followed by 83% for those aged 16. The proportion declined for those aged 17 (71%) and 18 (49%) (tables S7.16 and S7.17).

Others aged 15–17 who are not attending secondary school may be fully engaged in employment or education and training that is not school based. Since 2010, all states and territories have increased their school leaving age to 17, under the National Partnership on Youth Attainment and Transitions (COAG 2009). Young people may be granted an exemption from the requirement to stay at school until age 17 if they are engaged in either non-school education or training, or are in paid employment for at least 25 hours per week on average (Crawford and Venn 2018).

Rates of full engagement in EET for First Nations females and First Nations males diverge from the age of 19, with rates for men gradually increasing and rates for women generally remaining relatively flat (Figure 7.6; Table S7.15). This gender gap emerges around the time that many First Nations women begin having children (Venn 2018).

Figure 7.6: First Nations youth fully engaged in EET, by age and sex, 2021



Source: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b).

7.2.6 Distribution of First Nations youth not fully engaged in EET

While the Closing the Gap National Agreement framed the youth engagement target in terms of being fully engaged in EET, it is helpful for analytical and policy purposes to focus on those not fully engaged. That is the group whose status would need to change to make progress on the target.

In 2021, around 58,200 First Nations youth were not fully engaged in EET, comprising 17,700 who were partially engaged and 40,600 who were not engaged at all (based on the Census count) (Table S7.1). The distribution of this group by some key characteristics, such as gender and geography, is presented in tables S7.18 and S7.19.

Of the 58,200 First Nations youth not fully engaged in 2021, 48.6% were males, and 51.4% were females.

Around 3 in 10 First Nations youth who were not fully engaged lived in New South Wales and around 3 in 10 lived in Queensland. In more detail:

- 31.1% lived in New South Wales
- 29.4% lived in Queensland
- 11.6% lived in Western Australia
- 11.6% lived in the Northern Territory.

Nearly 2 in 5 First Nations youth who were not fully engaged lived in *Major cities* and more than 1 in 5 lived in *Inner regional* areas:

- 37.3% lived in *Major cities*
- 23.5% lived in *Inner regional* areas
- 17.3% lived in *Outer regional* areas
- 6.2% lived in *Remote* areas
- 15% lived in *Very remote* areas (Table S7.17).

7.3 Literature review

The benefits of education and employment for First Nations people, the link between education and employment, and the historical exclusion or restriction of economic opportunities for First Nations people are discussed in the chapters on year 12 or equivalent completion, tertiary education, and employment (chapters 5, 6 and 8). The following discussion focuses on factors relating to the engagement of young First Nations people in education and employment.

Young First Nations people face several challenges to completing secondary education and to engaging in further education or employment. First Nations students living in remote areas of Australia have limited access to secondary education within their communities; for many, the only option is to spend much of their time away from their families and communities to attend boarding school (Crawford and Schwab 2017). Many First Nations young people are the first generation in their family to attend senior secondary school, so they have limited access to family members' experience of, and knowledge about, senior secondary school and university participation (Behrendt et al. 2012).

Many First Nations people aged 15–24 also have family responsibilities, with young children to care for. In 2021, around 20% of First Nations women aged 20–24 had children of their own to care for (ABS 2021b). First Nations women may also have caring responsibilities for children in their extended family. In Australia generally, the incidence of part-time employment for women is higher than the Organisation for Economic Co-operation and Development (OECD) average and the labour supply of mothers with young children is low (OECD 2018).

Lower NEET rates among First Nations youth in metropolitan areas compared with remote areas have been attributed to factors such as greater access to educational opportunities and better developed labour markets (Crawford and Biddle 2015). Fowkes and colleagues (2018) discuss the history of the emergence of, and policy responses to, First Nations unemployment in remote areas. The changing nature of labour market programs in remote areas means that the way that the labour force status of participants is classified in the Census differs over time, 'even though to some extent they cover the same applicable population' (ABS 2023a).

- In 2011, those who participated in Community Development Employment Projects (CDEP) received wages from their community. They were therefore considered to have an employer–employee relationship and were classified as employed in the 2011 Census.
- In 2016 and 2021, those who participated in the Community Development Program (CDP) received income support payments directly from the government and were not considered to be employed (unless they also had a non-CDP job) (ABS 2023a).

Analysis of 2021 Census data shows that 784 First Nations people aged 15–24 were participants in the CDP – the vast majority of whom (98%) were counted in *Remote* or *Very remote* areas; 749 (around 96%) were classified as NEET, representing around 1.8% of all First Nations 15–24-year-olds classified as NEET in the 2021 Census. Note that the ABS states that care should be taken in using the CDP variable, as the Census question is asked to derive the person's labour force status and does not capture all CDP activities; further, the information is not captured on all types of collection form used in the Census (ABS 2023a).

7.3.1 Being a parent/carer of young children

Having children to care for was found to be associated with a higher likelihood of being NEET in 5 studies (Apatov 2019; Crawford and Biddle 2015; Dinku 2021; Hillman 2005; Venn and Biddle 2018). First Nations young adults with children were more likely than those without children to experience an episode, or recurrent episodes, of NEET (Dinku 2021). Moreover, the proportions of First Nations people undertaking secondary or tertiary education were lower among those caring for children (Crawford and Biddle 2015). Having children was significantly associated with a higher likelihood of being long-term NEET among Māori and Pacific youth (Apatov 2019).

7.3.2 Education

Level of educational attainment was positively associated with youth engagement in EET. First Nations youth with higher levels of education were less likely to experience episodes of NEET (Dinku 2021). The significance and nature of the association varies with remoteness:

- First Nations youth who leave school early in non-remote areas were around 3 times as likely to be NEET as year 12 graduates, and those in remote areas were twice as likely to be NEET as year 12 graduates (Venn 2018).

The highest level of educational attainment was found to be an important factor in explaining the gap between the proportion of Māori/Pacific youth and European/Asian youth who were NEET (Apatov 2019). Education is also associated with youth economic participation among young Australians in general (Hillman 2005), and similar evidence was found in OECD countries (Carcillo et al. 2015).

7.3.3 Level of socioeconomic disadvantage of the local area and education and employment of other household members

Level of socioeconomic disadvantage of the local area was found to be relevant to youth engagement in EET or early school leaving rates in 3 studies (Apatov 2019; Crawford and Venn 2018; Dinku 2021). Young people living in higher socioeconomic areas were less likely to be NEET (Dinku 2021). A large part of the disparity between First Nations and non-Indigenous early school leaving rates is explained by neighbourhood disadvantage (Crawford and Venn 2018).

First Nations youth who lived in a household with an employed family member were less likely to experience an episode of NEET (Dinku 2021). In the Australian population generally, young people whose parents worked in a professional occupation were less likely to be economically inactive (Hillman 2005).

A large part of the disparity between First Nations and non-Indigenous early school leaving rates could be explained by parents' educational attainment (Crawford and Venn 2018). It has been shown that young people whose parents had a tertiary education were less likely to be economically inactive in the general Australian population (Hillman 2005). An OECD study found there was a strong relationship between the education of a young person's parents and the risk of becoming NEET (Carcillo et al. 2015).

7.3.4 Disability or health status

Disability or health status was found relevant to youth EET engagement in 3 studies (Carcillo et al. 2015; Dinku 2021; Hillman 2005). Disability was associated with a higher probability that First Nations youth would experience one, or recurrent, episodes of NEET (Dinku 2021).

Among young Australians in general, those with disability or a long-term health problem were more likely than those without disability or a long-term health problem not to be in the labour force and not in full-time education (Hillman 2005).

7.3.5 Other factors

Other factors relevant to participation in education or employment that are discussed in the literature, though not specifically in relation to First Nations youth in Australia, include:

- having caring responsibilities for people other than children, usually those with an illness, disability, or the frail aged (Muir et al. 2015)
- having access to a vehicle or having a driver's licence, which is important to participation in education and employment, including among First Nations people (Birch and Marshall 2016; Ivers et al. 2016; Porykali et al. 2021)
- living in suitable housing – that is, housing with an adequate number of bedrooms given the household size and composition; First Nations youth were less likely to experience an episode, or recurrent episodes, of NEET if they did so (Dinku 2021)
- dealing with housing instability, also cited as a characteristic relevant to young people's engagement in EET (Muir et al. 2015).

7.4 Modelling factors affecting youth engagement

This section presents primary data analyses of factors associated with youth engagement in EET in 2 subsections.

- First, data on youth engagement in EET from the 2021 Census and 2018–19 NATSIHS are cross-tabulated by the key drivers identified in the literature review.
- Second, the results of the logistic regression modelling undertaken using unit record data from the 2018–19 NATSIHS are presented. This analysis identifies and quantifies the effects of specific factors associated with youth engagement in EET, controlling for the effects of the other factors included in the model.
- Lastly, the relative importance of the variables included in the regression model is estimated using random forest modelling.

7.4.1 Bivariate comparisons of EET engagement status by key factors

Year 12 completion (for ages 18–24)

In 2021, the proportion of First Nations people aged 18–24 fully engaged in EET was higher among those who had completed year 12 or equivalent at 56%, compared with 31% for those who had not (Table 7.1). When further tabulated by sex and remote/non-remote categories (tables S7.20 to S7.23), for those who had completed year 12, the proportions fully engaged in EET were:

- in non-remote areas, 59% for males and 58% for females
- in remote areas, 38% for males and 35% for females.

For those who had not completed year 12, the proportions fully engaged in EET were:

- in non-remote areas, 42% for males and 28% for females
- in remote areas, 13% for males and 8.6% for females.

Table 7.1: Summary comparisons of youth engagement in EET status, by identified key factors, First Nations youth aged 15–24^(a), 2021 Census (per cent)

Explanatory variable	Outcome	Fully engaged	Partially engaged	Not engaged	Total
IRSD decile	Decile 1	39.2	10.9	49.9	100.0
	Decile 2	55.0	14.3	30.7	100.0
	Decile 3	60.3	14.2	25.6	100.0
	Decile 4	63.4	14.2	22.4	100.0
	Decile 5	66.7	13.4	19.9	100.0
	Decile 6	68.0	13.6	18.4	100.0
	Decile 7	71.2	13.3	15.4	100.0
	Decile 8	73.6	12.8	13.6	100.0
	Decile 9	77.1	11.2	11.7	100.0
	Decile 10	81.7	9.9	8.3	100.0
Completed year 12 (ages 18–24 only)	Yes	56.4	18.7	24.9	100.0
	No	30.6	14.4	55.0	100.0
Unpaid domestic work in the week before Census night	None or less than 5	60.6	12.4	27.0	100.0
	5 hours or more	48.1	14.7	37.2	100.0
	of which, 30 hours or more	25.3	12.8	61.9	100.0
Cared for own child in the 2 weeks before Census night	Yes	22.6	14.5	62.9	100.0
	No	60.8	12.8	26.4	100.0
• by sex of those who cared for own child	Male	38.9	13.2	47.9	100.0
	Female	15.1	15.1	69.8	100.0
Cared for someone with disability, health condition, or due to old age, in the 2 weeks before Census night	Yes	48.8	13.6	37.6	100.0
	No	58.6	12.9	28.5	100.0
Has disability (need for assistance with core activities)	Yes	44.8	10.2	45.0	100.0
	No	59.0	12.9	28.0	100.0
Number of selected long-term health conditions ^(b)	Zero or one	58.6	12.6	28.8	100.0
	Two or more	47.0	15.8	37.2	100.0
Volunteered in last 12 months	Yes	72.4	11.4	16.2	100.0
	No	56.3	13.1	30.6	100.0
Lives in overcrowded housing (extra bedrooms needed)	Yes	39.1	10.6	50.3	100.0
	No	62.6	13.6	23.8	100.0
Housing tenure	Owner	71.7	12.6	15.7	100.0
	Renter	49.3	13.2	37.5	100.0
	Other	53.4	11.7	34.9	100.0
Number of motor vehicles in the house	None	28.5	9.2	62.3	100.0
	One	50.3	12.3	37.4	100.0
	Two	63.0	13.5	23.4	100.0
	Three	67.9	14.2	17.8	100.0
	Four or more	71.1	14.7	14.1	100.0

(a) Age group is 15–24 for all characteristics tabulated except for year 12 completion, which is derived only for those aged 18–24.

(b) People are classified as having a long-term health condition if they respond that they have been told by a doctor or nurse that they have any of the following long-term health conditions: arthritis, asthma, cancer (including remission), dementia (including Alzheimer's disease), diabetes (excluding gestational diabetes), heart disease (including heart attack or angina), kidney disease, lung condition (including chronic obstructive pulmonary disease [COPD] or emphysema), mental health condition (including depression or anxiety), stroke (ABS 2021a).

Source: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b).

Being a parent of young children

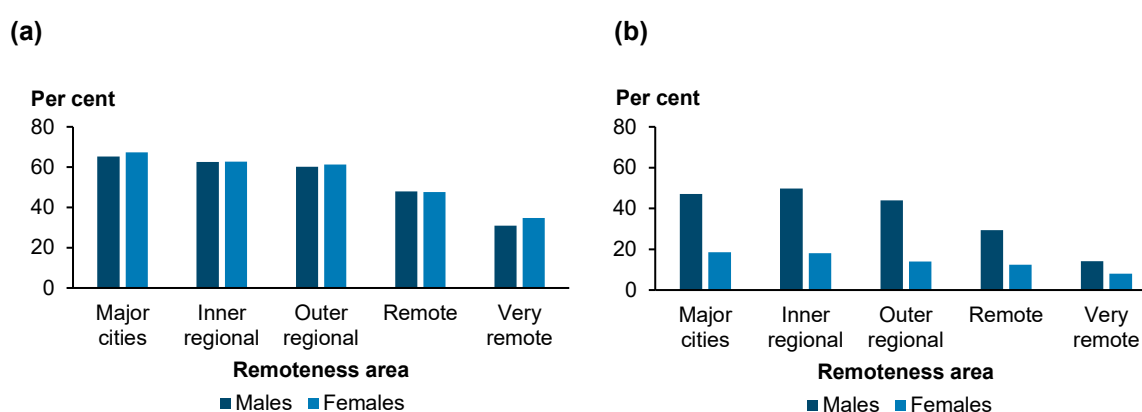
In 2021, the proportion of full engagement in EET among First Nations youth aged 15–24 was around 61% for those without child-caring responsibilities (in the 2 weeks before Census night) – a much higher proportion than the 23% of those caring for their own children (Table 7.1).

Among First Nations females aged 15–24, the discrepancy in EET by parental status was even starker: around 63% without child-caring responsibilities were fully engaged in EET, compared with a much lower proportion of just 15% of females caring for their own children (tables S7.24 and S7.25).

Further disaggregation by remoteness shows that, among First Nations youth not caring for children, the proportions of males or females fully engaged in EET were relatively similar within each remoteness area, though both declined with increasing remoteness (Figure 7.7a).

Among First Nations youth caring for children, there were strong gender differences in the proportions fully engaged in EET across remoteness areas. Among those caring for children, a greater proportion of young First Nations males than females were fully engaged in EET. The difference was greatest in non-remote areas (Figure 7.7b).

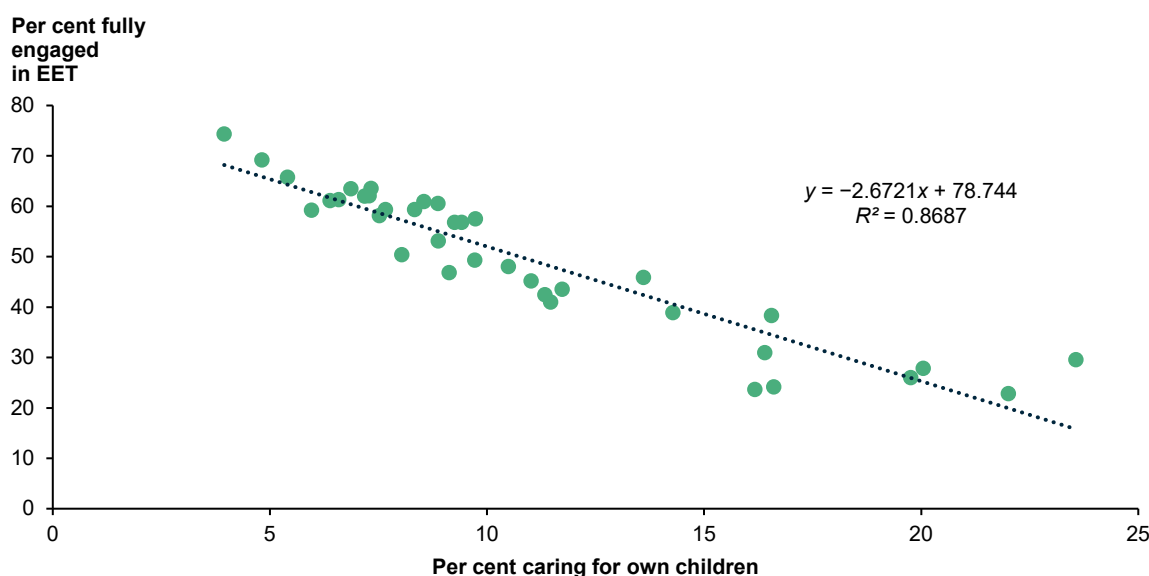
Figure 7.7: First Nations youth (a) without child-care responsibilities (b) with child-care responsibilities, proportion fully engaged in EET, by remoteness, 2021



Source: AIHW analysis of ABS 2021 Census of Population and Housing (b).

Across Indigenous Regions, as the proportion of First Nations youth caring for their own children increases, the proportion fully engaged in EET decreases – that is, there is a strong inverse correlation (Figure 7.8).

Figure 7.8: Correlation between the proportion of First Nations youth caring for their own children and the proportion fully engaged in EET, by Indigenous Region, 2021



Source: AIHW analysis of ABS 2021 Census of Population and Housing (ABS 2021b).

Caring for someone with disability

Providing care for someone with disability, a health condition, or of old age appears to have different associations with EET engagement than having and caring for children (Table 7.).

Among First Nations youth, the proportion fully engaged in EET was lower for those who provided unpaid care to someone with disability (49%) than for those who did not (59%) – but the difference between these groups is not as great as the differences between those with or without child-caring responsibilities.

Unpaid hours of domestic work

The proportion of First Nations youth fully engaged in EET decreased with increased number of unpaid domestic hours worked per week (Table 7.).

Among those who did fewer than 5 unpaid hours of domestic work in the week before Census night, 61% were fully engaged in EET. This percentage dropped to 48% for those who did more than 5 hours of domestic work, and to 25% for those who did 30 hours or more.

Disability or health status

In 2021, around 45% of First Nations youth who needed assistance with core activities (a measure of disability) were fully engaged in EET, a lower proportion than for those without disability (59%) (Table 7.).

Volunteering

In 2021, among First Nations youth who had undertaken unpaid voluntary work in the previous 12 months, 72% were fully engaged in EET compared with 56% of those who had not (Table 7.1).

Overcrowded housing

Young First Nations people aged 15–24 who lived in uncrowded homes were less likely to experience an episode of NEET, or recurrent NEET episodes (Dinku 2021). This author cautioned, however, that the observed relationships could be due to unobserved correlations between crowded housing and other household circumstances, like wealth or income, that have a positive impact on youth engagement in EET.

A similar result is found in the 2021 Census: 63% of First Nations youth living in suitable housing – defined as housing that did not need extra bedrooms for the household – were fully engaged in EET, compared with 39% of First Nations youth living in housing where extra bedrooms were required (Table 7.).

Housing tenure

Among First Nations youth living in housing that was owned or being purchased, 72% were fully engaged in EET, compared with 49% of those living in housing that was being rented (Table 7.).

Access to a vehicle

In 2021, the proportion of First Nations youth fully engaged in EET increased with increased number of motor vehicles in the household.

Among First Nations youth living in households without a car, 29% were fully engaged in EET, compared with 50% in households with one car, 63% in households with 2 cars, ranging up to 71% in households with 4 or more cars (Table 7.).

7.4.2 Multivariate logistic regression results

This section presents results from regression modelling analyses used to identify and quantify the role of factors associated with First Nations youth engagement in EET. The data source used for the modelling is the 2018–19 NATSIHS.

Logistic regression analysis

Logistic regression was used to model the odds of First Nations youth being fully engaged in EET controlling for a range of characteristics. For more information about logistic regression analyses see Appendix A. Data and methods. The logistic regression results are discussed in this chapter using the odds ratios presented in tables S7.27 and S7.28. Marginal effects were also calculated but are presented only in tables S7.27 and S7.28. See the Glossary for definitions of *odds ratio* and *marginal effect*.

Separate logistic regression models were estimated for the 15–24 and 18–24 age groups. Those people aged 15–17 are generally required to stay at school – the majority in this age group are attending secondary school and are therefore, by definition, fully engaged in EET. For this reason, a separate model was used to determine whether the key factors associated with First Nations youth engagement in EET differed for the group aged 18–24.

Explanatory variables were selected for inclusion in the models, based on findings from the literature, supported by the primary analyses of relevant data available from the Census. Standard demographic and geographic items were also included. The variables chosen for the regression models for the 15–24 and 18–24 age groups differed, as follows:

- Educational attainment (whether has a non-school qualification) was included in the model for those aged 18–24 only, as the 15–24 model includes those generally required to stay at school (15–17), most of whom would not yet have completed a non-school educational qualification.
- Variables related to aspects of culture (satisfaction with own knowledge of culture; whether proud of culture/being Aboriginal and Torres Strait Islander; whether identifies with a tribal group, language group or clan) and whether an older relative was removed from their natural family were included in the models for the 18–24 age group only, as questions on these topics were not asked of those aged 15–17 in the NATSIHS 2018–19.

For each age group, models were run for males, females and persons. The reason for running separate models for males and females was to determine whether the key factors associated with First Nations youth engagement in EET differed by gender.

Most of the variables included in the models are fairly self-explanatory. The variable *Equivalised household support income* was constructed specifically for this analysis. It represents the combined incomes of household members other than the individual whose engagement in EET status is of interest (adjusted for the composition of the household) to enable income levels between households of differing size and composition to be compared.

Some variables refer to the household as a whole, and the nature of the household may vary depending on the age of the individual whose engagement in EET status is of interest.

- For example, younger people aged 15–24 are much more likely to be living with their parents, in which case the financial stress variable will mainly capture the parental financial situation. On the other hand, those approaching their mid-20s may be forming their own families and households, and the financial stress variable will reflect their own financial situation.

Logistic regression results

The following discussion of results draws on detailed supplementary tables (tables S7.27 and S7.28), which present odds ratio (OR) and marginal effects (ME) results for all people for the 15–24 and 18–24 age groups, as well as for separate models for males and females for each of these age groups. A summary of these results, containing ORs for all persons for the models for the 2 age groups (15–24 and 18–24) is presented in Table 7.2.

The ORs represent the odds of a person in a given category being fully engaged in EET, compared with a person in the reference category, after accounting for the other explanatory variables in the model. For example, in the model for the 15–24 age group, the OR of 3.14 for 15–17-year-olds indicates that the odds of a 15–17-year-old being fully engaged in EET are 3.14 times that of a 23–24-year-old (the reference or comparison group), after controlling for other factors.

Table 7.2: Logistic regression results (odds ratios) on full engagement in EET, First Nations youth aged 15–24 and 18–24, 2018–19 NATSIHS

Variable (reference category)	Level	OR	
		15–24	18–24
Age (23–24)	15–17	3.14**	—
	18–19	0.55	0.47*
	20–22	0.40**	0.36**
Sex (Male)	Female	0.98	0.77
Remoteness (Inner/Outer regional)	Major cities	3.30**	2.98**
	Remote/Very remote	1.45	2.26*
State (NSW)	Vic	0.99	1.12
	Qld	1.10	1.00
	WA	0.56	0.29**
	SA	0.95	0.91
	Tas	2.50*	1.88
	ACT	1.78	1.86
	NT	1.44	1.09
SEIFA IRSD decile ^(a) (Lowest decile)	Deciles 2–4	1.79*	3.01**
	Top 6 deciles	1.26	1.95
Overcrowded housing (Extra bedroom/s needed ^(b))	No extra bedrooms needed, or household has spare bedrooms	0.96	1.49
Tenure type (Rent)	Owner	2.59**	2.99**
	Life tenure, shared equity or rent-free scheme participant	0.90	0.66
House is of acceptable standard (No)	Yes	1.49	1.51
Household in financial stress (Household could not raise \$2,000 in a week for an emergency)	Household could raise \$2,000 in a week for an emergency	1.51	2.08*
	Not known	0.71	0.76
Equivalised weekly household support ^(c) income (Below \$225 per week)	Between \$225 and \$479 per week	0.90	0.99
	\$480 or more per week	1.56	1.47
	Not known/not applicable/refused	0.90	1.05
Disability status (No limitation or activity restriction)	Schooling/employment restriction only	0.67	0.89
	Mild or moderate core activity limitation	0.93	0.82
	Severe or profound core activity limitation	0.47	0.72
Has non-school qualification (No)	Yes	—	0.70
Self-assessed health (Fair/poor)	Good, very good or excellent	1.50	1.08
Mental health diagnosis (None)	Yes	0.91	0.83

(continued)

Table 7.2 (continued): Logistic regression results (odds ratios) on full engagement in EET, First Nations youth aged 15–24 and 18–24, 2018–19 NATSIHS

Variable (reference category)	Level	OR	
		15–24	18–24
Parental status (Not a parent)	Single parent	0.21**	0.24**
	Couple parent	0.37**	0.40*
Whether identifies with a tribal group, language group or clan (No)	Yes	–	1.02
Satisfaction with own knowledge of culture (Neutral/not very satisfied/not at all satisfied)	Satisfied/very satisfied	–	1.31
Whether proud of being Indigenous (No)	Yes	–	1.33
Whether older relative removed from natural family (No)	Yes	–	1.09
	Not stated	–	0.62

Statistical significance levels: ** = $p < 0.01$; * = $p < 0.05$.

(a) Socioeconomic Indexes for Areas (SEIFA), calculated at the ABS Statistical Area 1 geography level.

(b) As per the Canadian National Occupancy Standard.

(c) Support income is defined as the difference between household gross income and personal gross income for this model. This value has been equivalised for inclusion in the model.

Results for 15–24-year age group

Among the sample of 15–24-year-olds, age and parental status were found to be statistically significant in the logistic regression model for all persons (Table S7.24).

Age

Compared with those aged 23–24 (after accounting for other variables in the model):

- in the model for all persons, those aged 15–17 had 3.1 times higher odds of being fully engaged in EET
- in the model for females, those aged 15–17 had 5.2 times higher odds of being fully engaged in EET
- for males aged 15–17, the result was not statistically significantly different
- in the model for all persons, those aged 20–22 had 0.40 times lower odds of being fully engaged in EET
- in the model for males, those aged 20–22 had 0.34 times lower odds of being fully engaged in EET
- for females aged 20–22, the result was not statistically significantly different.

Parental status

Compared with those who were not parents (after accounting for other variables in the model):

- in the model for females, those who were single parents had 0.26 times lower odds and those who were parents in a couple family had 0.15 times lower odds of being fully engaged in EET
- in the model for males, the result was not statistically significantly different for those who were parents (for males, all parents were compared with non-parents, due to the very small number of male single parents).

Other important factors

Other results for the 15–24 age group include:

- Those living in *Major cities* had over 3 times higher odds of being fully engaged in EET than those living in regional areas (males, females and persons).
- Those living in a home that was owned or being purchased were generally more likely to be fully engaged in EET than those living in rental accommodation (for females, OR=4.8; for persons, OR=2.6; but the result was not statistically significantly different for males).
- Males from households with an equivalised weekly household support income of \$480 or more per week were more likely (OR=2.8) than those with an equivalised household support income of less than \$225 per week to be fully engaged in EET.

Results for 18–24-year age group

Among the sample of 18–24-year-olds – which approximately excludes those in compulsory schooling – the key factors associated with engagement in EET were found to be:

Financial stress

- First Nations youth living in a household that did not experience financial stress in the previous 12 months had twice the odds of being fully engaged in EET as those living in a household that did experience financial stress (all persons only; the result was not statistically significantly different in the models for males or females).

Area-based socioeconomic disadvantage

Compared with those living in areas ranked in the 10% of most disadvantaged areas in Australia (the lowest decile of the SEIFA IRSD):

- First Nations youth who lived in IRSD deciles 2–4 had about 3 times higher odds of being fully engaged in EET (for males, females and persons)
- First Nations males living in the least disadvantaged areas (IRSD deciles 5–10) also had about 3 times higher odds of being fully engaged in EET. Note there are relatively small numbers in higher deciles: First Nations people are over-represented in areas ranked as the most disadvantaged areas in Australia (AIHW and NIAA 2022b).

Other important factors

Remoteness and parental status were found to be statistically significant in the logistic regression model. The regression model results for the sample of 18–24-year-olds show:

- those living in *Major cities* had about 3 times higher odds of being fully engaged in EET than those living in regional areas (for males, females and all persons)
- those living in *Remote and very remote* areas combined had higher odds of being fully engaged in EET than those living in regional areas (for females, OR=3.4; for all persons, OR=2.3; for males, statistically not significant)
- those who were single parents had lower odds of being fully engaged in EET than those who were not (for females, OR=0.26; for all persons, OR= 0.24)
- those who were a parent in a couple family had lower odds of being fully engaged in EET than those who were not (for females, OR=0.14; for all persons, OR=0.40).

Cultural identity and removal from natural family variables

The following variables were included in the regression model for the sample of 18–24-year-olds only:

- whether identifies with a tribal group, language group or clan
- satisfaction with own knowledge of culture
- whether proud of being Indigenous
- whether an older relative was removed from their natural family.

Simple comparisons of First Nations youth engagement in EET status by these variables for those aged 18–24 are presented in Table S7.25.

None of these were found to be statistically significantly associated with First Nations youth engagement in EET, after accounting for other variables in the model (Table S7.25).

7.4.2 Random forest analysis

The description of the random forest analysis is available in Appendix A. The results of random forest analysis are presented in Figure 7.9. Based on the outcomes of the random forest analyses, the variables associated with youth engagement in EET were classified into 5 groups (with exception of Method A in 15–24 -year-olds sample which resulted in 4 groups), ranked from high to low importance.

In the sample of 15–24-year-olds, age and parental status were ranked in the 2 highest importance groups of variables across both methods A and B (Figure 7.9). Equivalised weekly household support income was found to be moderately important, ranking in the 2–3 highest importance groups across methods A and B for this age group.

Experience of financial stress ranked in the highest importance group of variables for the 18–24-year-olds, while it was of moderate importance for the 15–24-year-olds. Equivalised weekly household support income was found to be moderately important in this age group as well. Area-based level of socioeconomic disadvantage ranked in the first and third importance groups of variables for the 18–24-year-olds (Figure 7.9). Remoteness area and parental status were ranked as moderately important for this age group in the random forest models.

All of the measures related to culture and identity were ranked in the least important group in both samples and across both methods.

Figure 7.9: Relative importance groupings of variables predicting engagement in EET, First Nations youth aged 15–24 and 18–24

15–24 age group		18–24 age group		
Method A	Method B	Method A	Method B	
Age group	Age group	Financial stress	Financial stress SEIFA decile	More important
Parent status Equivalised household support income	Parent status Equivalised household support income	Equivalised household support income	Parent status Equivalised household support income Remoteness area	
Housing tenure Financial stress SEIFA decile	Financial stress SEIFA decile	Parent status Housing tenure Remoteness area	State or territory Housing tenure Sex	
Disability status Remoteness area Sex Overcrowding State or territory Living in house of acceptable standard Mental health diagnosis Self-assessed health	State or territory Housing tenure Remoteness area Living in house of acceptable standard Sex Disability status Overcrowding Mental health diagnosis Self-assessed health	Non-school qualification Sex State or territory Disability status Identification with a tribal group, language group or clan Living in house of acceptable standard Whether proud of culture/being Aboriginal or Torres Strait Islander Age group Overcrowding Satisfaction with own knowledge of culture Removal of older relatives from natural family Mental health diagnosis Self-assessed health	Disability status Overcrowding Non-school qualification Satisfaction with own knowledge of culture Age group Identification with a tribal group, language group or clan Whether proud of culture/being Aboriginal or Torres Strait Islander Living in house of acceptable standard Removal of older relatives from natural family Mental health diagnosis Self-assessed health	
				Less important

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values, but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a pp difference threshold between ordered variable importance values.

Source: AIHW analysis of 2018–19 NATSIHS.

7.5 Policy implications

One of the aims of the 2020 National Agreement on Closing the Gap is to increase the proportion of Aboriginal and Torres Strait Islander youth (aged 15–24) who are fully engaged in EET to 67% by 2031.

Most of those at the younger end of the 15–24-year age range who are fully engaged in EET are attending secondary education full time. The proportion of First Nations youth fully engaged in EET decreases in senior secondary school, from around 92% of First Nations people aged 15 to around 71% of those aged 17.

Trend analysis showed that the proportion of First Nations youth fully engaged in EET has increased steadily, from 48% in 2001 to 58% in 2021. However, the rate in 2021 was below the required trajectory for 2021 to meet the 2031 target.

The largest increases between 2006 and 2021 were recorded in New South Wales (7 pp), Western Australia (7 pp) and South Australia (5 pp).

In 2021, the proportion of First Nations youth fully engaged in EET fell with increasing remoteness from 64% in *Major cities* to 30% in *Very remote* areas. The proportion of First Nations youth fully engaged in EET was the highest (82%) among those living in the least disadvantaged areas, and the lowest (39%) among those living in the most disadvantaged areas.

The findings from the logistic regression analysis predicting the odds of full engagement in EET suggested that age and parental status were statistically significant and highly important factors among 15–24-year-olds, while, among 18–24-year-olds, these factors included experience of financial stress and area-based level of socioeconomic disadvantage.

Strategies for increasing school attendance

Coordinated strategies within and beyond schools could support increased school attendance among First Nations youth, including:

- increasing recruitment and professional development of First Nations teachers and school leaders
- fostering culturally responsive teaching
- expanding options for young people to stay engaged with school education through vocational education and training programs.

Schools and communities need to be empowered and resourced to work collaboratively in developing local solutions to broader challenges that affect school attendance. Some of these challenges include socioeconomic disadvantage, health issues, housing, and community and personal safety (Dreise et al. 2016). In geographically isolated areas, secondary schooling options are limited and there is limited access to health, disability, allied health and mental health services, and to information and communications technology (ICT) services (House of Representatives Standing Committee on Employment Education and Training 2020).

Strategies for increasing participation in post-school education

Secondary education is followed by transitions to post-school education, employment and family formation. As well as working or engaging in vocational or university education, many young First Nations people have young children and older relatives to care for and have responsibilities to attend funerals and participate in other cultural events.

While First Nations youth with their own young children to care for are less likely to be fully engaged in EET, many – particularly women – are partially engaged in EET. Many of these women may prefer to work or study part time while they care for their children. Others may prefer to be fully engaged in EET but are unable to access high-quality, culturally competent child care due to a lack of availability, unaffordability or other barriers. Students with children may experience financial pressures and difficulties in accessing child care and student accommodation (Kinnane et al. 2014). First Nations women students caring for children need good access to affordable, culturally competent child care (Behrendt et al. 2012).

In 2023, the Australian Government introduced changes aimed at making child care more accessible for First Nations families. These changes included providing access to 36 hours per fortnight of subsidised child care for all First Nations children, regardless of the amount of time parents or carers spend working, studying, volunteering, or in other ‘recognised activity’ (Services Australia 2023). This may result in similar benefits to those reported when free child care was provided to all families for a limited time during the COVID-19 pandemic to help keep early childhood education and care services running. Some Aboriginal and Torres Strait Islander services reported that this resulted in increased numbers of First Nations children attending their services, as well as increases in children’s attendance hours. The increased attendance was attributed to some barriers to access being removed, including administrative registration requirements, the ‘activity test’, and interactions with Centrelink (Liddle et al. 2021). First Nations families may be more comfortable sending their children to a child-care service led by First Nations staff because they feel understood and their children can maintain links with their culture (Vowles 2020).

Some initiatives and programs that support successful transitions to university for First Nations youth include mentoring, university-school-community engagement, outreach programs, ‘Elders in residence’ programs, preparation and pre-orientation courses to help students with the transition to university, and university-wide cultural competency programs (Duffy 2023; University of Notre Dame Australia 2014). Regional study hubs may provide more options for First Nations students to access university study while retaining their connection to their community (Loftus 2023).

The Australian Government recently announced changes aimed at increasing university attendance among First Nations people as well as among those from regional and poor backgrounds. These include a guaranteed Commonwealth-supported place at university for all First Nations students, and study hubs in outer suburban and regional areas (Duffy 2023).

Strategies for increasing First Nations youth employment

Some of the strategies already described for educational participation may also support increased participation in employment among First Nations youth; for example, greater access to affordable, culturally competent child care and mentoring. Other strategies identified with potential to increase employment rates among First Nations people more generally include:

- increasing skill and education levels
- providing pre-employment assessment and training
- changing recruitment strategies to increase job opportunities for First Nations people
- providing cross-cultural training in workplaces aimed at reducing racism and discrimination against First Nations Australians
- offering flexible work arrangements to enable First Nations employees to meet family, community or cultural obligations

- offering intensive support to overcome multiple barriers such as health issues, drug and alcohol issues, or family violence
- setting up wage subsidy programs
- including First Nations employment goals in government programs that deliver goods or environmental or personal services (Gray et al. 2011; OECD 2019).

Many First Nations young people also face transport disadvantage. Compared with the non-Indigenous population, a greater proportion of the First Nations population live in regional and remote areas, where the distances between communities and potential places of work, as well as the safety of roads can be a barrier, where there is limited access to public transport, there are difficulties accessing reliable private vehicles, and affording to run and maintain a car. However, culturally relevant driver licensing programs may promote access to employment and foster social inclusion more broadly among young unemployed First Nations people (Holder 2023; Porykali et al. 2021; Power 2015).

In summary, a range of policy approaches could potentially support increased youth participation in education or employment. Some of these may vary depending on whether the focus is on school education, participation in vocational or higher education, or employment. Nonetheless, there are some common strategies that would increase youth participation in education and employment, while contributing towards progress in other Closing the Gap targets on education, employment and housing. Such strategies include:

- improving access to affordable, culturally competent child care and other services
- implementing measures to remedy a lack of access to education and employment opportunities in regional and remote areas, such as regional study hubs and access to transport
- highlighting the importance of fostering social inclusion – for example, through mentoring and peer support networks
- countering racism, and providing flexible work arrangements in workplaces.

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Economic participation

8

Summary

Target

The target associated with Outcome 8 of the 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander people aged 25–64 who are employed from 51% in the baseline year of 2016 to 62% by 2031.

Background

- Strong economic participation, through increased labour force participation and employment opportunities, contributes to many aspects of health and welfare at the individual, family and community levels.
- Employment increases personal and household income which is crucial for improving households' standards of living, financial security and resilience to unexpected shocks.
- Employment also enhances social inclusion and mobility, promotes investment in physical and mental health, and improves self-esteem and opportunities for self-development. These lead to improved education, health, life expectancy and other outcomes linked with several Closing the Gap targets.

Current status

- The proportion of employed Aboriginal and Torres Strait Islander (First Nations) people aged 25–64 increased to 56% in 2021, higher than the 2021 progress point of 55% on the trajectory to meeting the 2031 target rate of 62%.
- The employment rate gap between First Nations and non-Indigenous people aged 25–64 narrowed from 24.7 percentage points (pp) in 2016 to 22.0 pp in 2021.
- Among First Nations people aged 25–64 in 2021, 6.2% were unemployed, down from 9.0% in 2016 (baseline year) and 7.7% in 2006; the gap reduced from 4.8 pp in 2016 to 3.0 pp in 2021.
- In 2021, 34% of First Nations people aged 25–64 were employed full time, 16% were employed part time and 5.6% were employed but away from work. Between 2016 and 2021, the proportion of those employed full time and part time slightly increased.
- First Nations men were more likely than women to be employed in 2021. The gap in the employment rates between men and women, however, has been decreasing.
- In 2021, the proportion of First Nations people aged 25–64 who were employed consistently decreased with increasing remoteness, from 62% in *Major cities* to 35% in *Very remote* areas.
- In 2021, employment rates for First Nations people aged 25–64 ranged from 42% in the bottom quintile (most disadvantaged areas) of Index of Relative Socioeconomic Disadvantage (IRSD) to 81% in the top IRSD quintile (least disadvantaged). Notably, the proportion of employed First Nations adults was at or above the 2031 national target of 62% in areas across all IRSD quintiles except for the bottom quintile (most disadvantaged areas) in 2021.
- In 2021, the Australian Capital Territory (73%), Tasmania (62%) and Victoria (62%) had rates at or above the 2031 national target of 62%, and employment rates in New South Wales and Queensland were also higher than the national average of 56%.
- Between 2016 and 2021, the employment rate of First Nations people aged 25–64 increased for those who had an educational level of Certificate III/IV and higher but declined for those below that educational level.

Key findings

- Literature suggests that significant factors associated with employment include:
 - demographic and social background characteristics (for example, sex, age, marital status, educational outcomes, number of dependants/children, caring responsibilities, housing)
 - health conditions and disability
 - cultural and historical factors (for example, experience of removal from natural family)
 - geographic factors (for example, remoteness areas, area-level socioeconomic disadvantage, state/territory)
 - macroeconomic factors (for example, sustained economic growth, policies/programs).
- Findings from the logistic regression showed that, net of other factors, First Nations employment was statistically significantly associated with:
 - sex
 - education
 - marital status
 - physical and mental health, and disability status
 - area-level socioeconomic disadvantage
 - remoteness.
- Random forest analysis confirmed the importance of highest educational attainment and disability status as key factors associated with First Nations employment, followed by Socioeconomic Indexes for Areas (SEIFA) index, self-assessed health status and marital status.

Key factors

- Key factors associated with employment among First Nations people include programs aimed at increasing educational attainment – particularly at the Certificate III level and higher, which appears to be a critical threshold level of education for substantially improving employment outcomes.
- Programs aimed at engaging and retaining First Nations people with disability in employment would likely meaningfully improve employment rates of First Nations people, especially given the high rates of disability among the First Nations population.
- Policy interventions aimed at improving the health of First Nations people will likely have the additional benefit of improving First Nations employment rates.
- Policies and programs aimed at improving English proficiency may assist with increasing employment rates among First Nations people, particularly if paired with programs that target educational attainment.
- The Indigenous Skills and Employment Program was designed, in consultation with First Nations communities, and in the light of Australian and international research, to connect First Nations people with jobs, career advancement opportunities, and new training and job-ready activities. Continued effort in this area could help to reach the economic participation target by 2031.

8.1 Introduction

Outcome 8 of the 2020 National Agreement on Closing the Gap relates to strong economic participation and development of Aboriginal and Torres Strait Islander people and communities.

The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people aged 25–64 who are employed from 51% in the baseline year of 2016 to 62% by 2031.

Outcome	Strong economic participation and development of Aboriginal and Torres Strait Islander people and communities.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people aged 25–64 who are employed to 62%.
Indicator	The proportion of Aboriginal and Torres Strait Islander people aged 25–64 years who are employed.
Measure	<i>Numerator</i> – number of Aboriginal and Torres Strait Islander people aged 25–64 who are employed. <i>Denominator</i> – total number of Aboriginal and Torres Strait Islander people in the population aged 25–64. Presented as a percentage.

Strong economic participation, through increased labour force participation and employment opportunities, contributes to many aspects of health and welfare at individual, family and community levels. Employment increases household and personal income, which is crucial for improving households' standards of living, financial security and resilience to unexpected shocks. Employment also enhances social inclusion and mobility, promotes investment in physical and mental health and improves self-esteem and opportunities for self-development. These lead to improved education, health, life expectancy and other outcomes linked with several Closing the Gap targets (Biddle 2013a; Gray et al. 2014; WHO 2012).

In 2008, the Council of Australian Governments (COAG) approved the National Indigenous Reform Agreement that set out employment as one of the 6 Closing the Gap targets. The 2008 target aimed to halve the gap in employment outcomes between Aboriginal and Torres Strait Islander (First Nations) people and non-Indigenous Australians between 2008 and 2018. To meet the target, First Nations-specific policies and programs (for example, Indigenous procurement policy, Indigenous cadetships, tailored assistance employment grants, vocational and educational training centres and the employment parity initiatives) were implemented. Despite some progress in reducing the gaps, the economic participation target was not met (PM&C 2020).

In 2020, joint efforts by the partnership of all Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations resulted in the National Agreement on Closing the Gap (the National Agreement) that was built around 17 socioeconomic outcomes and 4 Priority Reforms. Socioeconomic outcome area 8 of the National Agreement pledges to create strong economic participation and development of people and communities by achieving an increase in the proportion of First Nations people aged 25–64 who are employed from 51.0% in 2016 (baseline year) to 62.0% by 2031.

It should be noted that the economic participation target in the 2020 National Agreement is specified for First Nations adults aged 25–64, whereas the 15–64 age group was used in the 2008 Agreement. This difference must be kept in mind when comparing employment rates reported for the initial 2008 economic participation target.

This chapter analyses progress on the new economic participation target and trends, and identifies key factors associated with employment from primary statistical analyses specific to First Nations people aged 25–64. This chapter mainly uses 2 data sources: the ABS Census of Population and Housing (Census) (various years) and the 2018–2019 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). The details of these data sources are provided in the sections where these are used for the analysis.

For this target:

- Unless otherwise stated, the data presented for First Nations people in this chapter are for those aged 25–64 even when the age group is not stated explicitly.
- ‘Working-age population’ also usually refers to those aged 25–64, except in the literature review section where some studies use the more conventional 15–64 range as the working age group, and which was the age group specified for the 2008 Closing the Gap economic participation target.
- Employment rate is defined as a percentage of the population aged 25–64 who were employed in the total population (total of employed, unemployed and not in the labour force).

Section 8.2 provides information on national and state/territory trends, and on some other specific trends for various aspects of the target indicator (based on Census data for various years). Employment data from the 2021 Census are likely to be affected by the COVID-19 pandemic and the resulting lockdowns, and by changes to Centrelink payments and eligibility rules related to the labour market. The COVID-19 lockdown was particularly severe for the Accommodation and Food Services sectors. Analyses of changes in First Nations and non-Indigenous employment between the 2021 and earlier Censuses should therefore be interpreted with caution. For more details on the COVID-19 impact on the quality of 2021 Census data, see *Report on the quality of 2021 Census data: Statistical Independent Assurance Panel to the Australian Statistician* (ABS 2022b).

Broad findings of the literature review are presented in Section 8.3. Using 2018–19 NATSIHS data, the factors associated with employment for First Nations people aged 25–64 are modelled, and statistically significant factors are identified through logistic regression analysis. Furthermore, key factors are ranked, based on their relative importance. These results are presented and discussed in Section 8.4. Section 8.5 summarises the findings of the chapter.

8.2 Economic participation target: current picture and time trends

This section uses the Census (see <https://www.abs.gov.au/census>), where the following definitions apply:

- The population data cover all Australian residents aged 25–64 enumerated in the Census that reported having a usual residence in Australia.
- The eligible population excludes overseas visitors, people for whom Indigenous status was not stated, and all people for whom labour force status was not stated, unknown or inadequately described.
- Geographical variables (for example, jurisdiction, remoteness area) are based on a person's place of usual residence.
- Employed people include those aged 25–64 who were employed full time (worked 35 hours or more per week), part time (including casual), or who were employed but were away from work (and did not work any hours in the week before Census night, or stated they worked but did not state their number of hours worked).
- Unemployed people are defined as those aged 25–64 who were not in employment but who carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity.
- People are classified as 'being in the labour force' if they were either employed or unemployed but seeking employment during the Census reference week.
- People who were neither employed nor unemployed are classified as not in the labour force.

The Census data were extracted from the ABS TableBuilder product. The ABS applies slight random adjustment (perturbation) to data values extracted through TableBuilder to avoid the release of confidential data.

It must be noted that the number of employed First Nations people in the Census over time might be affected by the transition from Community Development Employment Projects (CDEP) scheme to Community Development Program (CDP), due to changes in program structure and classification methods. The Community Development Employment Projects (CDEP) scheme, implemented in 1977, was gradually phased out between 2009 and 2015, and replaced with Remote Jobs and Communities Program along with several other employment services in 2013 and later with CDP in 2015.

Participants in CDEP were classified as "employed" in the Census, even though their work was funded through a government program rather than the open labour market. This may have inflated employment figures for First Nations people in remote areas. The abolition of CDEP in 2015 meant that former program participants were no longer counted as employed unless they secured other jobs, leading to a visible decline in employment rates after 2015. For more information see ABS Community Development Employment Projects (<https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2900.0~2016~Main%20Features~CDPP%20Community%20Development%20Programme%20Participation~10144>).

8.2.1 National

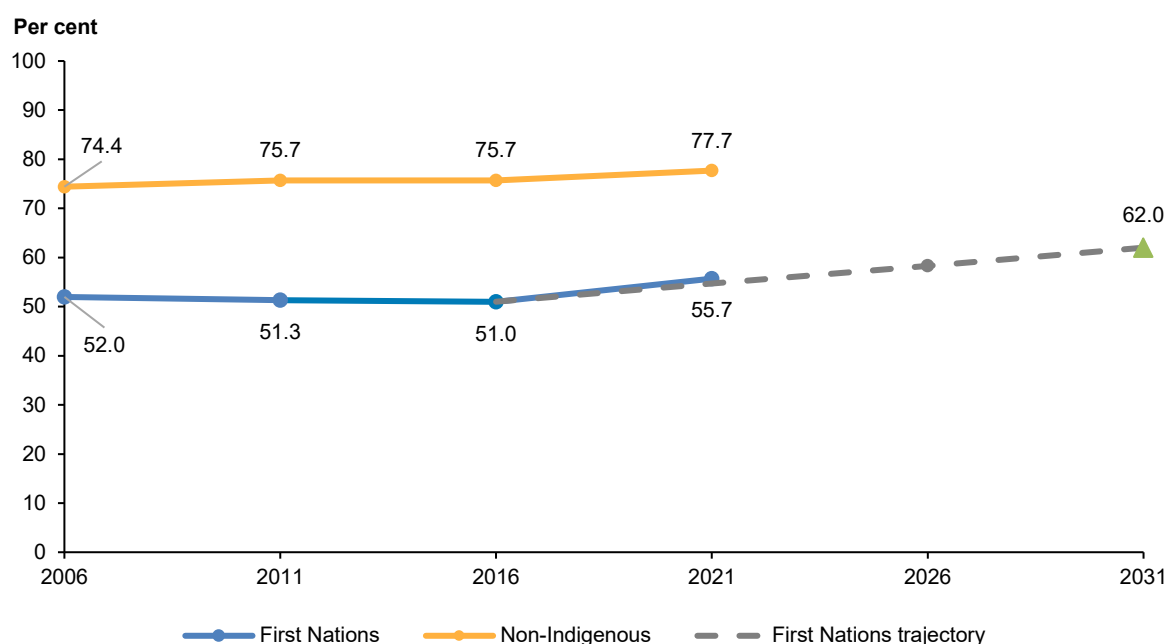
Employment

Based on 2021 Census, 56% (188,800) of First Nations people aged 25–64 were employed, a notable increase of 4.7 pp from 51% in 2016 (the baseline year). As well, the employment rate gap between non-Indigenous and First Nations people aged 25–64 narrowed from 24.7 pp in 2016 to 22.0 pp in 2021 (Figure 8.1; supplementary Table S8.1).

Achieving the 2031 target from the baseline year of 2016 would require an increase of 3.7 pp in the proportion of First Nations people aged 25–64 who were employed for each of the 5-year increments from 2016 to 2021, 2021 to 2026 and 2026 to 2031 ('required trajectory'). The increase seen between 2016 and 2021 exceeded this trajectory, but, historically, this increase was not attained between 2006 and 2011, nor between 2011 and 2016 according to Census data (Figure 8.1).

It is estimated that an average increase of about 8,400 First Nations people aged 25–64 per year over the decade from 2021 to 2031 is required to meet the 2031 target. This estimation is based on the projections that in 2031, the eligible population of First Nations people aged 25–64 will be about 514,000 (ABS 2011-to-2031). An employment rate of 62% in 2031 would equate to about 318,700 First Nations people aged 25–64 being employed. That would represent roughly 83,600 additional First Nations people aged 25–64 in employment in 2031 compared with 2021 estimates (55.7% of an estimated 422,000 people).

Figure 8.1: Proportion of employed people aged 25–64, by Indigenous status, 2006–2021



Notes

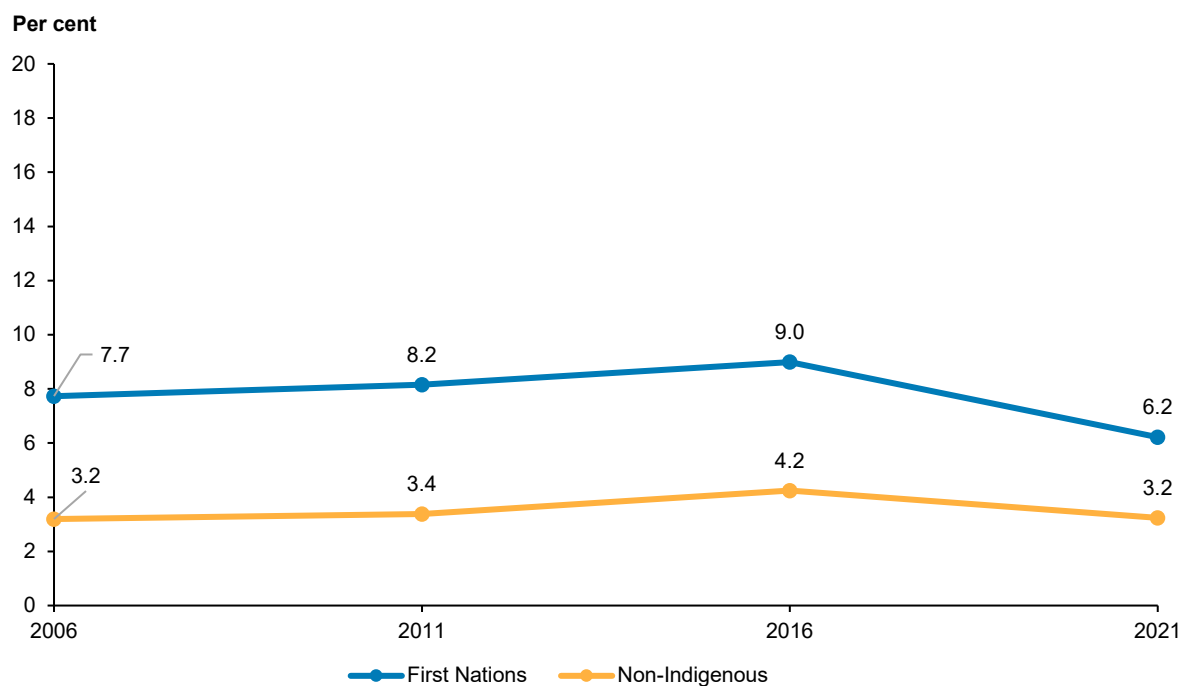
1. The total population refers to the total number of people aged 25–64 (includes employed, unemployed or not in the labour force).
2. The proportion employed is calculated as a percentage of the number of people aged 25–64 in the total population (includes employed, unemployed or not in the labour force). This proportion is referred to as the employment rate for the Closing the Gap Agreement.
3. Note the above definition differs from the conventional definition of employment rate, which calculates employment rate as a proportion of those in the labour force.

Source: AIHW analysis of ABS 2006, 2011, 2016 and 2021 Census [TableBuilder].

Unemployment

Among First Nations people aged 25–64 in 2021, 6.2% were unemployed, down from 9.0% in 2016 (baseline year) and 7.7% in 2006 (Figure 8.2; Table S8.2). The unemployed proportion among First Nations people aged 25–64 was still higher than that among non-Indigenous Australians aged 25–64. However, the gap has reduced from 4.8 pp in 2016 to 3.0 pp in 2021.

Figure 8.2: Proportion of unemployed people aged 25–64, by Indigenous status, 2006–2021



Notes

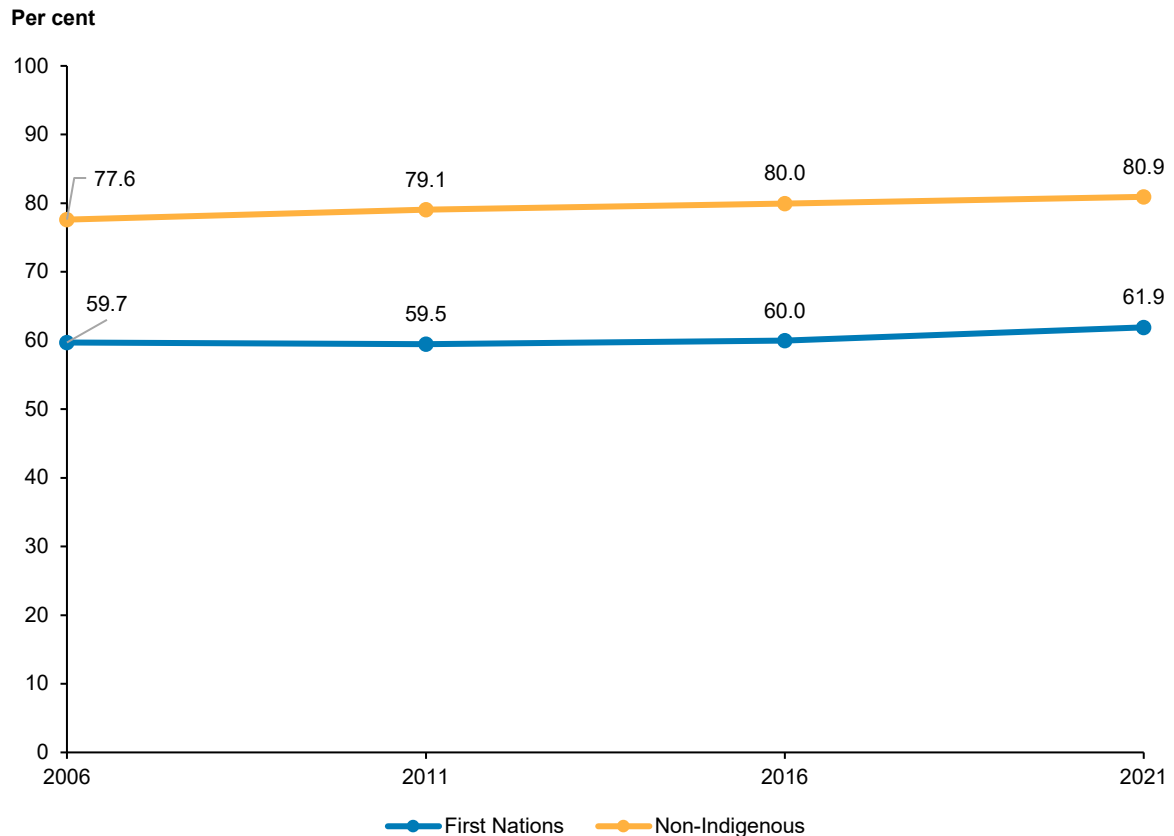
1. Unemployed people are those who were not in employment but who carried out activities to seek employment during a specified recent period and were currently available to take up employment given a job opportunity.
2. The proportion unemployed is calculated as a percentage of First Nations people aged 25–64 in the total population.

Source: AIHW analysis of ABS 2006, 2011, 2016 and 2021 Census [TableBuilder].

Labour force participation

Out of around 339,000 First Nations people aged 25–64 who reported their employment status in 2021, 62% (roughly 210,000) participated in the labour force (that is, they were employed or unemployed) (Figure 8.3; Table S8.3). Between 2006 and 2016, the labour force participation rate remained constant at roughly 60%. However, it increased by 1.9 pp between 2016 and 2021.

Figure 8.3: Proportion of people aged 25–64 who participated in the labour force, by Indigenous status, 2006–2021



Notes

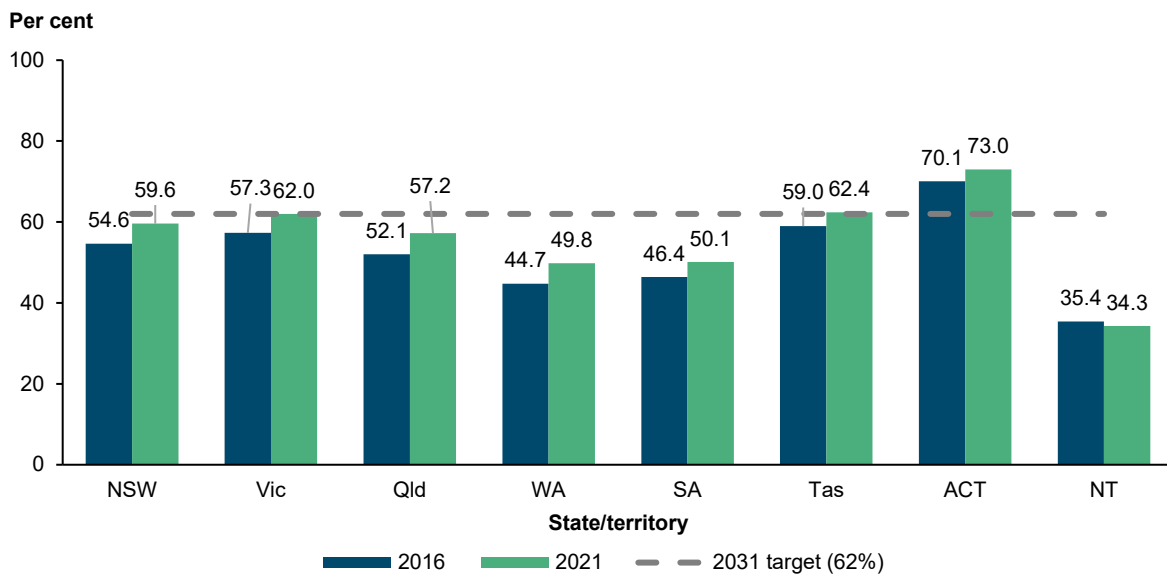
1. The total population refers to the total number of people aged 25–64 who were employed, unemployed or not in the labour force.
2. The percentage of people aged 25–64 who participated in the labour force is calculated as a percentage of people aged 25–64 in the total population (employed, unemployed or not in the labour force).

Source: AIHW analysis of ABS 2006, 2011, 2016 and 2021 Census [TableBuilder].

8.2.2 State and territory

The proportion of First Nations people aged 25–64 who were employed varied substantially across states and territories. The employment rate for First Nations people aged 25–64 in 2021 ranged from 34% in the Northern Territory to 73% in the Australian Capital Territory (Figure 8.4; Table S8.4). In 2021, the Australian Capital Territory (73%), Tasmania (62%), and Victoria (62%) had rates at or above the 2031 national target of 62%, and employment rates in New South Wales and Queensland were also higher than the national average of 56%. Between 2016 and 2021, the employment rate for First Nations people aged 25–64 increased in all states/territories except the Northern Territory.

Figure 8.4: Proportion of employed First Nations people aged 25–64, by state and territory, 2016–2021



Notes

1. The total population refers to the total number of people aged 25–64 who were employed, unemployed or not in the labour force.
2. The proportion of employed is calculated as a percentage of employed people aged 25–64 in the total population.

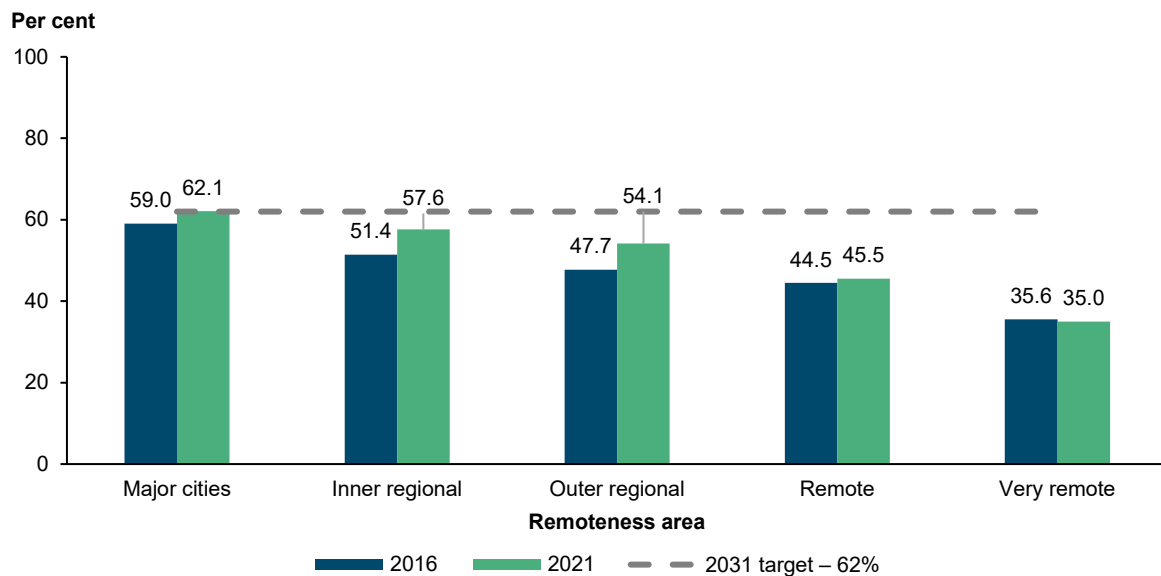
Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

8.2.3 Remoteness area

In 2021, the proportion of First Nations people aged 25–64 who were employed consistently decreased with increasing remoteness, from 62% in *Major cities* to 35% in *Very remote* areas. This pattern is consistent with 2016 data (Figure 8.5; Table S8.5). In fact, the proportion in *Major cities* in 2021 was slightly above the 2031 national target of 62%.

Compared with the baseline year of 2016, the proportion of employed First Nations people aged 25–64 in 2021 increased in all areas except for *Very remote* areas, where it fell slightly. The proportional increase in *Inner Regional* and *Outer regional* areas was higher than that for *Major cities* and *Remote* areas.

Figure 8.5: Proportion of employed First Nations people aged 25–64, by remoteness area, 2016–2021



Note: The proportion of employed is calculated as the number of employed people aged 25–64 in the total population living in a specific remoteness area.

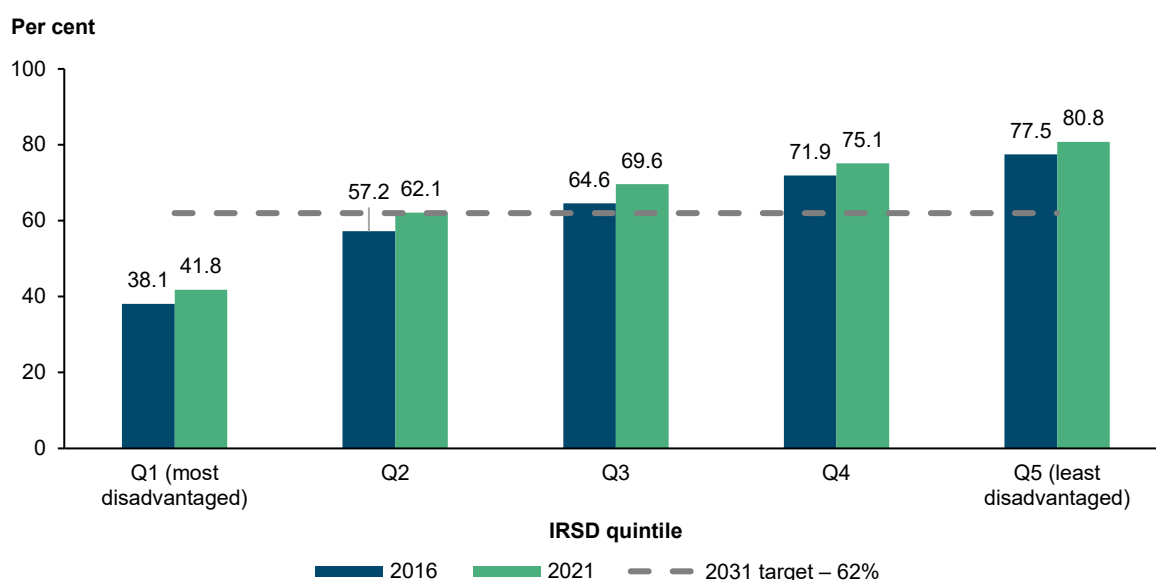
Source: AIHW analysis of ABS 2016, and 2021 Census [TableBuilder].

8.2.4 Socioeconomic index

Using the ABS derived IRSD, we can examine how employment rates vary across an area-level socioeconomic gradient. The bottom quintile (Q1) represents the most disadvantaged areas (the bottom 20%) and the top quintile (Q5), the least disadvantaged areas (top 20%).

In 2021, employment rates for First Nations people aged 25–64 ranged from 42% in the most disadvantaged areas (IRSD first quintile) to 81% in the least disadvantaged areas (IRSD fifth quintile) (Figure 8.6; Table S8.6). Notably, in areas across all IRSD quintiles except for the most disadvantaged in 2021, and in the top 3 quintiles in 2016, the employment rate was at or above the 2031 national target of 62%. As well, compared with the baseline year (2016), the proportion of employed First Nations people aged 25–64 in 2021 increased across every IRSD quintile.

Figure 8.6: Proportion of employed First Nations people aged 25–64, by SEIFA IRSD quintile, 2016–2021



Note: The proportion of employed is calculated as the number of employed people aged 25–64 in the total population in a specific socioeconomic area by the SEIFA IRSD quintile.

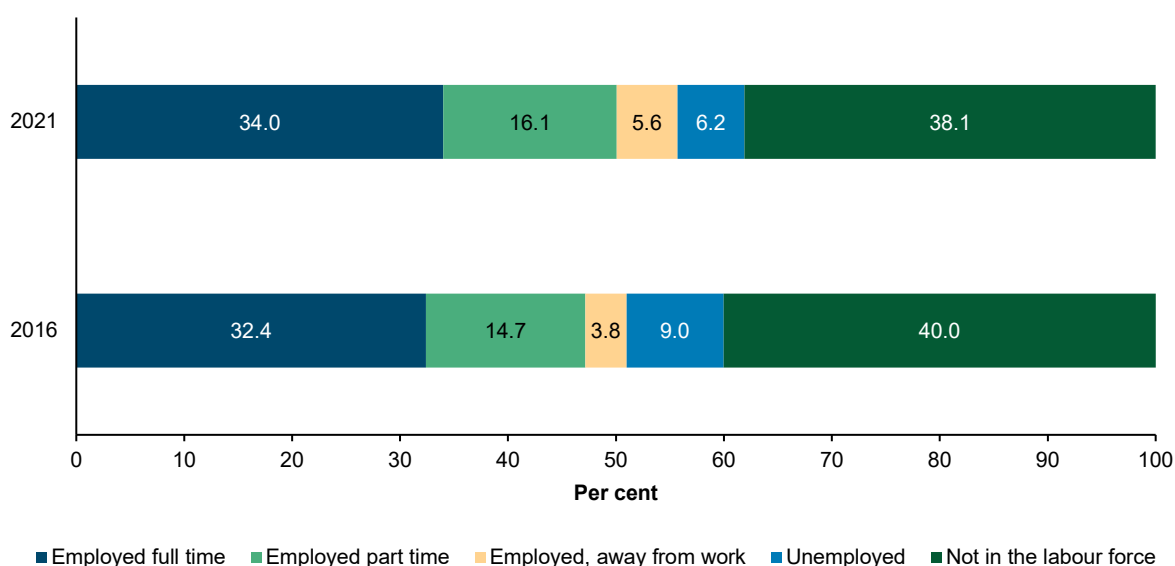
Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

8.2.5 Type of employment, occupation group and industry

Part-time versus full-time employment

In 2021, 34% of First Nations people aged 25–64 were employed full time, 16% were employed part time and 5.6% were employed but away from work (Figure 8.7; Table S8.7). Between 2016 and 2021, the proportion of those employed full time and part time slightly increased, as well as that for those employed, but away from work.

Figure 8.7: Labour force status and employment type, First Nations people aged 25–64 employed, 2016–2021



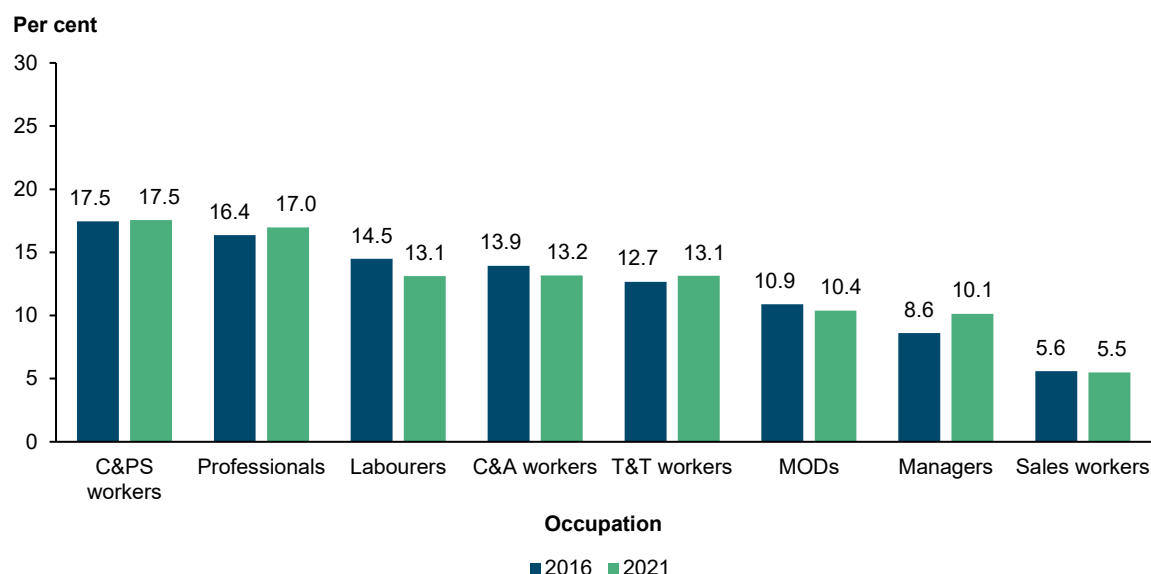
Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

Main occupation groups

In 2021, the main occupation groups for employed First Nations people aged 25–64 were community and personal service workers (18%), professionals (17%), clerical and administrative workers (13%), technicians and trades workers (13%) and labourers (13%) (Figure 8.8; Table S8.8).

Between 2016 and 2021, the proportion of employed First Nations people increased slightly for managers (by 1.5 pp), professionals (by 0.6 pp) and technicians and trades workers (by 0.5 pp), while the proportion employed decreased slightly for labourers (by 1.4 pp), clerical and administrative workers (by 0.8 pp) and machinery operators and drivers (by 0.5 pp) (Figure 8.8).

Figure 8.8: Occupation composition of employed First Nations people aged 25–64, 2016–2021



C&PS = community and personal service; C&A = clerical and administrative; T&T = technicians and trades; MOD: machinery operator and driver.

Notes

1. Based on 1-digit level occupation codes.
2. These proportions were calculated as a percentage of employed First Nations people aged 25–64.

Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

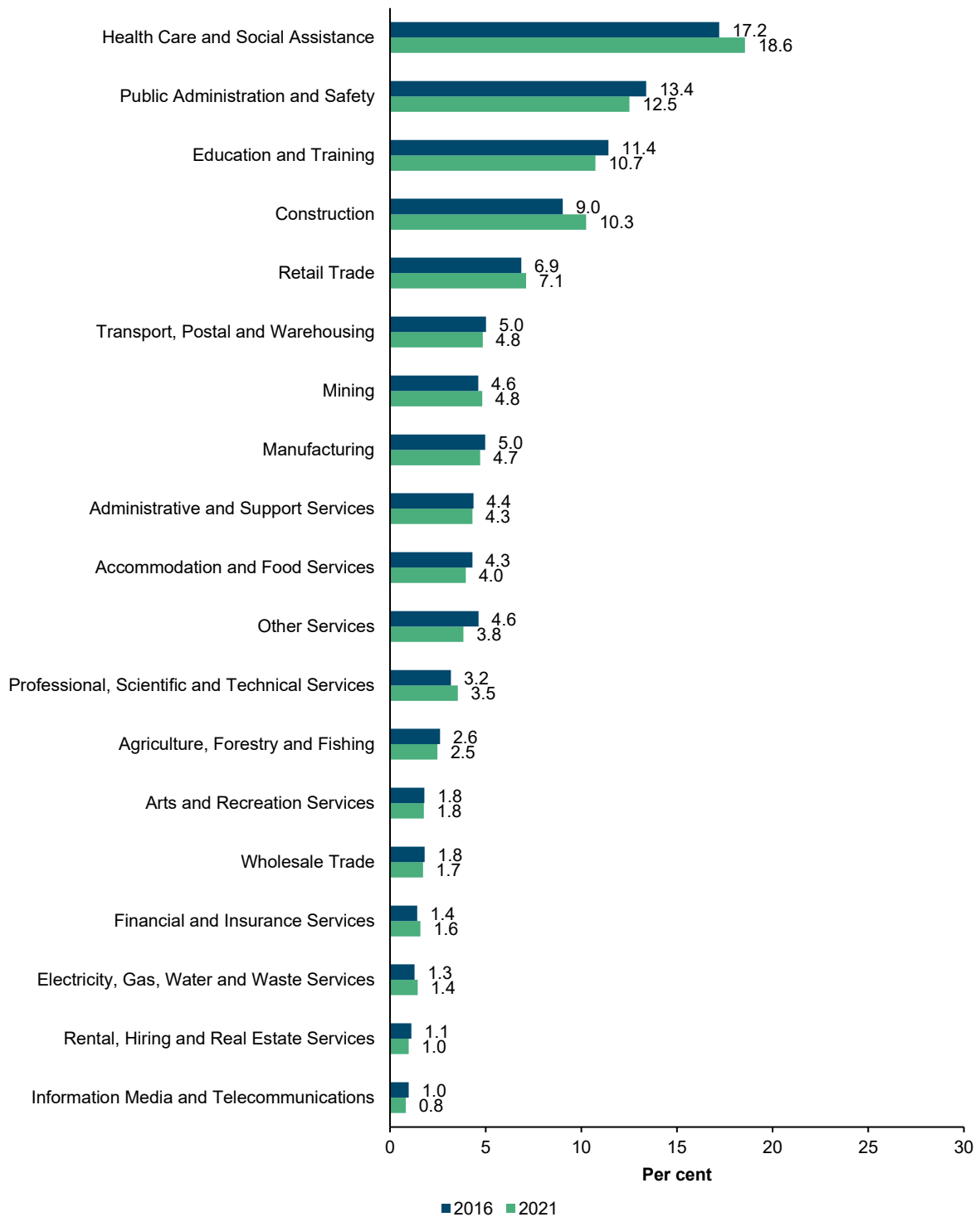
Main industries of employment

In 2021, the 5 most common industries for employed First Nations people aged 25–64 were:

- health care and social assistance (19%)
- public administration and safety (13%)
- education and training (11%)
- construction (10%)
- retail trade (7.1%) (Figure 8.9; Table S8.9).

Between 2016 and 2021, the proportion employed in health care and social assistance, and in construction industries increased by 1.3 and 1.2 pp, respectively. The proportion changed only marginally (by less than 1 pp) in all other industries (Figure 8.9).

Figure 8.9: Industry composition of employed First Nations people aged 25–64, 2016–2021



Note: Based on 1-digit level Industries of Employment.

Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

8.2.6 Demographic characteristics

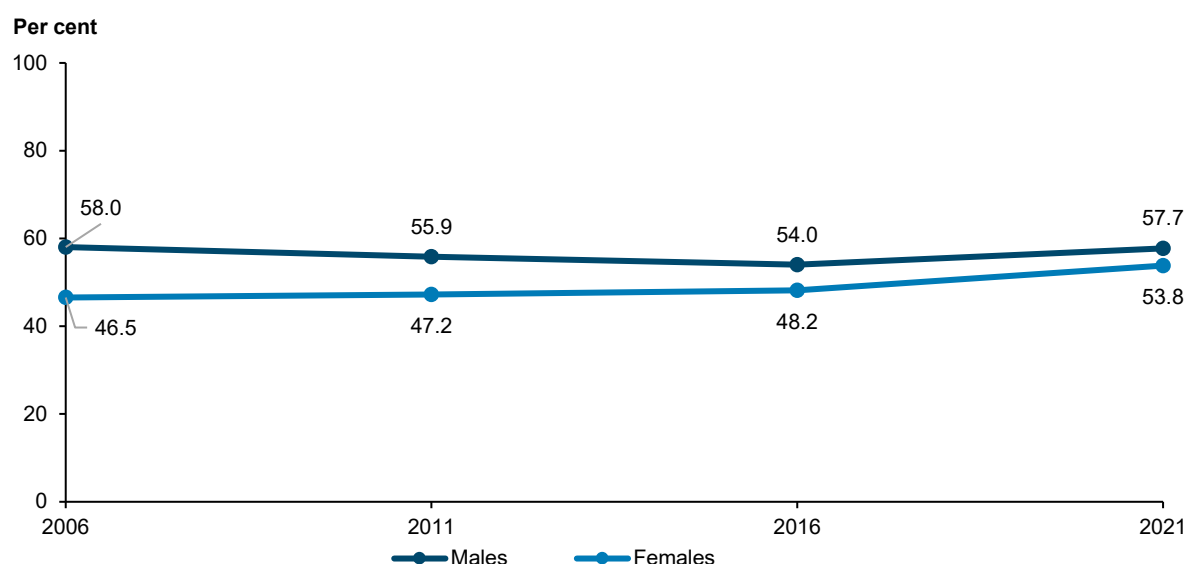
Sex

In 2021, a higher proportion of First Nations men aged 25–64 were employed (58%) than women (54%) (Figure 8.10; Table S8.10).

The gap between First Nations male and female employment rates has been steadily reducing over time. Between 2006 and 2016, the employment rate for men aged 25–64 fell by 4.0 pp while for women, it increased by 1.7 pp. However, excluding CDEP, which was progressively phased out between 2009 and 2015, the employment rate was 46% among First Nations males aged 15–64 and 39% among First Nations females aged 15–64 in 2006 (Commonwealth of Australia 2018).

Between 2016 and 2021, the employment rate increased for both men and women. However, the increase was higher for women (5.7 pp) than for men (3.7 pp). Hence, the employment rate gap between First Nations men and women in this age range reduced from 5.9 pp in 2016 to 3.9 pp in 2021.

Figure 8.10: Proportion of employed First Nations people aged 25–64, by sex, 2006–2021

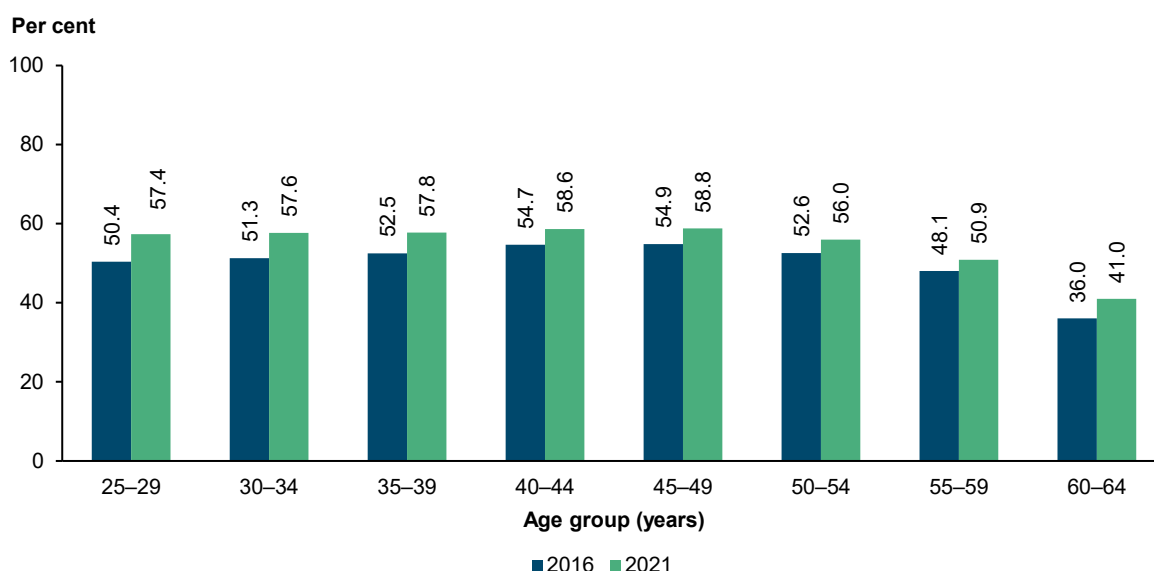


Source: AIHW analysis of ABS 2006, 2011, 2016 and 2021 Census [TableBuilder].

Age

Between 2016 and 2021, the employment rate increased for all age groups (Figure 8.11; Table S8.11). In 2021, First Nations people aged 45–49 had the highest employment rate (59%) and those aged 60–64 had the lowest (41%). The rate of employment consistently increased between the age groups of 25–29 and 45–49 and then declined in the successive older age groups.

Figure 8.11: Proportion of employed First Nations people aged 25–64, by age group, 2016–2021



Notes

1. The total population refers to the total number of First Nations people aged 25–64 who were employed, unemployed or not in the labour force.
 2. The proportion employed for a specific age group is calculated as a percentage of the total First Nations population in that specific age group.
- Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

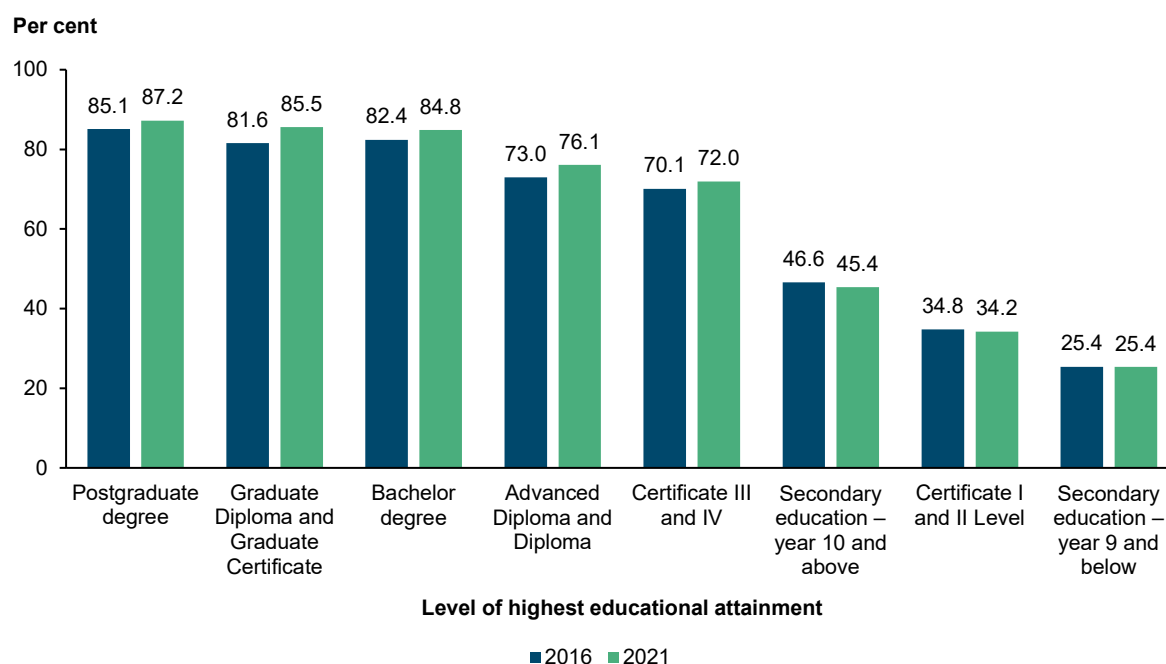
Level of highest educational attainment

In 2021, First Nations people aged 25–64 with higher levels of educational attainment were more likely to be employed than those with lower levels of educational attainment (Figure 8.12; Table S8.11). The employment rate ranged from 25% for those whose highest level of educational attainment was year 9 and below to 87% for those with a postgraduate degree. A similar pattern was seen for the baseline year of 2016.

Between 2016 and 2021, the employment rate of First Nations people aged 25–64 increased for those who had an educational level of Certificate III/IV or higher but declined for those below that educational level.

While employment rates were higher among people with higher educational attainment, a substantial difference was seen between having a secondary education level of year 10 to 12 and having a Certificate Level III/IV. In 2021, the difference in the employment rates between these 2 categories was 27 pp (45% employed among those with a secondary education level of year 10 to 12 and 72% employed among those with a Certificate Level III/IV).

Figure 8.12: Proportion employed, First Nations people aged 25–64, by level of highest educational attainment, 2016–2021



Notes

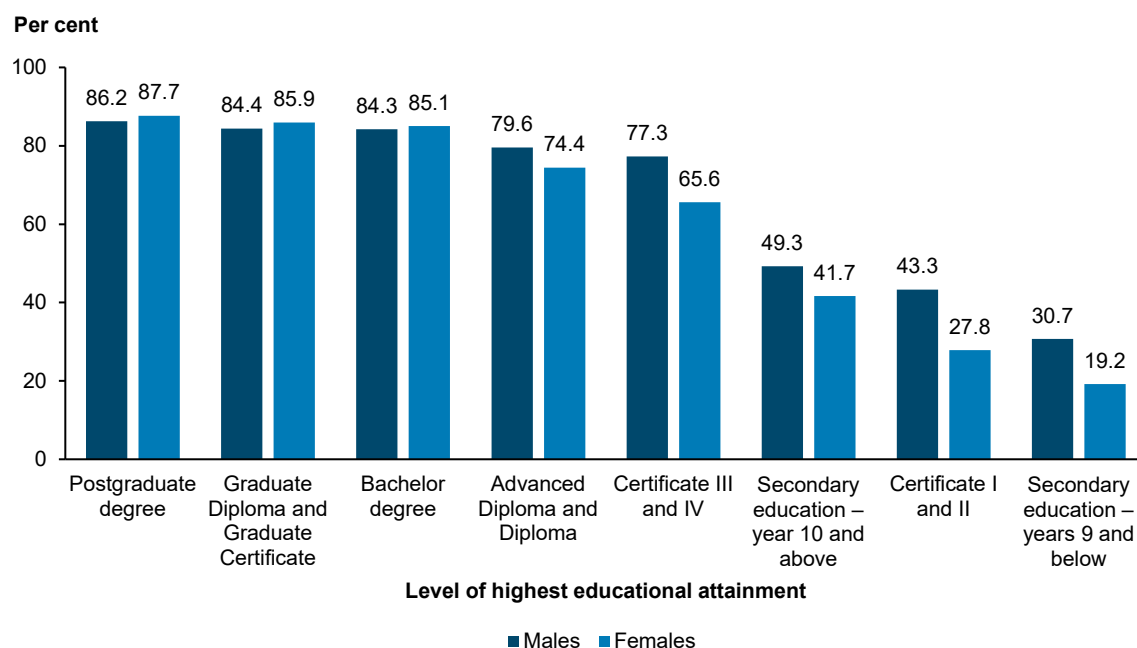
1. The proportion employed in a specific level of highest educational attainment is calculated as a percentage of the total First Nations population aged 25–64 with that specific level of highest educational attainment.
2. Secondary education – year 10 and above includes year 10, year 11 and year 12.
3. The data presented in the figure are consistent with Productivity Commission dashboard data, except for 2016 data for postgraduate degree level, where it slightly differs (by 0.2 pp).

Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

The effect of educational attainment on First Nations employment is analysed separately for men and women below (Figure 8.13; Table S8.13). Among First Nations women aged 25–64, the proportions employed in 2021 were particularly low among those whose level of highest education attainment was below year 10 (19% among those with year 9 or below level of education compared with 31% for males; and 28% with Certificate I/II level of education compared with 43% among males).

Conversely, among First Nations women who had attained a Bachelor degree or higher level of education, the employment rates exceeded those for First Nations males with an equivalent level of highest educational attainment. The employment rates in 2021 for women and men, respectively, were 85% and 84% at the Bachelor degree level, 86% and 84% at the Graduate Diploma and Graduate Certificate levels, and 88% and 86% at the postgraduate degree levels.

Figure 8.13: Proportion of employed First Nations people aged 25–64, by level of highest educational attainment and sex, 2021



Notes

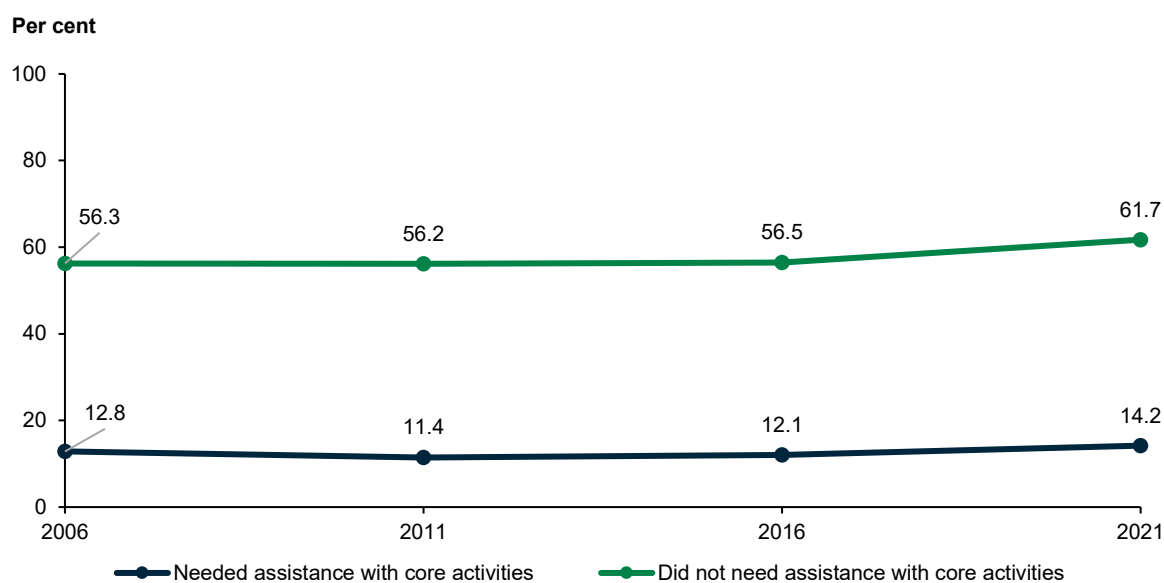
1. The proportion of employed in a specific level of highest educational attainment is calculated as the number of employed people aged 25–64 divided by the total population with that specific level of highest educational attainment.
2. Secondary education – year 10 and above includes year 10, year 11 and year 12.

Source: AIHW analysis of ABS 2016 and 2021 Census [TableBuilder].

Disability status

In 2021, 62% of First Nations people aged 25–64 without a need for assistance with core activities were employed, compared with 14% who did have a need for assistance (Figure 8.14; Table S8.15). Between 2016 and 2021, the increase in the employment rate was considerably larger among people without a need for assistance with core activities (5.2 pp) compared with that for those who needed assistance (2.1 pp).

Figure 8.14: Proportion of employed First Nations people aged 25–64, by disability status, 2006–2021



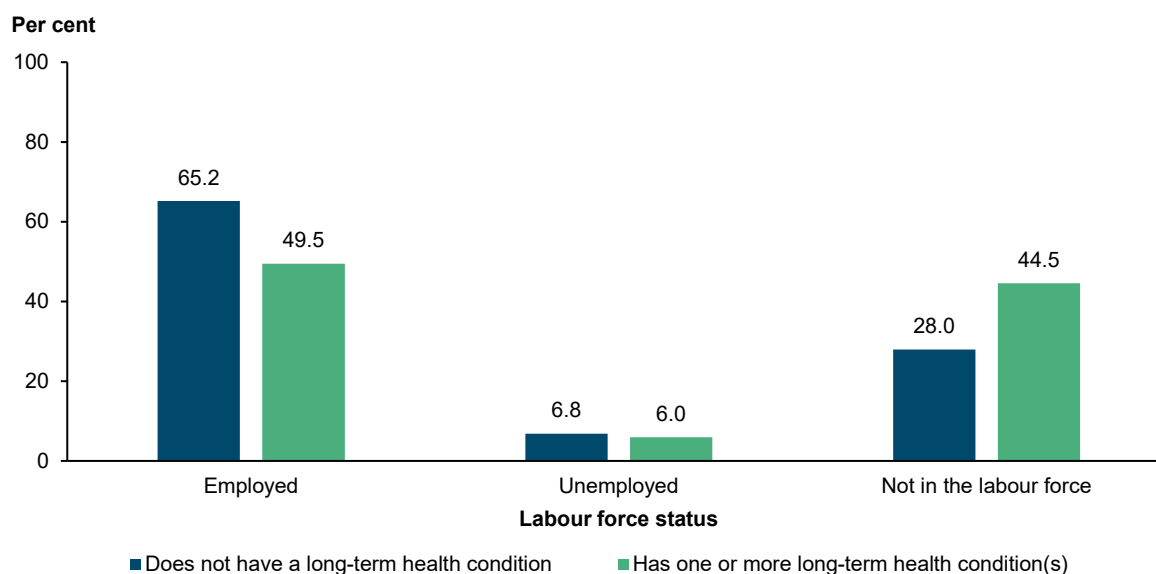
Notes

1. The proportion of employed in each disability status category is calculated as a percentage in the total First Nations population aged 25–64 with that specific disability status.
 2. The total population includes the total number of First Nations people aged 25–64 who were employed, unemployed or not in the labour force.
- Source: AIHW analysis of ABS 2006, 2011, 2016 and 2021 Census [TableBuilder].

Long-term health condition

In 2021, 49% of First Nations people aged 25–64 with one or more long-term health condition(s) were employed, compared with 65% who did not have a long-term health condition (Figure 8.15; Table S8.15). While the proportions unemployed are similar for these 2 groups (6.0% versus 6.8%, respectively), the proportions of those ‘not in the labour force’ vary markedly: 45% among people with one or more long-term health condition(s) and 28% among those without any long-term health condition.

Figure 8.15: Proportion of employed First Nations people aged 25–64, by long-term health condition status, 2021



Note: The proportions for each long-term health condition status are expressed as a percentage of the total population aged 25–64 with that specific long-term health condition status. The total population includes the total number of First Nations people aged 25–64 who were employed, unemployed or not in the labour force.

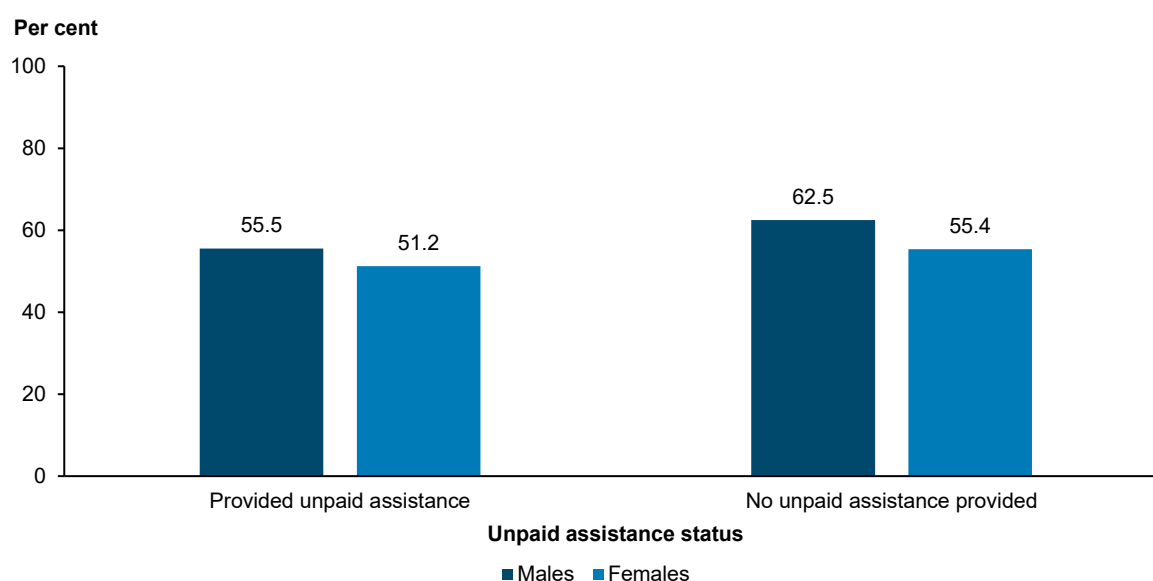
Source: AIHW analysis of ABS 2021 Census [TableBuilder].

Caring responsibilities

In 2021, 53% of First Nations people aged 25–64 who provided unpaid assistance to a person with disability, a health condition, or due to old age were employed compared with 59% of those who did not provide unpaid assistance (ABS 2022a). Compared with 2016, these proportions increased by almost 5 pp.

Figure 8.16 and Table S8.16 present these proportions further broken down by sex. Employment rates were higher among First Nations men and women who did not provide unpaid assistance, by 7.0 and 4.2 pp, respectively. Employment rates were higher among First Nations men, regardless of whether unpaid assistance was provided.

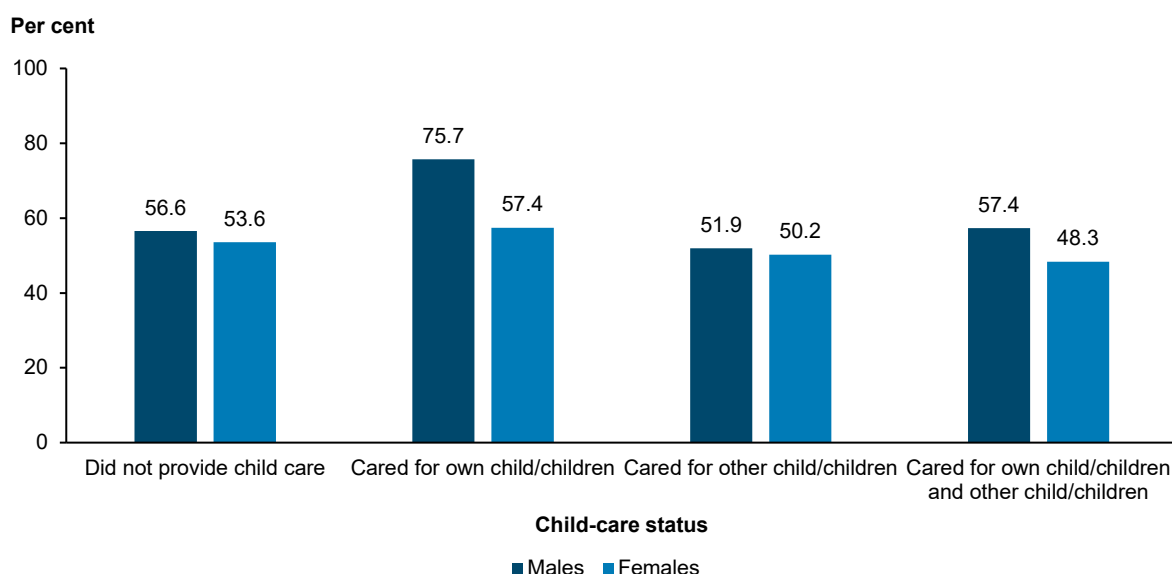
Figure 8.16: Proportion of employed First Nations people aged 25–64, by sex and unpaid assistance status, 2021



Note: Unpaid assistance was to a person with disability, a health condition, or due to old age.
Source: AIHW analysis of ABS 2021 Census [TableBuilder].

The analysis of employment rates by child-care responsibilities showed that, the employment rate among First Nations people aged 25–64 in 2021 was highest for those who cared for their own child/children (65%) – even higher than for those who did not provide unpaid child care (55%) (ABS 2022a). Figure 8.17 and Table S8.17 present these proportions by sex, most notably showing that among those who cared for their own children, First Nations women (57%) had substantially lower employment rates than men (76%).

Figure 8.17: Proportion of employed First Nations people aged 25–64, by sex and child-care status, 2021



Source: AIHW analysis of ABS 2021 Census [TableBuilder].

8.3 Literature review

Understanding the main factors that influence employment for First Nations people is challenging due to the interconnected variables, the possibility of reverse (or bi-directional) causation and the vast range of studies on different population groups and data sets.

Despite a large body of existing evidence on First Nations employment, and the availability of at least 3 rounds of National Aboriginal and Torres Strait Islander Social Survey (NATSISS) data (for 2002, 2008 and 2014–15), 2 rounds of data for the Australian Census Longitudinal Dataset (ACLD) (for 2006–2011 and 2011–16) and NATSIHS (2018–19), there is limited empirical research analysing correlates of employment net of other confounders applying regression techniques using nationally representative surveys on the First Nations population. Some of these studies include AIHW (2018), Biddle (2010b), Biddle and Yap (2010), Crawford and Biddle (2017), Hunter and Gray (2012), Hunter et al. (2016), Kalb et al. (2012), Ross (2006), Stephens (2010), Thapa et al. (2012), and Vurens van Es and Dockery (2008). Empirical results from selected studies are summarised in Table S8.19.

Stephens (2010) examined factors associated with employment (as one of the labour force statuses) separately for First Nations men and women using NATSISS 2002 and found that the probability of employment for both men and women increased with:

- age initially, and then falls
- higher level of educational attainment, better health and not having disability.

However, the probability of employment was lower for people who:

- lived in remote areas
- were removed from natural family
- spoke an Aboriginal language at home
- had been arrested

- had a greater number of dependants in the household (only for females).

Meanwhile, using the 2008 NATSISS data, Thapa et al. (2012) found similar results to those found by Stephens (2010) for the majority of the variables; however, there were some contrasting results. For instance, disability status and experience of removal from natural family was statistically significant only for men while living in traditional homelands was significant only for women. AIHW (2018) used the 2014–15 NATSISS, finding that the odds of employment were higher for those in the 35–44 and 45–54 age groups, as well as among men, those who were married, had attained post-school education and self-reported good or better health status. AIHW (2018) also found that the odds of employment were lower for those living in remote areas, who had disability or restrictive longer term conditions, at least one child aged 0–14 in their household, difficulty with English, and were arrested in the 5 years before the NATSISS 2014–15 survey.

To examine the transitions over time on the probability of employment, Crawford and Biddle (2017) present an empirical study using data from the ACLD, based on employment status in the 2006 and 2011 Censuses. The study found that the likelihood of employment in 2011 was higher for those who lived in a remote area in 2006 (compared to living in *Major cities*) and who had completed year 12 in 2006. However, the probability of employment in 2011 was lower for those who were female, were aged 45–54, who did not have a post-school qualification, who lived in a household with lower income and who lived with disability or were caring for a person with a disability in 2006.

The following sections present a summary of the findings from the literature presenting the key factors associated with employment in a working age (15–64 years) First Nations population divided into four main groups: demographic characteristics; culture, racial discrimination and historical factors; geographic factors; and macroeconomic factors.

8.3.1 Demographic characteristics

Sex

The employment rates of First Nations people vary considerably by sex. First Nations men were more likely than women to be employed, albeit with rates varying by age (AIHW 2018). These differences have been partly attributed to the burden of greater average child-caring and household responsibilities among women (Biddle and Meehl 2016; Venn 2018). Compared with First Nations males, First Nations females were also more likely to be employed on a part-time or casual basis or in low-paid jobs (Venn and Biddle 2018).

Age

Employment rates for First Nations people have been shown to increase with age, typically peaking at around age 45 and more generally in the prime working age group of 25–54 years (Biddle and Webster February 2007; Biddle and Yap 2010; Hunter 1997; Hunter and Gray 2001). For instance, the AIHW (2018) established that among First Nations people aged 15–64, the odds of employment were higher for those aged 35–54. ABS survey data from 2008 showed that the association and effect of age on employment differed for First Nations men and women, with men most likely to be employed between ages 35 and 44, and women between ages 45 and 54 (Thapa et al. 2012).

Education

Many studies have found a strong positive association between higher levels of educational attainment and the likelihood of employment and labour force participation among First

Nations people (AIHW 2018; Biddle 2006; Biddle and Webster February 2007; Biddle and Yap 2010; Borland and Hunter 2000; Daly 1993, 1995; Gray and Hunter 2002, 2005; Gray et al. 2012; Hunter 2004; Hunter and Daly 2008; Jones 1991; Junankar and Liu 2003; Karmel et al. 2014; Mahuteau et al. 2015; Ross 2006; Stephens 2010). In particular, secondary and post-secondary education has a strong positive effect on the likelihood of being employed (Ackehurst et al. 2017; Biddle 2006, 2007, 2010a; Biddle and Meehl 2016; Borland and Hunter 2000; Crawford and Biddle 2017; Dockery 2010; Gray et al. 2012; Hunter 2004; Hunter and Gray 2012; Kalb et al. 2012; Karmel et al. 2014; Ross 2006; Stephens 2010; Thapa et al. 2012; Venn 2018; Venn and Biddle 2018; Venn and Crawford 2018). Venn (2018) found that First Nations graduates with year 12 educational attainment tend to work in higher skilled occupations and were more likely to work full time than early school-leavers. Moreover, vocational education and training has also been found to increase First Nations employment rates (Ackehurst et al. 2017; Biddle 2007; Venn and Biddle 2018). The effect of education on employment is generally stronger for First Nations females than for First Nations males (Daly 1995; Hunter and Gray 2001).

English proficiency

First Nations people's proficiency with spoken English has been found to have a positive association with their being employed (Borland and Hunter 2000; Hunter and Gray 2001). Similarly, in a more recent study, the AIHW (2018) found that the odds of employment were lower for First Nations people aged 15–64 who had difficulties with English. While some studies found gender differentials, as in education (Daly 1995; Hunter and Gray 2001), others did not find a significant association between difficulty in speaking English and the likelihood of employment either for males or females (Thapa et al. 2012).

Health conditions

Studies on the effects of health on employment have used self-assessed health status, mental health conditions and disability status as key health indicators (AIHW 2018; Belachew and Kumar 2014; Biddle and Yap 2010; Borland and Hunter 2000; Hunter 1997; Hunter and Daly 2008; Hunter and Gray 2001; Ross 2006; Stephens 2010). These studies have consistently found that having a better self-assessed health and not having a disability or mental health condition statistically significantly increases the likelihood of employment for First Nations people (Biddle and Yap 2010; Borland and Hunter 2000; Gray et al. 2012; Hunter and Gray 2001, 2012; Kalb et al. 2012; Ross 2006; Stephens 2010; Thapa et al. 2012) leading to higher employment and job retention rates (Biddle 2010a; Hunter 2010).

Social marital status

The probability of employment has been found to be higher for married than unmarried First Nations men and women (AIHW 2018; Biddle 2010b; Biddle and Webster February 2007; Borland and Hunter 2000; Ross 2006). There is evidence, however, that the effect of marriage on employment differs between First Nations men and women. For instance, while married First Nations women are less likely to be employed than unmarried women, the likelihood of employment is higher for married First Nations men than for unmarried men (Daly 1993, 1995; Hunter and Gray 2001, 2002). In contrast, Gray and Hunter (1999) found a lower likelihood of employment for both married First Nations men and women compared with those who were not married.

Number of children/dependants

The probability of being employed has been found to decrease with a greater number of children and dependants among both First Nations men and women (Hunter and Gray 2002), though this effect was strongest for women and increases with more children (Hunter and Gray 2001; Kalb et al. 2012). The AIHW (2018) found statistically significantly lower odds of

employment for First Nations people aged 15–64 who were living in households with any number of children aged under 15, though this effect was especially pronounced among females aged 15–34 and among households with 3 or more children.

Caring responsibilities

Studies have generally shown that caring responsibilities are negatively associated with First Nations people's employment status (Biddle and Yap 2010; Biddle and Meehl 2016; Gray and Hunter 2016; Hunter et al. 2016; Yap and Biddle 2012). First Nations carers are also more likely to be out of the labour force than non-carers. While relatively heavy caring responsibilities stem from the relatively high rates of disability in the First Nations population for all First Nations carers (Hunter et al. 2016), the traditional gender roles around providing care pose an obstacle for young First Nations women's employment status by restricting their education and training opportunities (Biddle and Meehl 2016; Cuervo et al. 2015).

Housing

Poor housing conditions have been found to have a negative association with employment outcomes for First Nations people (Hunter 2004; Hunter and Daly 2008; SCRGSP 2009; Taylor 2008), particularly in regard to household crowding and dwelling structural problems (Stephens 2010).

8.3.2 Culture, racial discrimination and historical factors

Cultural connection

There is evidence of higher labour market participation for individuals with higher levels of cultural identification (Dockery 2013). First Nations people who attended cultural events have been found to be more likely to be employed (Stephens 2010; Thapa et al. 2012). The decision to retain jobs is also affected by dilemmas faced by First Nations people created by the tension between Western workplace practices and competing cultural pressures (Steel and Heritage 2020), the need for flexible work arrangements to fulfil cultural obligations (Gray et al. 2012) and willingness to work near (or away from) family or community (Minderoo Foundation 2022).

Racial discrimination

First Nations people may face racial discrimination in multiple stages of searching for employment and while performing a job (Biddle 2007; Biddle et al. 2013; Biddle and Lahn 2016; Biddle and Yap 2010; Booth et al. 2010; Ferdinand et al. 2014; Hunter 2010; Hunter and Gray 2013; Hunter and Gray 2015; Hunter et al. 2022; Minderoo Foundation 2022; Markwick et al. 2019; Steel and Heritage 2020). In an analysis based on 2014–15 NATSISS data, the AIHW (2018) found that First Nations people aged 15–64 were less likely to be employed if they have avoided situations due to past discrimination. Hunter et al. (2022) found that more than two-thirds of 1,000 First Nations people in the workforce in the Gari Yala survey in 2020 felt some 'identity strain' in the workplace, and very commonly reported experiences of racism and culturally unsafe workplaces. To avoid the consequences of potentially adverse (discriminatory) situations, some First Nations people do not participate in the labour market (Biddle et al. 2013). Historical exclusion and institutional racism contribute directly to a lower employment rate by discouraging First Nations people from participating in the labour market (Biddle et al. 2013), and indirectly through the strong association of exclusion and racism with ill health, psychological distress and poor mental health (Gee and Walsemann 2009; Paradies 2018), and reduced participation in education, training and the national economy (Nguyen and Cairney 2013).

Within the public sector, First Nations people also report being ‘pigeon-holed’ into certain areas of work, such as human resources and policy programs related to First Nations people, limiting their access to promotions and career development (Faulkner and Lahn 2019; Larkin 2014).

Removal from natural family

The odds of employment for First Nations people (AIHW 2017, 2018), males (Stephens 2010; Thapa et al. 2012) and females (Stephens 2010) were all lower for those who experienced removal from natural family, notably among those aged 50–64 in 2018–19 (AIHW 2021).

Contact with justice system

For First Nations people, contact with the criminal justice system is associated with lower engagement with the labour market, lower employment job retention rates and statistically significant reductions in the probability of being employed (Biddle 2007; Biddle and Webster February 2007; Borland and Hunter 2000; Gray et al. 2012; Hunter 2010; Hunter and Gray 2012, 2015; Kalb et al. 2012; Stephens 2010; Thapa et al. 2012). Among First Nations people aged 15–64, the odds of employment were lower for those who were arrested in the previous 5 years (AIHW 2018).

8.3.3 Geographic factors

Remoteness area

Remoteness of geographical location generally has a negative association with employment (AIHW 2017, 2018; Borland and Hunter 2000; Hunter 1997; Hunter and Gray 2001; Ross 2006; Stephens 2010). Lower employment in *Remote* and *Very remote* areas are often attributed to reduced opportunities due to comparatively weak labour markets (Biddle and Webster February 2007; Gray and Chapman 2006; Hunter 2004; Stephens 2010). However, it has also been suggested that the mainstream measures of socioeconomic wellbeing (such as salaried employment) focus on constraints imposed by locational disadvantage, and that these measures overlook the extent to which these simply reflect lifestyle choices that First Nations people living in remote areas (where Indigenous custom and law remain strong) make that are compatible with their traditional culture (Taylor 2006; Biddle 2010b).

Area-level socioeconomic disadvantage

The employment rate is generally highest among the least disadvantaged socioeconomic areas and declines for people living in more disadvantaged socioeconomic areas (Productivity Commission 2022). Employment is both exacerbated by, and an indicator of, area-level socioeconomic disadvantage, so the causal direction of this effect is difficult to clearly investigate (Biddle 2013b).

8.3.4 Macroeconomic factors

Sustained economic growth

Despite limited literature on the impact of economic growth on the employment of First Nations people, sustained macroeconomic growth, with a period of strong demand for labour, has been found to be an important contributor to employment among First Nations jobseekers (Hunter 2010; Hunter and Gray 2012). This is largely because economic growth increases the activity in the economy that, in turn, increases opportunities for new jobs for First Nations people (Hunter and Gray 2012; Gray and Hunter 2016). Conversely, serious

economic downturns may have larger negative impacts on the employment of those who, on average, have lower levels of education and who are working in lower-skilled occupations (Gray and Hunter 2011; Hunter et al. 2022; Gray et al. 2012).

Policies/programs

Some public policy initiatives such as labour market programs – particularly wage subsidy and structured training programs – have been found to be effective in moving more First Nations people into employment (Dockery and Milsom 2007; Gray and Hunter 2005; Gray et al. 2012; Karmel et al. 2014).

8.4 Modelling factors affecting economic participation and development

This section uses 2018–19 NATSIHS data for the analysis of factors associated with employment among First Nations people aged 25–64. The 2018–19 NATSIHS, conducted between July 2018 and April 2019, was the most recent available survey at the time of this analysis, that captured Australia-wide information on First Nations employment. The information on employment in the survey is collected using the short-form version of the questions used in the ABS' monthly Labour Force Survey (ABS 2019).

NATSIHS defines employed people as those who worked in the week prior to the survey, in a job, operating a business, or on a farm, including those who worked in a family business without pay (ABS 2019).

As the population age-group in this target is 25–64 years, the analyses are carried out with a restricted sample of First Nations respondents aged 25–64. While the majority of the factors included in the model are based on the broad findings of the literature review, some variables were not included in the model due to lack of availability in the 2018–19 NATSIHS or due to potential reverse causation (endogeneity) or other specification issues arising from the nature of variable relationships.

Table S8.18 in the Supplementary materials to this report presents 2018–19 NATSIHS estimates for employment rates across each of the key factors (characteristics) identified in the literature.

In this chapter, 2 separate approaches are used to model factors associated with First Nations employment:

- Logistic regression models were estimated to identify and quantify associations between employment among First Nations people aged 25–64 and a range of other demographic and socioeconomic variables. Separate logistic regression models were estimated for males and females.
- Random forest models were used to estimate and rank the relative importance of those factors.

For more information about logistic regression and random forest analyses see Appendix A.

8.4.1 Multivariate logistic regression results

Logistic regression models were fitted in STATA statistical software. For the logistic regression models, the estimates are presented as odds ratios and (average) marginal effects corresponding to each explanatory variable. For this chapter, however, interpretation and discussion are restricted only to the odds ratios for statistically significant variables. Results for separate models for males and females are discussed only when they vary by

gender. Table 8.1 below presents the full results of the logistic regression models for employment, with both odds ratios and marginal effects estimates.

Results in Table 8.1 show that, all else being equal, the odds of employment among First Nations people aged 25–64 are statistically significantly higher for:

- males, almost twice as high as for females
- those aged 45–54 compared with those aged 55–64. Those aged 25–34 or 35–44 were not statistically significantly different from those aged 55–64
- those whose highest educational attainment was a Bachelor degree or above (OR=3.0 for all persons), or Advanced Diploma/Diploma/Certificates III/IV (OR=1.7 for all persons) (compared with those whose attainment was year 12). The odds of employment were lower for those with Certificates I/II/year 9 and below (OR=0.42 for all persons, compared with those with year 12). Those with year 10/year 11 qualifications were not statistically significantly different from those with year 12
- those with proficiency in the English language (compared with those who were not proficient)
- those who were married (compared with those who were not married)
- those with excellent/very good/good self-reported health (compared with those with fair/poor health)
- those not diagnosed with a mental health condition (compared with those diagnosed)
- those without disability, limitation or restriction (compared with those with disability)
- those who lived in adequately sized housing (compared with those requiring additional bedrooms)
- those in the middle and highest deciles of the SEIFA IRSD (compared with those in the bottom 3 deciles)
- those in *Major cities* (compared with those in *Inner and outer regional areas*)
- those located in Tasmania compared with those located in New South Wales. However, those in Western Australia had lower odds of employment compared with those located in New South Wales.

Several other variables, such as the presence of children aged 0–14 in the household; cultural attributes such as identification with a tribal group or a language group, or a clan; experience of threatened or physical harm in the last 12 months; self or relatives having been removed from natural family; and having avoided situations due to past unfair treatment in the last 12 months were not statistically significant at the 5% test level.

Results of separate sets of logistic regression models for First Nations men and women aged 25–64 are presented in Table 8.1.

Running the models for males and females separately revealed that for some variables, the direction and statistical significance of some factors remained consistent. For instance, being married, and being without disability, limitation or restriction were statistically significant factors for both men and women and had the same direction as in all people aged 25–64. However, for the rest of the factors, the results differ either entirely or in terms of statistical significance in one or more categories. Separate results for statistically significant factors in the models for First Nations men and women aged 25–64 are discussed below.

For First Nations men aged 25–64, all else being equal, the odds of employment were statistically significantly higher for:

- those aged 25–34 compared with those aged 55–64

- those who had attained educational qualifications of Advanced Diploma/Diploma/Certificates III/IV. The odds of employment were lower for those with Certificates I/II/year 9 and below (compared with those with year 12)
- those who were married, compared with not married
- those currently not diagnosed with a mental health condition, compared with those diagnosed
- those without disability, limitation or restriction, compared with those with disability
- those in the middle and highest deciles of the SEIFA IRSD compared with those in the bottom 3 deciles
- those in *Major cities* compared with those in *Inner and outer regional* areas.

For First Nations women aged 25–64, all else being equal, the odds of employment were statistically significantly higher for:

- those aged 45–54 compared with those aged 55–64
- those who had educational qualifications of a Bachelor degree or above/Advanced Diploma/Diploma/Certificates III/IV. The odds of employment were lower for those with Certificates I/II/year 9 and below (compared to those with year 12)
- those who were married, compared with not married
- those with excellent/very good/good self-reported health (compared with those with fair/poor health status)
- those without disability, limitation or restriction, compared with those with disability
- those who lived in adequately sized housing (did not need any additional bedrooms), compared with those requiring additional bedrooms
- those in the middle deciles of the SEIFA IRSD compared with those in the bottom 3 deciles
- those located in New South Wales compared with those located in Western Australia.

Table 8.1: Logistic regression estimates on employment, First Nations people aged 25–64, NATSIHS, 2018–19, odds ratios, and marginal effects

Variable definition (reference group in parentheses)	Sample Variable subcategory (for model estimates)	All aged 25–64		Males aged 25–64		Females aged 25–64	
		OR	ME (pp)	OR	ME (pp)	OR	ME (pp)
Sex (Female)	Male	1.88**	11.27**				
Age group (years) (55–64)	45–54	1.75**	9.98**	1.75	8.65	1.78*	10.94*
	35–44	1.47	6.80	1.52	6.51	1.51	7.80
	25–34	1.43	6.43	2.11*	11.48*	1.16	2.73
Highest level of education (year 12) #	Bachelor or above	3.02**	20.27**	2.39	13.59	3.40**	24.59**
	Advanced Diploma/Diploma/Certificates III/IV	1.74**	10.58**	1.91*	10.30*	1.78*	11.94*
	Year 10/year 11	0.69	–7.13	0.83	–3.11	0.62	–9.30
	Certificates I/II/year 9 and below	0.42**	–16.37**	0.42**	–14.57**	0.44*	–15.70*
English proficiency (Not proficient)	Proficient	2.28*	14.38*	2.50	14.09	1.71	9.85
Social marital status (Not married)	Married	2.42**	16.15**	2.98**	17.05	2.00**	13.49**
Whether children 0–14 in household (No)	One or more children 0–14 in household	0.91	–1.76	1.05	0.70**	0.84	–3.28
Self-assessed health status (Fair/Poor)	Excellent/Very good/Good health status	1.59**	8.36**	1.58	7.18	1.70**	10.10**
Whether currently has a diagnosed mental health condition (Yes)	Does not currently have mental health condition	1.66**	9.08**	2.14**	11.89	1.39	6.21
Disability status (Has disability)	No disability, limitation or restriction	2.89**	19.91**	4.52**	25.64**	2.16**	14.78**
CNOS – bedrooms needed/spare (Bedrooms needed)	No bedrooms needed, or any amount spare	1.84**	10.89**	1.36	4.68**	2.54**	17.35**
Identifies with a tribal group or a language group, or a clan (No) #	Identifies with a tribal group or a language group, or a clan	0.85	–2.99	0.86	–2.20	0.83	–3.43
Experienced threatened or physical harm in last 12 months (No) #	Experienced physical or threatened harm	1.04	0.62	0.64	–6.85	1.44	6.92

(continued)

Table 8.1 (continued): Logistic regression estimates on employment, First Nations people aged 25–64, NATSIHS, 2018–19, odds ratios, and marginal effects

Variable definition (reference group in parentheses)	Sample Variable subcategory (for model estimates)	All aged 25–64		Males aged 25–64		Females aged 25–64	
		OR	ME (pp)	OR	ME (pp)	OR	ME (pp)
Self and/or relatives ever removed from natural family (Yes) #	Not removed	0.91	–1.64	0.87	–2.15	0.89	–2.26
Avoided situation due to past unfair treatment in last 12 months (Yes) #	Did not avoid situations due to past unfair treatment in last 12 months	0.96	–0.75	1.27	3.51	0.81	–3.93
SEIFA IRSD – (Bottom 3 deciles)	Middle 4 deciles	1.62**	8.82**	1.77*	8.80	1.54*	8.38*
	Top 3 deciles	2.26**	14.66**	2.65*	14.63*	2.09	14.23
Remoteness area (<i>Inner and outer regional</i>)	<i>Major cities</i>	1.53**	7.57**	3.02**	16.68*	1.02	0.29
	<i>Remote and very remote</i>	0.99	–0.15	0.72	–5.29**	1.26	4.30
State/Territory (New South Wales)	Victoria	0.81	–3.65	1.10	1.40	0.67	–7.43
	Queensland	0.85	–2.91	0.99	–0.15	0.80	–4.30
	Western Australia	0.59**	–9.27**	0.56	–8.85	0.57*	–10.57*
	South Australia	0.74	–5.37	0.48	–11.07	0.92	–1.66
	Tasmania	1.63*	8.54*	1.58	6.70	1.74	10.47
	Australian Capital Territory	0.88	–2.28	0.81	–3.25	0.91	–1.78
	Northern Territory	0.91	–1.75	0.97	–0.45	0.87	–2.65

CNOS = Canadian National Occupancy Standard.

Notes

1. The dependent variable is whether a person aged 25–64 is employed versus not employed. Variables marked with # also have other categories of response than shown above, such as, not stated/relevant, or unknown categories.
2. Odds ratios (OR) and marginal effects (MEs) are reported up to 2 decimal places. Marginal effects are measured in pp changes in the probability of being employed. Appropriate survey weights were applied. Statistical significance levels: **: $p < 0.01$; *: $p < 0.05$.

Source: AIHW analysis of ABS NATSIHS 2018–19.

8.4.2 Random forest analysis

The variable importance rankings from the random forest obtained from 2 alternative methods (Method A and Method B) are presented in Figure 8.18.

The ranking of relative importance results in Figure 8.18 indicates:

- **top ranked (most important) factors:** Both methods confirm that educational attainment is the most important factor associated with employment, with disability status as the second most important
- **middle ranked factors:** area-level SEIFA IRSD, self-assessed health status and marital status were ranked in the third and fourth importance groupings by both methods
- **least important factors:** the remaining variables were ranked as having lesser importance in both methods, with some rank variation within sets of such variables.

While the third and fourth group order ranks were not consistent across Method A and B, the most and least important factors were consistently identified. Thus, an appropriate insight is that any variable ranked high in either method can be interpreted as a relatively more important factor of First Nations employment, noting, however, the limitations of the NATSIHS survey in terms of representativeness, sample size and omitted variables.

Consistent with the regression models, separate results on the ranking of relative importance for males and females are shown in supplementary figures S8.1 and S8.2. These figures show some contrasts in the ranking order for the top and middle ranked factors. For instance, educational attainment remained a top ranked order factor for First Nations women aged 25–64 while for men aged 25–64, disability status was the top ranked order factor.

Figure 8.18: Relative importance groupings of variables predicting First Nations people aged 25–64 being in employment, 2018–19 NATSIHS

Method A	Method B	
Educational attainment	Educational attainment	More important
Disability status	Disability status	
SEIFA index	Marital status	
Self-assessed health status	SEIFA index	
Marital status	Self-assessed health status	Less important
Whether house of acceptable standard	Age group	
Age group	Sex	
Sex	Remoteness	
Whether has mental health condition	State	
State	Whether has children in household	
Remoteness	Whether has mental health condition	
Removal of self/relatives from family	Whether house of acceptable standard	
Whether has children in household	Removal of self/relatives from family	
English proficiency	Whether avoided situations due to unfair treatment in last 12 months	
Whether experienced threatened or physical harm in the last 12 months	Whether experienced threatened or physical harm in the last 12 months	
Identification with a tribal group, a language group, or a clan	English proficiency	
Whether avoided situations due to unfair treatment in last 12 months	Identification with a tribal group, a language group, or a clan	

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance; method B was based on the permutation method (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a pp difference threshold between ordered variable importance values.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

8.5 Policy implications

This chapter broadly examined the progress on the employment rates of First Nations people aged 25–64 by analysing patterns and trends at the national and state/territory levels. At disaggregated levels, the analysis is also carried out by type of employment, main occupation groups, main industries of employment as well as by selected demographic characteristics (sex, age, levels of highest educational attainment, disability status, long-term health conditions, caring responsibilities) and geographical characteristics (remoteness area and IRSD) quintile) to understand simple (univariate) relationships related to this target.

The analysis of Census data showed that the proportion of employed First Nations people aged 25–64 increased to 56% in 2021, higher than the 2021 progress point of 55% on the trajectory to meeting the 2031 target rate of 62%. At the jurisdictional levels, despite differences across states/territories, the employment rate has been increasing for all states except the Northern Territory.

First Nations people aged 25–64 were more likely to be employed full time than part time. First Nations males were more likely to be employed than females. The gap in the employment rates between males and females, however, has been closing. With age, the employment rate first increased marginally across the age groups 25–29 to 45–49 and then declined for the older age-groups. The employment rate consistently increased with levels of educational attainment and decreased with area-level socioeconomic disadvantage. The rate of employment among First Nations people also decreased with remoteness. Although the low employment rate among First Nations people in *Remote and very remote* areas has been documented widely, the reasons behind this remain understudied. Locational disadvantage has often been suggested as the main barrier for employment in remote areas; however, it has been suggested that the role of other factors such as traditional culture and lifestyle choices made by First Nations people living in remote areas needs to be further investigated (Taylor 2006; Biddle 2010b).

The contributing factors to First Nations employment identified in the literature review included demographic characteristics – for example, sex, age, marital status, educational outcomes, health conditions and disability, number of dependants/children, caring responsibilities, housing, cultural and historical factors (such as experience of removal from natural family), geographical locations (such as remoteness areas, disadvantaged socioeconomic areas, state/territory) and macroeconomic factors (such as sustained economic growth, policies/programs).

Our findings from the logistic regression, based on 2018–19 NATSIHS data, showed that, net of other factors, the odds of employment for First Nations people were statistically significantly higher for:

- males
- those aged 45–54
- those with educational qualifications higher than year 12
- those who were married
- those with excellent/very good/good self-reported health
- those currently not diagnosed with mental health conditions
- those without disability, limitation or restriction
- those living in appropriately sized housing
- those in the middle and highest deciles of the SEIFA IRSD

- those living in *Major cities*.

Furthermore, random forest analysis confirmed the importance of highest educational attainment and disability status as key factors associated with First Nations employment, followed by the SEIFA Index, self-assessed health status and marital status. These findings were also broadly consistent with the literature on the key factors contributing to First Nations employment.

The analysis presented in this chapter is not free from limitations. The 2 data sets used in the study were the ABS Census and the NATSIHS. Census data are collected every 5 years and NATSIHS data were from 2018–19, the latest available year at the time of this analysis. The lack of annual data on employment and associated factors limits the ability to regularly and accurately track progress in this target. Moreover, this chapter does not include key demand-side labour market factors and macroeconomic factors, despite the literature indicating that macroeconomic factors are important contributors to employment among First Nations people. Future research could solve these issues by estimating annual employment using PLIDA, which allows following people identified as Aboriginal and Torres Strait Islander in the Census with single touch payroll data. PLIDA also allows longitudinal analysis and can facilitate modelling of key factors that is not possible with cross-sectional data.

It must also be noted that the changes in First Nations and non-Indigenous employment trends between the 2021 Census and earlier Censuses should be interpreted with caution. The COVID-19 related closures and restrictions resulted in major changes in the labour market and labour participation in 2021. It is not possible to look at the impact of COVID-19 on employment outcomes with the current data which is from 2021, a period in which COVID-19 was having notable impacts. While the discussion of these changes is out of scope of this analysis, it is important to study the extent of these effects and their long-term outcomes on employment in the future.

Despite the limitations, the findings of this chapter show that the economic participation target progressed faster than expected for 2021 and reveal insights on the statistically significant and important factors associated with First Nations employment.

Strategies for improving employment rates

Based on the findings from the literature review and primary analysis, policy programs aimed at improving employment rates among First Nations people aged 25–64 may benefit from focusing on the following areas of intervention.

1. Educational attainment was clearly shown as a key factor of employment among First Nations people. This finding was supported by both the logistic regression results and the random forest results, as well as by many studies in the literature review. Programs should be aimed at increasing attainment, particularly at the Certificate III and above level (which appears to be a critical threshold level of education for substantially improving employment outcomes).
2. Disability was found to be a statistically significant barrier to employment among First Nations people. This was supported by a wealth of literature as well as by both logistic regression and random forest analyses. Programs aimed at engaging and retaining First Nations people with disability in employment would likely meaningfully improve employment rates of First Nations people, especially given the high rates of disability among the First Nations population.
3. Similarly, being in poor or fair (self-assessed) health was also found to be associated with reduced employment outcomes. Some studies in the literature review found

statistically significant associations between worse health and lower levels of employment, and these findings are also supported by both types of primary analysis presented in this chapter. Policy interventions aimed at improving the health of First Nations people will likely have the additional benefit of improving First Nations employment rates.

4. Poor English proficiency was identified by some sources in the literature as a statistically significant barrier to employment for First Nations people. This finding is also supported by the logistic regression analysis carried out for this chapter. Policy programs aimed at improving English proficiency may assist with increasing employment rates among First Nations people, particularly if paired with programs that target educational attainment.

Certain policy initiatives have been shown to be effective in increasing employment among First Nations people. In 2021, the House Standing Committee on First Nations Affairs submitted its report on its inquiry into opportunities for employment and economic development for First Nations people. The report, titled *Report on Indigenous participation in employment and business*, identified existing and future pathways for employment, opportunities for First Nations business enterprises and the barriers impeding employment and business opportunities for First Nations people. In March 2022, the Australian Government supported or provided in-principle support for 8 of the 17 recommendations made in the report and noted 9 recommendations to inform existing reforms (Australian Government 2022). The Indigenous Skills and Employment Program was designed, in consultation with First Nations communities, and in light of Australian and international research, to connect First Nations people to jobs, career advancement opportunities, and to new training and job-ready activities (NIAA 2021).

More recent programs funded by the government, such as the Remote Jobs and Economic Development Program (<https://www.niaa.gov.au/indigenous-affairs/employment/remote-jobs>), aim to provide job opportunities to people in remote communities, by supporting these communities in determining local projects and job priorities. Continued effort in increasing economic opportunities particularly in remote areas could help reach the national economic participation target by 2031.

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Housing

9

Summary

Target

The target associated with Outcome 9 of 2020 National Agreement is to increase the proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) housing to 88% by 2031, from a 2016 baseline of 79%.

Background

- A wide range of international and Aboriginal and Torres Strait Islander (First Nations) literature has found that crowding not only is stressful to health and wellbeing across cultures and countries with different income levels but also is:
 - directly linked with long-term health and higher rates of preventable and infectious diseases
 - associated with poorer school attendance, disrupted sleep, established conditions for inappropriate and abusive relationships, and increased wear and tear of facilities and structures.

Current status

- Between 2016 and 2021, the proportion of First Nations people (79% to 81%) and First Nations households (89% to 90%) living in appropriately sized housing increased. However, the number of First Nations people living in crowded dwellings (based on the Australian Bureau of Statistics' [ABS's] Census of Population and Housing [Census] count) also increased – from 114,000 to around 130,000 – as did the number of First Nations households living in crowded dwellings (from 26,400 to 31,300).
- Achieving the 2031 target from the baseline year of 2016 would require an increase of 3 percentage points in the proportion of First Nations people living in appropriately sized housing for each of 5 year increments from 2016 and 2021, from 2021 to 2026 and from 2026 to 2031. Such an increase aligns with the average increase actually observed (historical trend) from 2001–2016. In fact, the required increase was almost attained in 2021 – the projected trajectory point was 81.9% and the actual proportion was 81.4%.
- If the results for this target continue to improve at the current rate, the national target is likely to be met, or very close to being met, by 2031.
- Almost half (49%) of First Nations people living in crowded conditions in 2011 were living in appropriately sized housing 5 years later (in 2016), indicating some degree of persistence, but also improvements for many. Further, 89% of First Nations people living in appropriately sized housing in 2011 were still doing so 5 years later.
- The proportion of First Nations people living in appropriately sized housing in 2021 were at or above the 2031 national target of 88% in 3 jurisdictions (Victoria, Tasmania and the Australian Capital Territory) but the Northern Territory proportion (43%) was considerably lower.
- Of the First Nations people living in crowded conditions, 29% were in Queensland, 23% in New South Wales and 23% in the Northern Territory.
- The proportion of First Nations people living in appropriately sized housing in 2021 was close to the 2031 national target in *Major cities* (87.8%), *Inner regional* areas (86.8%) and *Outer regional* areas (82.0%); in *Remote* (68.0%) and *Very remote* areas (45.0%), the proportion of First Nations people living in appropriately sized housing was lower. In 2021, about 15% of First Nations people lived in *Remote and very remote* areas.

- The 2021 Census data show a higher level of crowding in social housing dwellings, with 37% of First Nations people in public housing and 43% of First Nations people in community housing living in crowded conditions, compared with less than 12% of First Nations home owners. Based on the AIHW National Housing Assistance Data Repository, the number of social housing dwellings (public housing, state owned and managed Indigenous housing (SOMIH), community housing and Indigenous community housing) allocated to First Nations households has increased steadily, from around 58,200 households in 2009 to 79,500 in 2022 (an increase of 37%).
- In social housing, almost three-quarters (73%) of First Nations households with 2 families were crowded, compared with 45% in private rental and 24% in owner-occupied dwellings. The pattern was similar for households with 3 or more families, with 97% crowded in social housing, 82% in private rental and 49% in owner-occupied dwellings.

Key findings

- While First Nations people living in social housing face higher levels of crowding than they do in other tenure types, many are not able to obtain social housing, as the waiting period is years. This is indicative of the supply shortage for social housing; it creates major issues with liveability, due to the scale and form of housing provision. This is true especially among remote communities where there is no or very limited access to private rental or home ownership, and public and community housing is the only option.
- As existing housing stock is insufficient for the population, families often remain on a housing waiting list for years. Most young families have no access to independent housing and therefore rely on extended family to provide accommodation.
- Some families will choose to live in large, multi-generational households, despite other houses being available in the community. Even if these families do not necessarily consider their house to be crowded, they could, nonetheless, suffer the same health effects of crowding, such as infectious diseases, poor hygiene and poor mental health. Crowding can also cause structural damage to housing infrastructure.
- Renting costs that grow higher than growth in income can lead to higher levels of crowding and homelessness.
- The results of the regression modelling suggest that the most important factors associated with crowding were:
 - the number of dependants in the household
 - having previously lived in a crowded household
 - remoteness.
- High income and higher Socioeconomic Indexes for Areas (SEIFA) deciles were associated with reduced odds of crowding, while unemployment was associated with increased odds.

Key factors

- Efforts to improve access to appropriately sized housing could focus on areas where crowding is highest, in particular the Northern Territory. Although the target was close to being met in New South Wales and Queensland, because of their large populations, the number of First Nations people living in crowded dwellings in these 2 states was still high: 30,500 and 38,200, respectively.
- Efforts to improve access to appropriately sized housing could also focus on continuing to increase the number of social housing dwellings available to First Nations people.

- Programs such as Housing for Health (which makes safety and ‘health hardware’ repairs) reduce the negative impact of crowding and ensure existing dwellings are still tenable, therefore reducing crowding by maintaining the existing social housing stock.
- It is also important that the social housing stock includes dwellings that are the appropriate size for multi-family households and households with several dependent children.
- Cultural obligations to help kinfolk in time of need is deeply rooted in the structures of First Nations society. First Nations people also have high rates of temporary mobility, and therefore housing for First Nations people needs to be appropriately designed to facilitate the observance of cultural practices.
- Culturally designed housing needs to be an appropriate size, where families and visitors can live comfortably together; it should incorporate safe outdoor spaces for sleeping, cooking and gathering; additional bathrooms; and planned entryways, circulation and bedroom placements. However, there is limited availability of such housing, as most social housing dwellings have only 3 bedrooms, one main living area and a bathroom.
- The policy response to crowding in First Nations households may vary depending on remoteness: in urban areas, better access to existing housing stock through improving household income or providing assistance that is specific for First Nations people is important; in regional and remote areas, additional housing stock is required.
- Planning is required to ensure that adequate land and infrastructure are available in remote areas to support new dwellings.

9.1 Introduction

Outcome 9 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander people being able to secure appropriate, affordable housing that is aligned with their priorities and needs.

The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) housing to 88% by 2031, from a 2016 baseline of 79%.

Outcome	Aboriginal and Torres Strait Islander people secure appropriate, affordable housing that is aligned with their priorities and need.
Target	By 2031, increase the proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) housing to 88%.
Indicator	The proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) housing.
Measure	<i>Numerator</i> – number of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) dwellings <i>Denominator</i> – total number of Aboriginal and Torres Strait Islander people (presented as a percentage)

This chapter focuses on analyses of the specific target measure rather than the outcome more broadly. The term ‘crowded’ (rather than ‘overcrowded’) is used in this chapter as it may be considered more culturally appropriate, as maintaining a large open household is a core obligation for many Aboriginal and Torres Strait Islander (First Nations) people. Although there might be many people living in a dwelling, if occupants are sharing the space in a culturally appropriate way, it may not be psychologically stressful for them. The 2 terms, crowded and overcrowded, can be used interchangeably.

For this target, appropriately sized and crowded housing is based on the Canadian National Occupancy Standard (CNOS) definition (Statistics Canada 2019) (see Box 9.1 and the Glossary for fuller details).

The official target is based on person-level appropriately sized housing – this is used wherever possible. However, people are part of families who live as part of households. Hence, in relevant cases, as well as person-level data, household-level measures of appropriately sized housing are also analysed.

For Census and ABS survey data, ‘household’ is synonymous with ‘dwelling’, but for AIHW National Housing Assistance Repository data, the number of households and dwellings may differ. Further, in relevant contexts – such as in estimating housing need – the analysis presented in sections 9.2 and 9.4 focuses on those living in ‘crowded’ conditions rather than the obverse category of appropriately sized housing, as specified in the target measure. This makes the results easier to interpret.

Four potential factors associated with crowding are examined in this chapter:

- population changes
- changes in social housing dwellings

- housing affordability and access
- cultural movements/visitations specific to First Nations people.

The first 2 potential factors above are already identified in the National Agreement on Closing the Gap. The third is applicable to the general population and all subgroups. The last is identified from the literature review to be specific to the First Nations population.

Box 9.1: CNOS occupancy standards and ABS definitions

Occupancy standards

Occupancy standards measure crowding in relation to a set of normative or cultural standards. In Australia, government agencies rely on the CNOS to measure the extent of crowding. The CNOS model uses bedroom density to determine residential capacity in a house, taking into consideration age and gender of household members to determine who can share a bedroom (Habibis et al. 2011; Memmott et al. 2011). See the Glossary for full details of the CNOS definition.

The CNOS rules on how gender and age determine who can share a bedroom is rooted in the Anglo standard for spatial behaviour and room use (Greenop and Memmott 2016).

For First Nations people, factors such as high residential mobility; cultural obligations to accommodate kin and visitors; multiple households in a home; and use of the home's outdoor spaces, living room and kitchen for sleeping all contribute to a fluctuating household size (Fien et al. 2011; Greenop and Memmott 2016; Memmott et al. 2011). The CNOS model may reflect experiences of some First Nations people, but it does not reflect experiences of all First Nations people or of non-Anglo Australian communities (Greenop and Memmott 2016; Memmott et al. 2011).

ABS definition of crowding

There is no single standard or measure of housing use. However, CNOS is widely used internationally, and the ABS uses it for its measures of crowding. It is a suitable standard for use with Census data because all the required variables for its calculation are collected in the Census, although family coding limits its suitability in large complex family households, and where people may be temporarily absent on Census night (ABS 2018a).

The ABS defines crowding as a dwelling that requires one or more additional bedrooms (ABS 2022). The estimates of the total number of First Nations people living in a crowded dwelling are calculated from the sum of all First Nations people who live across all the dwellings classified as crowded.

Census data also record a separate classification of an 'Indigenous household' – any household/dwelling that includes at least one First Nations person in their usual place of residence. If that dwelling is classified as crowded, it contributes to the total number of First Nations households that are crowded. The ABS Census (and other survey data) thus give estimates of the total as well as the proportion of all First Nations people living in crowded dwellings, and the total number and proportion of First Nations households that are crowded.

Note that the total number of First Nations people who live in a crowded household and the total number of crowded First Nations households given in this chapter are based on the Census count – the individuals who responded to the Census. Not all people fill out the Census form, and the underestimate of the Census count compared with the actual population (which the ABS derives as the Estimated Resident Population) can be quite high for First Nations people. Hence, the totals given in this chapter are underestimates.

The ABS applies the CNOS standard for the number and age/sex composition of the people for whom that dwelling is the 'usual place of residence', excluding relatives and other household visitors living in that dwelling on Census night. Therefore, temporary crowding in First Nations (and other) households is not captured in the CNOS standard.

People living in severely crowded dwellings that require 4 or more additional bedrooms to accommodate all usual residents are classified by the ABS to be part of the 'homeless' population. Hence estimates of the number of people living in crowded dwellings cited in this chapter can include people who are also classified as homeless (ABS 2018a).

9.2 Appropriately sized housing target: current picture and time trends

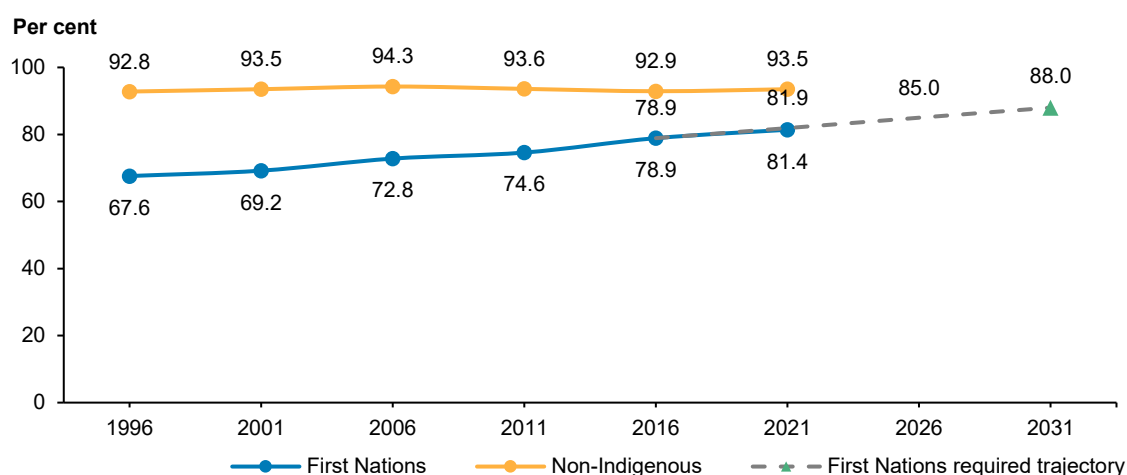
9.2.1 National

All data in this section are based on the Census. Between 2016 and 2021, the proportion of First Nations people (79% to 81%) and First Nations households (89% to 90%) living in appropriately sized housing increased (Figure 9.1; supplementary Table S9.1). However, the number of First Nations people in crowded dwellings (based on the Census count) also increased, from 114,000 to around 130,000, as did the number of First Nations households living in crowded dwellings (from 26,400 to 31,300).

Achieving the 2031 target from the baseline year of 2016 would require an increase of 9.1 percentage points overall, or an increase of 3 percentage points in the proportion of First Nations people living in appropriately sized housing for each of the 5-year increments from 2016 to 2021, from 2021 to 2026 and from 2026 to 2031 ('required trajectory'). This aligns with the average increase actually observed (historical trend) from 2001–2016. The required increase was almost attained in 2021, according to Census data – the required trajectory point was 81.9% and the actual proportion was 81.4% (Figure 9.1).

Based on population projections, The number of First Nations population in 2031 will be about 1.18 million (ABS 2011-to-2031). To meet the national target of 88% living in appropriately sized housing in 2031 the corresponding number of First Nations people living in appropriately sized housing would need to increase by about 23,700 per year between 2021 and 2031.

Figure 9.1: Proportion of people living in appropriately sized dwellings, by Indigenous status, 1996–2021



Notes

1. Number is based on Census count only and not on the Estimated Resident Population and hence are under-counts.
2. Excludes people who were not enumerated at their place of usual residence. For the 2021 Census, this was around 24,300 First Nations people.
3. Excludes Not Stated and Unable to Determine for Housing Suitability. For the 2021 Census, housing suitability was not stated for around 16,300 First Nations people and unable to be determined for around 27,900 First Nations people.
4. Appropriately sized dwellings are defined as having spare bedrooms or not requiring any additional bedrooms to adequately house the residents, using the criteria of the CNOS.

Source: Productivity Commission 2023.

In 2021, a lower proportion of First Nations people lived in appropriately sized housing (81%) than non-Indigenous people (94%). Similarly, 90% of First Nations households were living in appropriately sized dwellings compared with 97% of non-Indigenous households.

Based on the 2011–2016 Australian Census Linked Dataset (ACLD), almost half (49%) of First Nations people living in crowded conditions in 2011 were living in appropriately sized housing 5 years later (in 2016), indicating some degree of persistence, but also improvements for many. Further, 89% of First Nations people living in appropriately sized housing in 2011 were still doing so 5 years later.

9.2.2 State and territory

Over the past 25 years, between 1996 and 2021, the proportion of First Nations people living in appropriately sized housing rose in most states and territories, with the largest percentage point increases in Western Australia (18), Queensland (16) and the Northern Territory (13) (note that this is a different time period to that for the target) (Figure 9.2; Table S9.2).

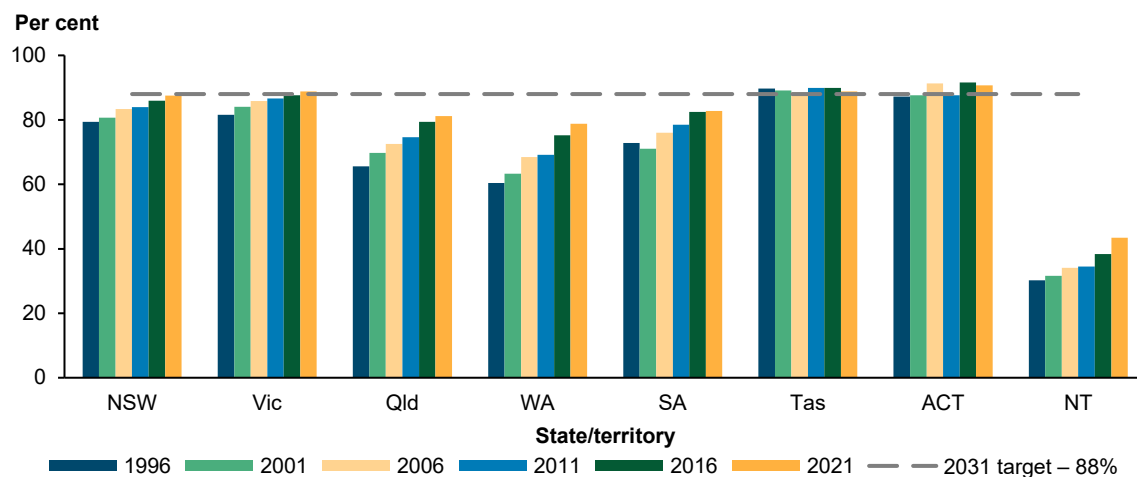
Between the 2 most recent Censuses, in 2016 and 2021, the percentage point increase was highest in the Northern Territory (5) and Western Australia (4).

In 2021, the proportion of First Nations people living in appropriately sized housing was above the 2031 national target in Victoria (89%), Tasmania (89%) and the Australian Capital Territory (91%), but was considerably lower in the Northern Territory (43%) (Table S9.3).

It is also important to consider the number of First Nations people living in crowded dwellings to estimate the changes needed to reach the target. Although New South Wales had rates close to the national target, an estimated 30,500 First Nations people still lived in crowded dwellings in the state in 2021 (based on the Census count). The number of First Nations people living in crowded conditions was also high in Queensland (38,200) and the Northern Territory (29,500).

Of the First Nations people living in crowded conditions, 29% were in Queensland, 23% in New South Wales and 23% in the Northern Territory (Table S9.4).

Figure 9.2: Proportion of First Nations people living in appropriately sized dwellings, by state and territory, 1996 to 2021



Notes

1. Excludes people who were not enumerated at their place of usual residence. For the 2021 Census, this was around 24,300 First Nations people.
2. Excludes Not Stated and Unable to Determine for Housing Suitability. For the 2016 Census, housing suitability was not stated for around 18,500 First Nations people and unable to be determined for around 23,500 First Nations people. Data are not available for other years.
3. Appropriately sized dwellings are defined as having spare bedrooms or not requiring any additional bedrooms to adequately house the residents, using the criteria of the CNOS.

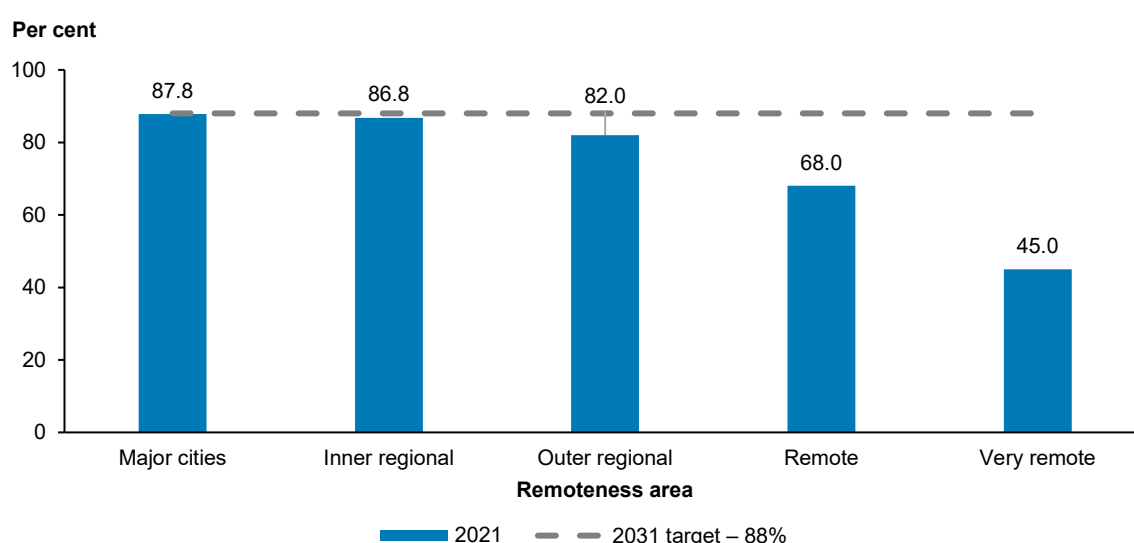
Source: Productivity Commission 2023.

9.2.3 Remoteness area

The proportion of First Nations people living in appropriately sized dwellings varied considerably by remoteness areas. In *Major cities* (87.8%), *Inner regional* areas (86.8%) and *Outer regional* areas (82.0%), the rates were close to the 2031 national target, whereas in *Remote* areas (68.0%) and *Very remote* areas (45.0%) the proportion of First Nations people living in appropriately sized housing was much lower (Figure 9.3; Table S9.5).

Of the First Nations people living in crowded conditions, 28% were in *Very remote* areas and 28% were in *Major cities* (Table S9.6). Meanwhile, based on Census estimates, in 2021, 15% of all First Nations people lived in *Remote and very remote* areas combined.

Figure 9.3: Proportion of First Nations people living in appropriately sized dwellings, by remoteness, 2021



Notes

1. Excludes people who were not enumerated at their place of usual residence. For the 2021 Census, this was around 24,300 First Nations people.
2. Excludes Not Stated and Unable to Determine for Housing Suitability. For the 2021 Census, housing suitability was not stated for around 16,300 First Nations people and unable to be determined for around 27,900 First Nations people.
3. Appropriately sized dwellings are defined as having spare bedrooms or not requiring any additional bedrooms to adequately house the residents, using the criteria of the CNOS.

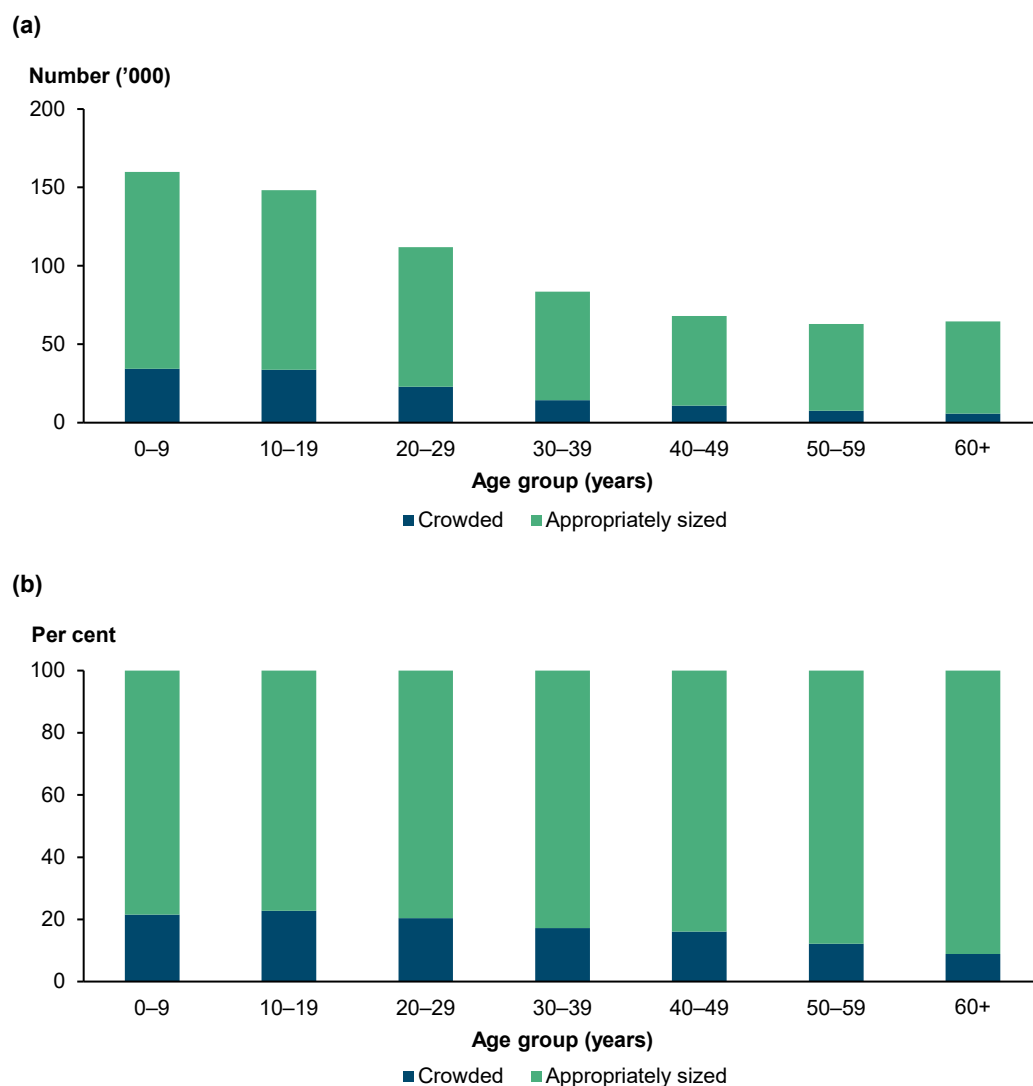
Source: Productivity Commission 2023.

9.2.4 Age and sex

In 2021, the proportion of First Nations people living in appropriately sized households was lowest for those aged under 30 and it increased with age to 91% among those aged 60 and over (Figure 9.4; Table S9.7).

The proportion of First Nations people living in appropriately sized households was similar for males (82%) and females (81%).

Figure 9.4: Number and proportion of First Nations people living in appropriately sized dwellings, by age group, 2021



Notes

1. Numbers are based on the Census count only and not on the Estimated Resident Population and hence are under-counts.
2. Excludes people who were not enumerated at their place of usual residence. For the 2021 Census, this was around 24,300 First Nations people.
3. Excludes Not Stated and Unable to Determine for Housing Suitability. For the 2021 Census, housing suitability was not stated for around 16,300 First Nations people and unable to be determined for around 27,900 First Nations people.
4. Appropriately sized dwellings are defined as having spare bedrooms or not requiring any additional bedrooms to adequately house the residents, using the criteria of the CNOS.

Source: AIHW analysis of Census of Population and Housing 2021.

9.2.5 Tenure type

Tenure type in the Census describes whether the dwelling is owned, rented or occupied under another arrangement. For people having difficulty with affordable housing the Australian and state and territory governments provide assistance in the form of access to social housing and financial assistance. Four main social housing programs are available to First Nations people, including:

- public housing
- community housing
- Indigenous community housing
- State owned and managed Indigenous housing (SOMIH).

First Nations crowding rates are highest in public and community housing. In 2021, 43% of First Nations people living in community rental housing were living in crowded conditions, affecting 17,600 people or 2,900 First Nations households (tables S9.8 and S9.9).

The proportion of First Nations people in public rental housing living in crowded conditions was also high (37%), affecting 49,200 people or 9,100 First Nations households.

Although the proportion of First Nations people living in private rental households that were crowded was lower (15%) than that for social housing, there were 35,500 First Nations people in private rental households that were crowded (11,000 households).

Of the First Nations people living in crowded conditions, most lived in public (38%) or community housing (14%). The proportion of people living in crowded households whose dwelling was privately rented was 27% (Table S9.10).

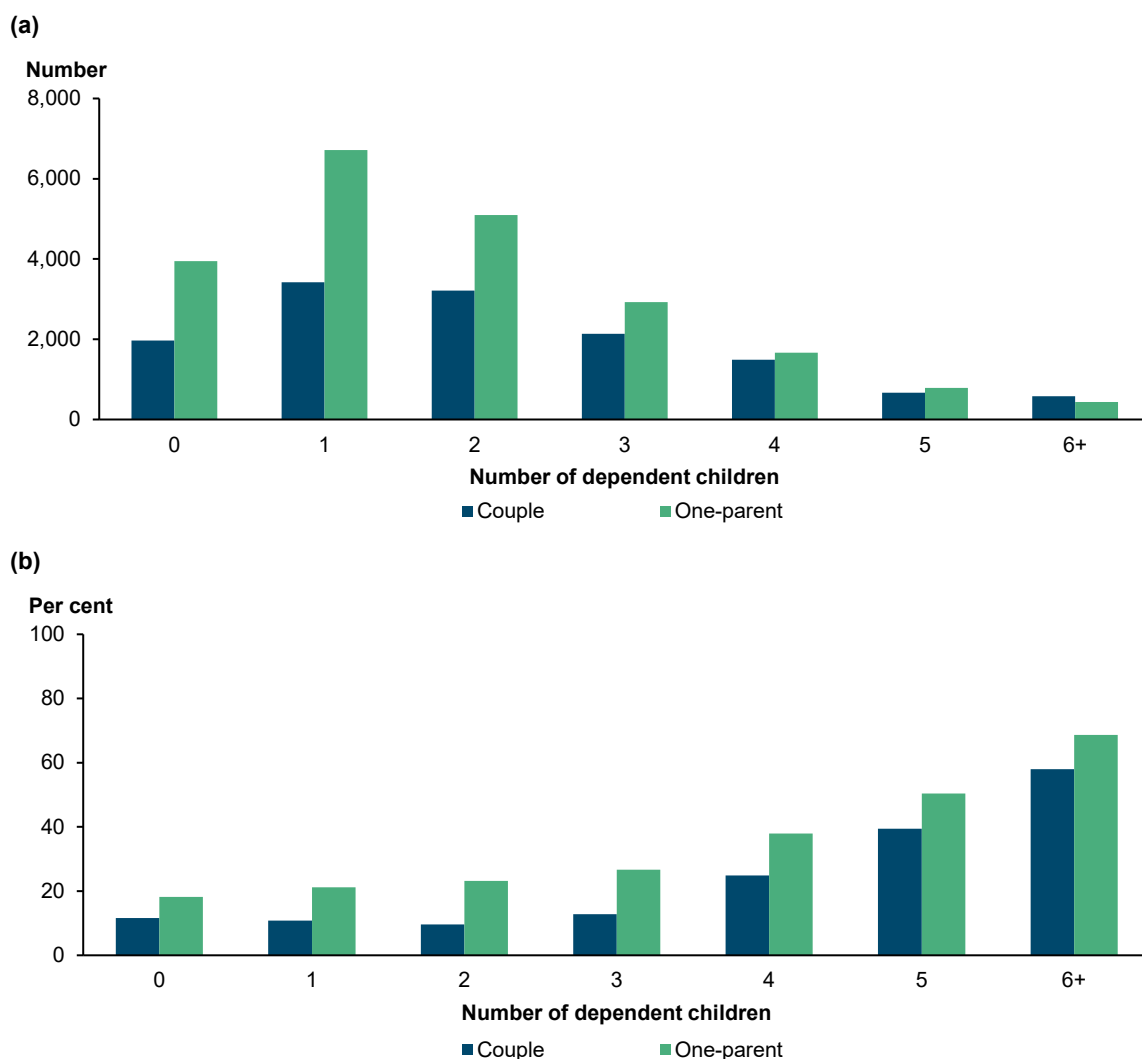
9.2.6 Household composition

Number of dependent children

The 2021 Census is used to investigate whether First Nations families with more dependent children had higher rates of household crowding (as is the case in New Zealand – Goodyear et al. 2011). Figure 9.5 shows 2 key features of households with a First Nations person:

- One-parent families have higher rates of crowding, irrespective of the number of dependent children.
- The rate of crowding is relatively flat for both couple (10–12%) and one-parent families (18–23%) with 2 or fewer dependent children. This rate increases sharply for both couple and one-parent families with each successive dependent child (Table S9.11).

Figure 9.5: Number and proportion of First Nations families in crowded housing, by family type and number of dependent children, 2021



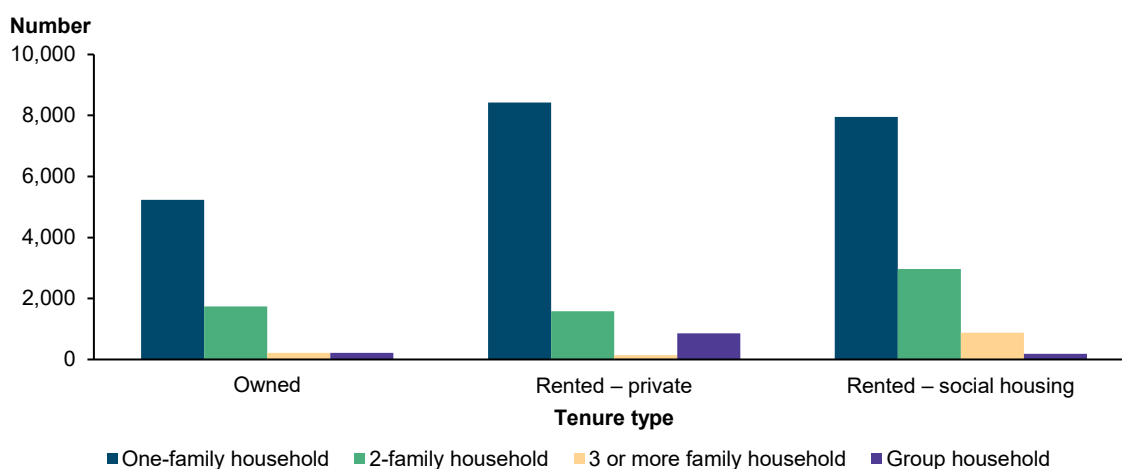
Source: AIHW analysis of 2021 Census.

Multi-family households

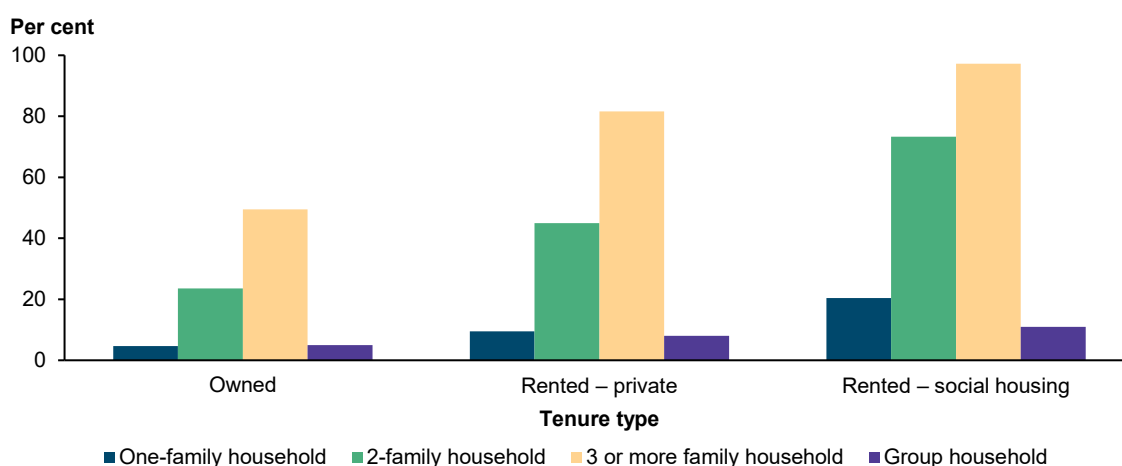
Multi-family households (households with 2 or more families) were more likely to be crowded than one-family households and this varied by tenure type (Figure 9.6; Table S9.12). In social housing, almost three-quarters (73%) of First Nations households with 2 families were crowded, compared with 45% in private rental and 24% in owner-occupied dwellings. The pattern was similar for households with 3 or more families, with 97% crowded in social housing, 82% in private rental and 49% in owner-occupied dwellings. Levels of crowding were lower for one-family and group households.

Figure 9.6: Number and proportion of First Nations households living in crowded conditions, by family composition and selected tenure type, 2021

(a)



(b)



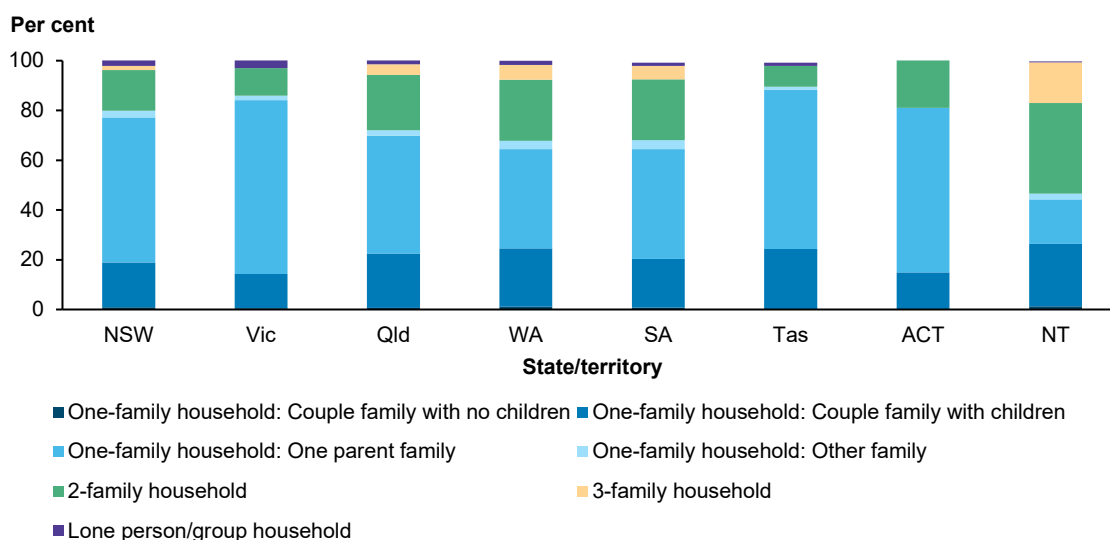
Notes

1. Excludes 'Other tenure type', 'Tenure type not stated' and 'lone person households'.
2. Rented – private includes 'Real estate agent'; 'Rented: Person not in same household'; 'Rented: Other landlord type' and 'Rented: Landlord type not stated'.

Source: AIHW analysis of 2021 Census.

As crowding levels are highest in social housing – and this is an area that could be affected by housing policies – the family composition of First Nations households in social housing who are living in crowded dwellings was examined. In all states and territories except the Northern Territory, the majority of First Nations social housing rental households living in crowded conditions were one-family households with a one-parent family (Figure 9.7; Table S9.13). This accounted for 70% of crowded social housing households in Victoria. In the Northern Territory, the pattern was quite different, with the highest proportion of crowded households being 2-family households (36%). The Northern Territory also had the highest proportion of crowded households with 3 or more families (16%).

Figure 9.7: Family composition of First Nations social housing rental households living in crowded conditions, by state and territory, 2021



Notes

1. For each jurisdiction, the proportion is calculated from the number of First Nations households living in crowded conditions in social housing by family composition divided by the total number of First Nations households living in crowded conditions in social housing, multiplied by 100.
2. Includes First Nations social housing rental households living in crowded conditions only.

Source: AIHW analysis of 2021 Census.

9.3 Literature review

Literature on crowding and affordable housing among First Nations households is extensive (Habibis et al. 2011; Memmott, Birdsall-Jones et al. 2011; Memmott, Greenop et al. 2012; Memmott, Moran et al. 2016; Milligan et al. 2011), largely because of over-representation of the First Nations population in crowding statistics, particularly in remote areas (Memmott, Greenop et al. 2012).

A large body of studies on crowding have proposed different measures of housing adequacy in addition to the CNOS standard (which is an example of an occupancy standard):

- density measures (Goodyear et al. 2011; Memmott et al. 2011) based on a relatively simple method to determine the capacity of houses, which includes measures such as persons per room, persons per bedroom, rooms per person and square metres/square feet per person
- occupancy standard measures (Fien et al. 2011; Greenop and Memmott 2016; Habibis et al. 2011; Memmott et al. 2011)
- stress measures (Brackertz et al. 2019) that capture whether crowding causes stress to household members, which might lead to conflict or homelessness.

Many studies have used specific frameworks to examine the relationship between crowding and other socioeconomic characteristics such as health and tenancy outcomes (Allen and Clarke Consulting 2022; Howden-Chapman and Wilson 2000; Smith 1999) and have identified several demographic, social, economic, cultural and spatial factors as major factors associated with crowding among First Nations people (Memmott, Birdsall-Jones et al. 2011; Memmott, Greenop et al. 2012; Memmott, Moran et al. 2016).

9.3.1 Key factors associated with crowding

Two drivers were highlighted in the National Agreement on Closing the Gap:

- changes in the First Nations population
- changes in social housing dwellings.

Cultural factors, temporary mobility and housing affordability and access were also identified in the literature as drivers of crowding.

Changes in the First Nations population

The Census counts of First Nations people increased by 25% between 2016 and 2021 (ABS 2023). Less than half (44%) of this increase can be explained by births, deaths and migration. The remaining increase is due to non-demographic factors such as changes in whether a person identifies as being of Aboriginal and/or Torres Strait Islander origin, and changes in the Census coverage and response (ABS 2023). The percentage increase in Census counts was not evenly distributed, with the largest increases in the Australian Capital Territory (38%), followed by Victoria (37%) and New South Wales (29%).

Most Indigenous regions (IREGs) recorded increases in First Nations Census counts between 2016 and 2021, with the largest percentage increase in Brisbane (43%) and Victoria, excluding Melbourne (38%). The regions with the largest decreases were West Kimberley (15%) and North-Western NSW (12%) (ABS 2023).

Spatial mobility plays a large role in the social and economic life of First Nations people. While this mobility is often temporary, First Nations people also have higher levels of permanent mobility. In 2016, around 18% of First Nations people changed address in the year before the Census, based on age-standardised rates, compared with 15% of non-Indigenous Australians (ABS 2018b).

The First Nations population is (and has historically been) younger, on average, than the non-Indigenous population (AIHW 2020b), with a higher number of dependent children per household (AIHW 2015). Data from New Zealand show that crowding in New Zealand households increased sharply with the number of dependent children (Goodyear et al. 2011). Changes in the First Nations population have not been previously explored in the context of crowding.

Changes in social housing dwellings

Social housing is low cost or subsidised rental housing provided to eligible Australians by government or non-government (including not-for-profit) organisations. While First Nations people living in social housing (public housing, SOMIH, community housing and Indigenous community housing) face higher levels of crowding than for other tenure types (AIHW 2019), many are not able to obtain social housing, as the waiting period is years (Memmott, Birdsall-Jones et al. 2012). This is indicative of the supply shortage for social housing (Moran et al. 2016) that creates major issues with liveability, due to the scale and form of housing provision (Fein et al. 2011). This shortage situation is true especially among remote communities where there is no or very limited access to private rental or home ownership, and public housing is the only option (Lowell et al. 2018). As existing housing stock is insufficient for the population, families often remain on a housing waiting list for years. Most young families have no access to independent housing and therefore rely on extended family to provide accommodation (Lowell et al. 2018).

Nash et al. (2017) explored conditionality in social housing. Conditionality refers to the idea that welfare recipients are entitled to state resources only if they adhere to certain rules that

the state stipulates. These rules often require substantial behavioural change, and conditionality is often argued to impede on people's rights. Case studies were undertaken in Tennant Creek in the Northern Territory; the Goldfields in Western Australia; and Mt Isa, Palm Island and Logan in Queensland. Across these studies, most participants reported following tenancy rules. However, they expressed problems with poor communication with service providers, and in misunderstanding requirements. For instance, few tenants understood their rights and responsibilities under their tenancy agreement. Specifically, they were typically unclear about several potential problems for their tenancies, such as permissible lengths of stay for visitors. From the tenants' perspectives, ineffective repairs and maintenance and housing service delivery were repeatedly given as sources of concern (Nash et al. 2017).

Moskos et al. (2022) found that one of the main barriers for successful First Nations tenancies was crowding; while cultural norms of helping family members was said to contribute to crowded households, a lack of alternative accommodation was at the heart of this issue. Given the long waiting times for social housing and the lack of affordability of many private rentals, families were often forced to live together in crowded living situations. Because of crowding, rules around household numbers were being breached and the risk of eviction was present (Moskos et al. 2022). The lack of housing in each of the case study regions (metropolitan, regional and very remote) was considered to result from a lack of funding, forward planning, and investment in alternative housing markets – such as community housing – by federal and state or territory governments (Moskos et al. 2022).

Cultural factors, temporary mobility and housing design

Cultural obligations to help kinfolk in time of need is deeply rooted in the structures of First Nations society. First Nations people also have high rates of temporary mobility; therefore, housing for First Nations people needs to be appropriately designed to accommodate these cultural practices.

Cultural factors

Some families will choose to live in large multi-generational households, despite other houses being available in the community. These families will not necessarily consider their house to be crowded; nonetheless, they could still suffer the same health effects of crowding, such as infectious diseases, poor hygiene (due to inadequate household facilities) and poor mental health. Such crowding can also cause structural damage to housing infrastructure (Memmott et al. 2011).

Maintaining a large open household is a core obligation for many First Nations people. Although many people may live in the dwelling, if they share the space in a culturally appropriate way, it may not be psychologically stressful for them. (For this reason, large First Nations households can be referred to as crowded [rather than overcrowded].)

In both metropolitan and regional areas, crowding occurs when the householder/s family members (who may be quite distantly related) and close friends come to visit or live in the house (or its grounds) for a period – from a few days to several months or more (Memmott, Birdsall-Jones et al. 2012). This process, known as 'demand sharing', means kinfolk can ask for accommodation because of the principle of reciprocal rights and obligations. The answer to the request may not be 'yes', but the right to ask is perfectly legitimate. If the request comes from a relative who is of appropriate status or in a particular kinship relationship with the householder, the householder will find it very difficult to say 'no', even if the house is already full. In that case, a person of lower status may be moved from their bedroom and into a public space (such as the lounge room or onto the veranda) to accommodate the relative (Memmott, Birdsall-Jones et al. 2012).

Temporary mobility

First Nations mobility patterns approximate constant circulation rather than migration (Fien and Charlesworth 2012; Moran et al. 2016). The main reasons for temporary mobility are:

- visiting Country, attending ceremony, funerals and Sorry Business
- kinship and social interaction
- employment and training
- accommodation while waiting for other housing options or after leaving poor living conditions
- access to services such as health, legal, dental or shopping (Memmott, Birdsall-Jones et al. 2012; Prout and Yap 2010).

The presence of such regular visitors to many First Nations families draws attention to the need for culturally appropriate First Nations housing design.

Culturally appropriate housing design

Literature on culturally appropriate housing design for First Nations people shows that a poorly designed dwelling may not have the capacity to accommodate regular visitors. It would therefore fail to cater for not only cultural practices associated with kin relationships (such as temporary mobility practices to visit family, attend cultural ceremonies and visit Country) but also other cultural norms such as avoidance behaviours, where certain people are required to avoid others in the family or clan (Dockery and Colquhoun 2012; Fien et al. 2011).

Culturally designed housing needs to be an appropriate size, where families and visitors can live comfortably together, incorporating safe outdoor spaces for sleeping, cooking and gathering; additional bathrooms; and planned entryways, circulation and bedroom placements (Grant and Greenop 2018; Memmott, Birdsall-Jones et al. 2012; Moskos et al. 2022; O'Rourke 2018). However, availability of appropriate housing (Milligan et al. 2011) is limited, as most social housing dwellings have only 3 bedrooms, one main living area and a bathroom (Davidson et al. 2011; Memmott, Birdsall-Jones et al. 2012).

Housing affordability and access

Cost-of-living pressures can lead to crowding. These pressures encompass a wide range of factors, including income, employment, housing affordability and vacancy rates.

Income and employment

Income and employment are closely related factors that determine the purchasing power of individuals; they therefore play a role in determining housing affordability and access. Analysis, including for all Australians, found a positive association between crowding and unemployment rates (Parkinson et al. 2019). Moreover, crowding is more prevalent in areas with low income and higher unemployment (Brackertz et al. 2019).

In 2018–19, First Nations people living in crowded households were statistically significantly more likely to be in the lowest household income quintile (18%) than in the fourth and fifth highest income quintile (AIHW 2023b). Those who were employed were less likely to live in crowded dwellings (11%) than those who were unemployed (20%), or not in the labour force (20%) (AIHW 2023b). Households with low employment rates are expected to have low incomes, which, in turn, may make home ownership impossible (Fien and Charlesworth 2012). Studies from New Zealand also provide evidence that Māori people who lived in crowded households had lower incomes (Stats NZ 2018).

Housing affordability and vacancy

Higher growth in the cost of renting relative to income growth can lead to higher levels of crowding and homelessness (Brackertz et al. 2019). Analysis of data from the 2011 and 2016 Censuses predicted that a 1% increase in the ratio of rent to income predicts an increase of 11.8 people per 10,000 in severely crowded housing (4 or more bedrooms needed). The analysis also found that a 1% decrease in vacancy rates is predicted to increase the occurrence of other crowding (1–3 bedrooms needed) by 2 people per 10,000 (Brackertz et al. 2019).

A case study in Maningrida in the Northern Territory found there were only 160 houses available to rent while an average of 230 households were on the waiting list, some for more than a decade. The average household size was 15 people during the dry season and 20–30 during the wet season (Fien et al. 2011).

In *Remote* and *Very remote* areas, the relatively higher cost of construction and maintenance (Lea et al. 2021) – due to higher costs of materials, transport, labour and a limited construction season related to climate issues (Fien and Charlesworth 2012) – reduces the scope for housing expansion.

There are also issues with housing affordability in non-remote areas. Anderson et al. (2016) found that First Nations people living in Sydney had limited housing options, with housing affordability highlighted as a stressor. Sydney's private rental market was also considered inaccessible to many First Nations people, particularly young people, due to prohibitive costs and/or their uncompetitive tenancy or work histories.

Racial discrimination by real estate agents and landlords was repeatedly described as another key barrier. Some participants recounted being falsely told there were no rental properties available, and others reported having submitted countless unsuccessful applications. Participants said that social housing was the only option for much of the First Nations community. However, social housing was described as hard to access, with waiting periods of up to 15 years reported. Homes owned by the local Aboriginal Land Council were also said to be in short supply. This chronic shortage of affordable housing also meant people felt unable to insist that their housing met basic standards (Anderson et al. 2016).

Employment opportunities might also create crowding temporarily or permanently if an influx of migrant workers places demand pressure on the local rental market, driving prices up. For example, a study of First Nations communities suggested that the expansion of mining operations that led to an influx of mine workers drove rent up, making the private rental market unaffordable (Memmott, Birdsall-Jones et al. 2012).

9.3.2 Empirical estimates

There is limited empirical literature that specifically models crowding for First Nations households. One of the most relevant sources for the current AIHW analyses for the housing target is Memmott, Greenop and colleagues (2012), which used the 2008 National Aboriginal and Torres Strait Islander Social Survey data to model First Nations crowding. The study estimated a logistic regression model on the risk of living in a crowded dwelling, based on the ABS implementation of the CNOS standard (a crowded household is one that requires additional bedrooms, and a non-crowded household has sufficient or spare bedrooms).

Though a limited number of variables were controlled for, the logistic regression estimates showed that the odds of living in a crowded household:

- in remote areas were approximately 2.7 times the odds in non-remote areas (odds ratio [OR]=2.69, standard error [se]=0.22)

- in households with all First Nations members were over 3 times the odds for households with some non-Indigenous residents (OR=3.04, se=0.28)
- with more than one family in the dwelling were 11.8 times the odds of living in a single-family household (OR=11.78, se=1.09).

9.3.3 Consequences of crowding

A wide range of international and First Nations literature has found that crowding not only is stressful to health and wellbeing across cultures and countries with different income levels (Memmott, Birdsall-Jones et al. 2012) but also is directly linked with long-term health and higher rates of preventable and infectious diseases (SCRGSP 2020). As indicated by the World Health Organization Housing and Health Guidelines (WHO 2018), overcrowded housing conditions can lead to poor hygiene and the spread of infectious diseases (such as respiratory illnesses) and infections that can lead to acute rheumatic fever (AIHW 2023a; Clifford et al. 2015) and subsequently rheumatic heart disease, as well as acute post-streptococcal glomerulonephritis (Cannon and Bowen 2021; Marshall et al. 2011).

Overcrowded housing is also associated with several risks for children (AIHW 2020a), including:

- poorer school attendance (Silburn et al. 5 August 2014)
- increased risk of emotional and behavioural problems and reduced school performance, likely due to disrupted sleep, lack of space to study and the impact of noise levels on concentration (Solari and Mare 2012).

Lack of privacy can have an impact on family relationships, leading to family conflict. It can contribute to childhood mental health problems, including anxiety, depression and stress (Solari and Mare 2012). Overcrowding can also affect children's physical health, with asthma frequently reported by families experiencing overcrowding (Reynolds 2005; Solari and Mare 2012). As well, overcrowding can compromise children's access to adequate nutrition, with flow-on effects for their health and development (Lowell et al. 2018; Thurber et al. 2017).

Distress over lack of control of living conditions is frequently reported by adults living in crowded dwellings (Lowell et al. 2018). Other implications of overcrowding include disrupted sleep, enhanced conditions for inappropriate and abusive relationships (Fien et al. 2011), and increased wear and tear of facilities and structures (Memmott et al. 2011).

9.4 Modelling factors affecting crowding

The 4 key factors examined in this chapter – population changes, changes in social housing, housing affordability and access, and cultural movements – were investigated in the context of the generalisation of a framework linking housing and health (Smith 1999).

In this chapter, for each factor, a range of relevant data sources were investigated to explore evidence that related the factor to appropriately sized housing and its converse, crowded housing (analysing crowded housing made interpretations simpler). The analyses we undertook explored simple bivariate relationships between the factors and crowding, as well as multivariate models that included many already identified (or potential proxy) factors, controlling for a range of demographic and household/personal characteristics.

Data and modelling approaches

Two modelling approaches on 2 different data sets are used in this chapter to identify and quantify the role and relative importance of specific factors associated with First Nations housing adequacy. The 2 data sources are:

- the 2011–16 Australian Census Linked Dataset (ACLD)
- the 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS).

A key feature of the ACLD data is that information on the same Census variable is available for 2 time periods, 2011 and 2016. This includes whether the individual was living in a crowded household in 2011 and whether that status continued in 2016, or it changed. The ACLD modelling analyses seek to explain the housing status reported for 2016 (crowded or not) using the prior housing status (crowded or not as reported in 2011 for that same individual) as an additional explanatory variable in the model.

The NATSIHS, on the other hand, is a one-time cross-sectional survey and includes information on housing status only at the time of the survey. The regression results from the NATSIHS and ACLD models are therefore expected to vary, given that the ACLD model uses previous crowding status as an additional control variable to measure the persistence of crowded housing status over time.

The results on other variables common to both the ACLD and the NATSIHS are expected to show less strong effects in the ACLD model if, as expected, there is a high level of persistence in living in crowded households. That is, if living in crowded housing in 2011 is a strong predictor of living in crowded housing in 2016 also, the effects of other variables reflecting 2016 characteristics, such as education level or household income, are likely to be less strong than in the NATSIHS model. This is the general result we found in these 2 models.

For each of these data sources, 2 types of models were estimated:

- a logistic regression model, which was used to determine associations of each key factor with crowding, controlling for a range of other variables
- a random forest model, which was used to determine the relative importance of each key factor.

For more information about logistic regression and random forest analyses see Appendix A. Data and methods.

9.4.1 Multivariate logistic regression results

This section discusses the logistic regression results shown in full in Table 9.1. As well, each sub-section below presents some additional tabulations of the key factors with other characteristics found to be related to each of these factors.

Logit regression models produce estimates of associations between the independent variables and the outcome – whether an individual lives in a crowded dwelling – in the form of odds ratios – that is the higher or lower odds associated with a particular variable or characteristic compared with a reference category.

Further cross-tabulation showed that, across all remoteness areas in 2021, higher levels of equivalised household income were associated with lower rates of crowding (Figure 9.8 and Table S9.14). Moreover, for each level of income, the rates of crowding were around the same in *Major cities*, *Inner regional* and *Outer regional* areas. However, in *Remote* areas, 20% or more of First Nations households with an equivalised weekly income of less than \$650 lived in crowded dwellings; this rate was over 35% in *Very remote* areas.

Two other measures of housing availability and affordability are rental availability and rental affordability for those living in rental accommodation.

There are no variables in the ACLD and NATSIHS data sets to measure rental availability. Rental affordability can be measured by comparing rental cost with income (AIHW 2021). Time trend data on rental stress – defined as paying 30% or more of gross household income on rent – show that rental stress for First Nations households renting privately increased from 34% in 2001 to 42% in 2016, then fell to 36% in 2021 (Table S9.15). In 2021, private rental stress for First Nations households was highest in New South Wales (38%) and lowest in the Australian Capital Territory (23%).

Social housing

In Australia, social housing includes 4 programs (public housing, state owned and managed Indigenous housing (SOMIH), community housing and Indigenous community housing). The total number of social housing dwellings increased from 410,000 in 2009 to 435,000 in 2022 (Table S9.16). As at 30 June 2022, 79,500 First Nations households were living in various social housing dwellings – an increase of around 26,000 (49%) from 2009 (Table S9.17). This increase does not take into account households in the Northern Territory remote public housing program as these data were unavailable; using Northern Territory remote public housing dwellings as a proxy for households, the increase would be around 21,300 households (or 37%) since 2009. In either case, part of this increase may be due to better identification of First Nations households.

The number of First Nations households in social housing was highest in New South Wales (22,400) and Queensland (20,600) (Table S9.18). Public housing was the most common type of social housing for First Nations households in all jurisdictions except for the Northern Territory and Tasmania. In the Northern Territory, over half (53%) of First Nations households in social housing were in SOMIH, with a further 28% in public housing and 19% in Indigenous community housing; however, it should be noted that First Nations household data were not available for Northern Territory community housing.

A single variable – living in social housing in 2016 – in the 2011–16 ACLD was used as a direct measure of whether a person was living in social housing. After controlling for a range of other variables, First Nations people who were living in social housing had statistically significantly higher odds (1.5 times) of living in a crowded dwelling, relative to First Nations people who were not living in social housing (Table 9.1).

Table 9.1: Logistic regression results on crowded housing (odds ratio estimates and marginal effects) in the analyses of ACLD 2011–16 and NATSIHS 2018–19

Variable type	Variable (ref)	Level	ACLD		NATSIHS	
			OR	ME (%)	OR	ME (%)
Demographic variables	Age (0–15)	16–29	1.46*	4.0*	0.53	–7.4
		30–54	1.04	0.4	0.28*	–12.6*
		55+	0.93	–0.7	0.29*	–12.4*
	Sex (Male)	Female	1.03	0.3	1.24	2.2
	Remoteness (Major cities)	<i>Inner regional</i>	0.87*	–1.4*	0.60**	–4.1*
		<i>Outer regional</i>	1.09	0.9	1.59*	5.0*
		<i>Remote</i>	1.29*	2.8*	1.47*	4.0*
		<i>Very remote</i>	2.46***	11.3***	3.96***	18.4***
	State (Qld)	NSW	0.91	–1.0	0.85	–1.6
		Vic	0.81	–2.2	1.00	0.0
		WA	0.78**	–2.5**	0.93	–0.8
		SA	0.82	–2.1	0.78	–2.4
		Tas	0.61**	–4.7***	0.93	–0.7
		ACT	0.79	–2.3	1.30	2.8
		NT	2.09***	9.3***	2.40***	11.0***
Household/personal control variables	Number of dependants in household (0–2)	3–4	1.56***	5.4***	2.67***	10.4***
		5+	5.12***	25.4***	8.93***	30.7***
	No. of structural problems		—	—	1.07	0.7
	Tenure type (rent)	Own	—	—	0.98	–0.2
		Other	—	—	0.65	–3.9
	House is of acceptable standard (No)	Yes	—	—	1.20	1.8
	Crowded in 2011 (No)	Yes	3.54***	16.5***	—	—
	Disability status (No limitation or disability)	Schooling/employment restriction	—	—	0.75	–2.7
		Mild or moderate core activity limitation	—	—	1.00	0.0
		Severe or profound core activity limitation	—	—	0.81	–2.0
	Mental health diagnosis (No)	Yes	—	—	1.00	0.0
	Removal from family (Self and relatives not removed)	Self-removed (whether or not relatives removed)	—	—	0.87	–1.3
		Older relatives removed, self not removed	—	—	0.79	–2.1
		Other/not stated	—	—	1.32	2.8

(continued)

Table 9.1 (continued): Logistic regression results on crowded housing (odds ratio estimates) in the analyses of ACLD 2011–16 and NATSIHS 2018–19

Variable type	Variable (ref)	Level	ACLD		NATSIHS	
			OR	ME (%)	OR	ME (%)
Key factors	Social housing	Social housing tenant (No) Yes	1.58***	4.6***	—	—
	Rental affordability	Household equivalised income (<\$300)				
		\$300–649	1.11	1.2 ⁻	1.05	0.5
		\$650–999	0.9	-1.1	0.91	-1.0
		\$1,000+	0.46***	-7***	0.43**	-7.2**
	Labour force status (employed)	Unemployed	1.31**	2.8**	1.57	2.7
		Not in the labour force	1.23**	2.1**	1.22	1.1
	Highest education (Degree or above)	Cert. I/II or yr. 10 or below	—	—	0.76	-1.7
		Cert. III–Adv. Dip. or yr. 11–12	—	—	0.79	-1.4
	SEIFA IRSD decile (1 most disadvantaged)	2–4	—	—	0.96	-0.4
		5–10 (less disadvantaged)	—	—	0.52***	-6.0***
	Population movements	Different IREG from 2011 (No) Yes	0.93	-0.7	—	—
		Different SA2 from 1 year previous (No) Yes	1.01	0.1	—	—
	Cultural movements	Different ILOC enumeration vs usual residence	1.05	0.5	—	—
		Recognises homeland (Yes) No	—	—	1.49	5.0 ⁻
		Identifies with a clan, tribe or language group (Does not identify)	—	—	1.93***	6.0**
Summary statistics		Refused	—	—	2.14	7.2
		Pseudo R2 (Cragg-Uhler)	0.34		0.30	
		Pseudo R2 (McFadden)	0.25		0.22	
		AUC	0.82		0.79	

OR = odds ratio; ME = marginal effects.

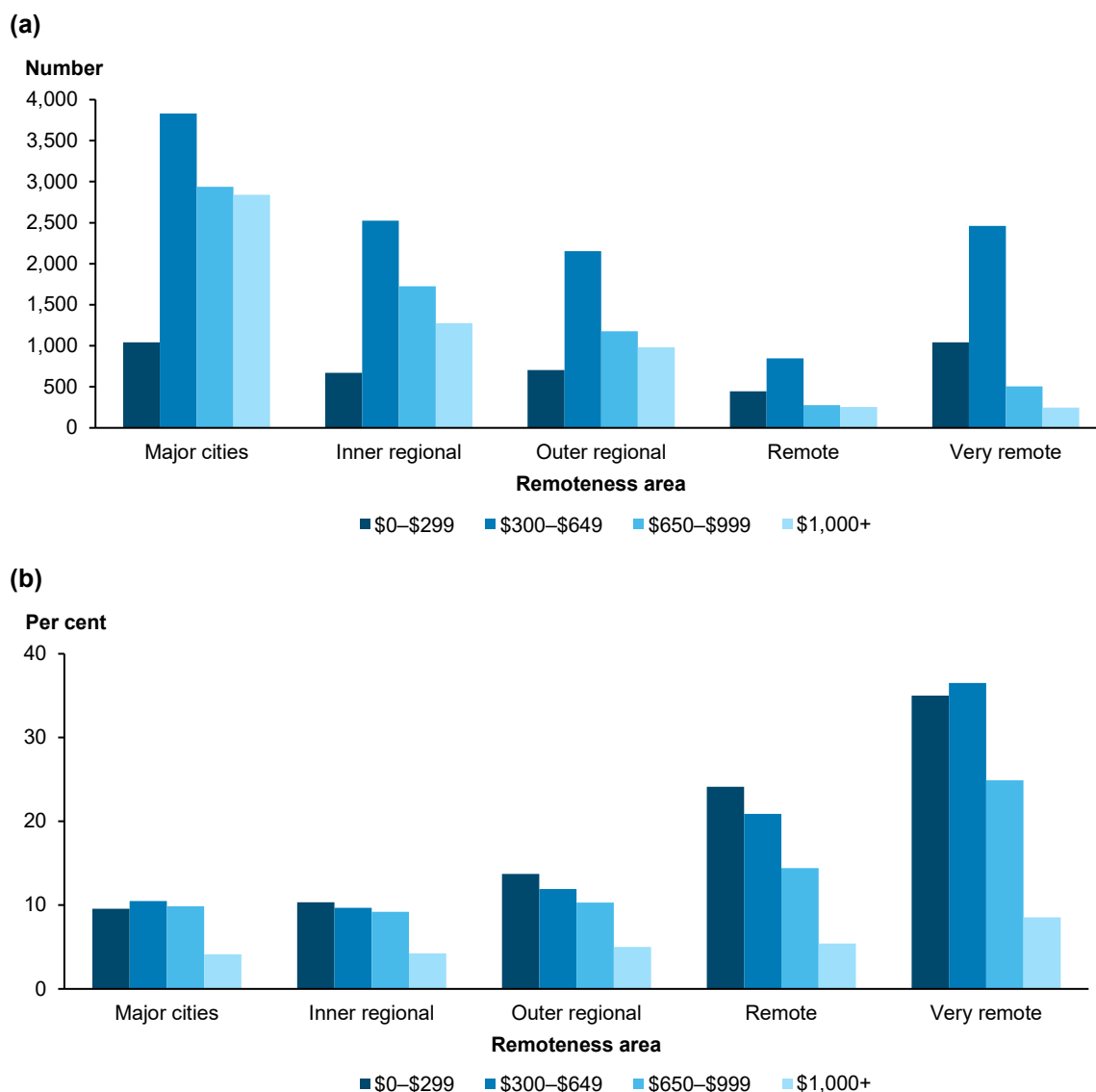
Statistical significance levels: *** : $p \leq 0.001$; ** : $0.001 < p \leq 0.01$; * : $0.01 < p \leq 0.05$; ⁻ : $0.05 < p \leq 0.1$.

Notes

1. The ACLD and NATSIHS estimations were implemented separately.
2. Similar variables in both data sets were grouped identically for comparability. Some variables were only available in one data set (the unavailable estimates are shown as —).
3. AUC is the Area Under the (ROC) Curve.

Source: AIHW analysis of 2011–16 ACLD and 2018–19 NATSIHS.

Figure 9.8: Number and proportion of First Nations households living in crowded conditions, by weekly equivalised income and remoteness, 2021



Source: AIHW analysis of 2021 Census.

Population changes

Two variables capturing the change in usual address – across different spatial-temporal distances – were included as explanatory variables in modelling the factors leading to crowding due to population movements, using the 2011–16 ACLD. These were:

- living in a different Statistical Area level 2 (SA2) in 2016 compared with 1 year previous (that is, moved to a different SA2 within the past year)
- living in a different IREG (ABS 2016) compared with 5 years previous.

These 2 variables were both not statistically significantly associated with crowding in the logistic regression model (Table 9.1).

Analysis of movements from a given IREG in 2011 to any other IREG in 2016 using the 2011–16 ACLD showed little relationship to levels of crowding.

Cultural movements

Three variables, one in the 2011–16 ACLD and 2 in the 2018–19 NATSIHS, used as rough proxies for cultural movement, were:

- in the ACLD: whether a person was enumerated in the same Indigenous Location (ILO, a smaller unit of the ABS Indigenous-specific geography than an IREG) as their usual place of residence as an approximation of being ‘temporarily away from home’. Part of this is assumed to be associated (and correlated) with cultural reasons
- in the NATSIHS: whether the person identifies with a clan, tribe or language group or whether they recognise homelands as an approximation of connection to geographic cultural responsibilities.

Two of these variables were not statistically significantly associated with crowding in the logistic regression model results (Table 9.1). However, those who identified with a clan, tribe or language group had 1.9 times higher odds of living in a crowded household at a statistically significant level.

As the link between these proxy variables and cultural movements is only rough, it is difficult to draw conclusions. A further limitation of this analysis is that both the Census and NATSIHS count only usual residents in calculating crowding, so temporary visitors are not included in the estimates. This makes estimating the extent of crowding from cultural movements very difficult. Although in this analysis, these proxy variables were not important factors associated with crowding and only one was statistically significantly associated with crowding, it does not mean that direct measures of cultural movements would show similar results.

Other factors

The dot points below summarise the regression modelling results for other factors included in the analyses.

- Higher number of dependants living in the household (relative to 0–2 dependants) statistically significantly increases the odds of crowding. Moreover, the odds of crowding are substantially higher for households with 5 or more dependants compared with households with 3–4 dependants.
 - In the estimation based on the 2011–16 ACLD, compared with having 0–2 dependants living in the household, the odds of living in a crowded dwelling were 1.6 times as high in households with 3–4 dependants, and 5.1 times as high in households with 5 or more dependants.
 - In the estimation based on the 2018–19 NATSIHS, compared with having 0–2 dependants living in the household, the odds of living in a crowded dwelling were 2.7 times as high in households with 3–4 dependants, and 8.9 times as high in households with 5 or more dependants
- Area-level relative socioeconomic disadvantage was statistically significantly associated with living in a crowded household:
 - Living in less disadvantaged areas (IRSD deciles 5–10) was associated with 0.5 times lower odds of living in a crowded household than living in the most disadvantaged areas (IRSD decile 1).
- Remoteness was statistically significantly associated with living in a crowded household:
 - In the estimation with the 2011–16 ACLD, compared with living in a *Major city*:
 - the odds of living in a crowded dwelling were 1.3 times as high in *Remote* areas (and 2.5 times as high in *Very remote* areas)

- the odds of living in a crowded dwelling were no different for those living in *Outer regional* areas but were statistically significantly lower (0.87 times) for those who lived in an *Inner regional* area.
- In the estimation with the 2018–19 NATSIHS, compared with living in a *Major city*:
 - the odds of living in a crowded dwelling were 4.0 times as high in *Very remote* areas and 1.5 times as high in *Remote* areas
 - the odds of living in a crowded dwelling were also 1.6 times as high for those living in *Outer regional* areas but were statistically significantly lower (0.6 times) for those who lived in an *Inner regional* area).
- Living in crowded dwellings in 2011 (compared with those who lived in an adequately sized dwelling in 2011) was associated with 3.5 times higher odds of living in a crowded dwelling in 2016 (available in ACLD only). This indicates a high degree of persistence of crowded living over time for a large part of the First Nations population.

9.4.2 Random forest analysis

The variable importance ranking is derived from a random forest model and carried out with 2 alternative methods, as explained in the Appendix A. These results are presented in Figure 9.9 and discussed in detail in this section.

Variable importance rankings varied across the analyses of the 2 datasets. Living in crowded dwellings in 2011 (as a control variable for modelling the risk of living in a crowded dwelling in 2016) was of high importance as it was in the most important variable ranking group in the analyses based on the ACLD. A similar variable was not available in the NATSIHS data set as that is a single cross-section survey. Equivalised household income also ranked among the variables of highest importance (second highest important group based on Method A and highest importance group based on Method B). The number of dependants ranked as being of moderately high importance (in the second most important group out of 4 across both methods).

In the analysis based on NATSIHS, number of dependents in the household ranked as the most important variable across both methods (out of 4 or 5 groups), while remoteness appeared in the second most important group across both methods.

The relative importance ranking of housing affordability variables (Figure 9.9) showed:

- *equivalised household income was of moderately high importance* – it was in the first or second most important group in the ACLD and in the third or fifth group in the NATSIHS
- *labour force status was of moderately low importance* – it was in the third or fourth most important group in the ACLD (out of 4 groups), so was of lesser importance than equivalised household income – but is not unimportant. In the NATSIHS, labour force status was in the second or fifth group. (Note that the importance of labour force status may be masked by its correlation with equivalised household income.)
- *SEIFA IRSD decile was of low to moderately low importance* – it was in the second least important group in the NATSIHS.

Living in social housing in 2016 was in the third most important group (out of 4); thus, social housing can be interpreted as being of moderately low importance in explaining crowding (Figure 9.9).

The 2 variables measuring population changes were both of low importance (in the least important group) in the variable importance ranking.

The 3 variables measuring cultural movements were of low importance (in the least or second least important group) in the respective variable importance analyses.

Figure 9.9: Relative importance groupings of variables predicting living in crowded housing, ACLD and NATSIHS analyses

2011–16 ACLD		2018–19 NATSIHS		
Method A	Method B	Method A	Method B	
Living in crowded household in 2011	Equivalised household income	Number of dependants in household	Number of dependants in household	More important
Equivalised household income	Living in crowded household in 2011	Remoteness	Age	
Number of dependants in household	Number of dependants in household	State	Labour force status	
Remoteness			Remoteness	
State	Living in social housing in 2016	No. of major dwelling structural issues SEIFA	State	
Age	Age	Age	Disability status	
Labour force status	Different ILOC enumeration versus usual residence	Disability status	Dwelling is of acceptable standard	
Living in social housing in 2016	Different IREG from 2011	Dwelling is of acceptable standard	Equivalised household income	
	Different SA2 from 1 year previous	Equivalised household income	Highest education	
	Labour force status	Highest education	Housing tenure type	
	Remoteness	Housing tenure type	Identifies with a clan, tribe or language group	
	Sex	Identifies with a clan, tribe or language group	No. of major dwelling structural issues	
	State	Labour force status	Recognises homelands	
		Mental health diagnosis	Removal self/relatives from family	
Different ILOC enumeration versus usual residence		Recognises homelands	SEIFA	Less important
Different IREG from 2011		Removal self/relatives from family		
Different SA2 from 1 year previous		Sex		
Sex				

ILOC = Indigenous location; SA2 = Statistical Area level 2.

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017;). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: AIHW analysis of 2011–16 ACLD and 2018–19 NATSIHS.

9.5 Policy implications

Outcome 9 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander people being able to secure appropriate, affordable housing aligned with their priorities and needs. The target associated with this outcome is to increase the proportion of Aboriginal and Torres Strait Islander people living in appropriately sized (not crowded) housing to 88% by 2031, from a 2016 baseline of 79%.

The proportion of First Nations people and First Nations households living in appropriately sized (not crowded) housing increased steadily between 1996 and 2021. Results from the 2021 Census show that 81% of First Nations people (or 569,000 based on a total Census count of 699,000 First Nations people) were living in appropriately sized housing – a slight increase from 79% in 2016.

The 2031 national target of 88% of First Nations people living in appropriately sized housing had already been met by 2021 in 3 jurisdictions (Victoria, Tasmania and the Australian Capital Territory), but the Northern Territory proportion (43%) is considerably behind the target.

The target was close to being met in 2021 in *Major cities* (about 88%), *Inner regional* areas (87%) and *Outer regional* areas (82.0%), but in *Remote* (68.0%) and *Very remote* areas (45.0%) the proportions of First Nations people living in appropriately sized housing were lower.

Main factors that explain crowding

The outcomes of the logistic regression models estimated in this chapter suggest that the odds of living in a crowded dwelling are statistically significantly higher for First Nations people:

- living in households with more dependants compared to households with 0–2 dependants
- living in relatively remote areas
- living in specific states and territories such as the Northern Territory
- with a history of having previously lived in crowded households – suggesting a high degree of persistence in crowded living
- who are unemployed or not in the labour force
- with lower equivalised household income (<\$300 per week)
- living in the areas in the lowest SEIFA IRSD decile
- living in social housing
- who identify with a clan, tribe or language group.

The rough proxy variables used to estimate population movements and cultural movements were not found as statistically significant factors in the primary data analyses of this chapter, except for those who identify with a clan, tribe or language group being significantly associated with crowding. However, this is only a very rough proxy for cultural movements, so it is difficult to draw conclusions. Estimating the extent of crowding from cultural movements is difficult because both the Census and NATSIHS only count usual residents in the calculation of crowding. Therefore, temporary visitors are not included in the estimates. More direct measures of cultural movements and estimates that include temporary visitors are needed to determine the association between cultural movements and crowding.

The most important factors associated with crowding were:

- the number of dependants in the households
- previously living in a crowded household
- remoteness.

Housing affordability and availability, proxied by equivalised household income, was of moderately high importance while labour force status was of moderately low importance, and education had low importance.

Strategies for meeting the housing target

If the factors associated with this target continue to improve at the current rate, the national target is likely to be met or very close to being met by 2031. As the target has already been met in some areas, efforts to improve access to appropriately sized housing could focus on areas where crowding is highest, in particular the Northern Territory. Although the target was close to being met in New South Wales and Queensland, because of their large population, the number of First Nations people living in crowded dwellings was still high: 30,500 and 38,200, respectively.

Strategies focused on social housing

The 2021 Census data show a higher level of crowding in social housing dwellings, with 37% of First Nations people in public housing and 43% of First Nations people in community housing living in crowded conditions, compared with less than 12% of First Nations home owners. Based on the AIHW National Housing Assistance Data Repository, the number of social housing dwellings (public housing, SOMIH, community housing and Indigenous community housing) allocated to First Nations households has increased steadily, from around 58,200 households in 2009 to 79,500 in 2022 (an increase of 37%).

As those living in social housing had statistically significantly higher odds of crowding, efforts to improve access to appropriately sized housing could focus on continuing to increase the number of social housing dwellings available to First Nations people. A review of the National Partnership Agreement on Remote Indigenous Housing (NPARIH), which was replaced by the Remote Housing Strategy in 2016, reported that between 2008 and 2018, these initiatives resulted in 4,000 new houses and 7,500 refurbishments. The authors estimated that this led to a decrease in the proportion of crowded households in *Remote and very remote* areas from 51% in 2008 to 41% in 2014–15, based on National Aboriginal and Torres Strait Islander Social Survey data (PM and C 2017). Foster and Hall (2021) reported that in 13 communities in the Northern Territory that received at least 10 new dwellings under the NPARIH, there was a decrease of 7–35% in the number or people per household between 2006 and 2016.

It is also important that the social housing stock includes dwellings that are the appropriate size for multi-family households, and households with several dependent children, as random forest modelling showed that the number of dependent children was one of the most important factors associated with crowding.

Programs such as Housing for Health, which makes safety and ‘health hardware’ repairs, reduce the negative impact of crowding and ensure existing dwellings are still tenable, therefore reducing crowding by maintaining the existing social housing stock (Pholeros 2010).

Other strategies

Equivalised household income was found to be of moderately high importance in explaining levels of crowding, indicating that housing and rental affordability are other key areas to focus on. Biddle (2012) suggested that improving household income or providing targeted assistance to First Nations people would be helpful in improving access to existing housing stock and improving overcrowding in urban areas. Meanwhile, to improve overcrowding in regional and remote areas, additional housing stock is required. The review of the NPARIH also noted that planning was required to ensure that adequate land and infrastructure are available in remote areas to support new dwellings (PM and C 2017).

The Australian governments also have a number of broader policies to assist people to avoid homelessness and people experiencing homelessness, as well as a range of interventions to increase housing supply, and improve housing availability and affordability (AIHW 2023c).

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Criminal justice

10

Summary

Target

The target associated with Outcome 10 in the 2020 National Agreement is to reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15% from a 2019 baseline rate of around 2,142 per 100,000 adult population to around 1,821 per 100,000 adult population by 2031.

Background

- The Royal Commission into Aboriginal Deaths in Custody recognised that the fundamental causes for the over-representation of Aboriginal and Torres Strait Islander (First Nations) people in custody are not factors associated completely within the criminal justice system, but are symptomatic of the broader social and economic inequality faced by First Nations people.
- Imprisonment exacerbates existing social and economic inequalities and affects family, children and the broader community – and can have intergenerational effects. This cycle can lead to the normalisation of incarceration, where prison no longer acts as a deterrent but instead becomes an inevitable part of life.
- There are a wide range of socioeconomic, health and cultural factors associated with high rates of offending and imprisonment among First Nations people. These include:
 - early school leaving, low school performance, and low educational attainment
 - high rates of unemployment and low-quality employment
 - a lack of secure accommodation
 - hearing impairment, cognitive impairment/disability or mental and physical illness
 - risky use of alcohol and illicit drugs
 - the trauma associated with colonisation, being a member of the Stolen Generations, and the forced removal of First Nations children
 - a greater risk of being neglected or abused, and being a victim of family violence for children, young people and women.
- Strong attachment to culture is a protective factor and is associated with a reduced probability of being arrested or re-offending.
- First Nations over-representation exists at all stages of the criminal justice system. In 2016, First Nations people were 7 times as likely as non-Indigenous Australians to be charged with a criminal offence and appear before the courts, 11 times as likely to be held in prison on remand awaiting trial or sentence, and 12.5 times as likely to receive a sentence of imprisonment.

Current status

- Nationally, the age-standardised adult imprisonment rate (ASAIR, measured as per 100,000 adult population) for First Nations adults in 2022 was around 2,200, over 14 times as high as the non-Indigenous ASAIR (150).
- Despite falls for a few years in between, the First Nations ASAIR rose from around 1,300 in 2006. Over the same period, the non-Indigenous ASAIR rose from around 130 to 150 – a much lower increase than for the First Nations ASAIR. This is reflected in the increase in the First Nations to non-Indigenous ASAIR ratio (rate ratio), from 10 in 2006 to 14 in 2022.
- The national target is not on track to be met by 2031.

- In 2022, Tasmania (around 680), the Australian Capital Territory (around 1,500) and Victoria (around 1,600) had lower ASAIR than the 2031 national target of around 1,821. New South Wales (around 1,900), Queensland (around 2,000) had an ASAIR higher than the national 2031 target, though lower than the national ASAIR in 2022 (around 2,200). South Australia (around 2,500), the Northern Territory (around 2,800) and Western Australia (around 3,200) had ASAIR higher than the national 2031 target and the national ASAIR in 2022 (around 2,200).
- Between 2019 and 2022, the First Nations ASAIR fell in Victoria, Western Australia, Tasmania and the Australian Capital Territory, rose in Queensland, South Australia and the Northern Territory, and remained unchanged in New South Wales.
- The ASAIR for First Nations men (around 3,900) was 10 times as high as the ASAIR for First Nations women (around 385).
- The rate of imprisonment among First Nations adults increased with each successive age group, from about 980 among 18-year-olds to around 4,300 for those aged 35–39; it then declined gradually to around 145 for those aged 65 and over.
- As at 30 June 2022, 78% of First Nations and 52% of non-Indigenous adults in prison had a prior imprisonment under a sentence in an adult prison. The highest proportion (91%) of First Nations adults in prison with prior imprisonment had a current most serious offence/charge of ‘offences against justice’. This charge relates to offences against justice procedures, government security and government operations.

Key findings

- Regression analysis outcomes indicate that the odds of incarceration among First Nations adults were statistically significantly higher for First Nations males, and for those who:
 - were relatively younger (aged 23–32 and 33–42)
 - did not attain at least a year 12 or equivalent educational qualification
 - had experienced removal from their natural family
 - lived in crowded households
 - lived in a single-parent family or other families (compared with those living in couple families)
 - lived in Western Australia, South Australia or the Northern Territory (compared with living in New South Wales).

Key factors

- Factors increasing the risk of imprisonment found in the literature review and analysis in this chapter included a range of modifiable factors, such as education, employment, housing, removal from family, living in a single-parent family, experience of physical harm, physical and mental health, financial stress, alcohol and drug use, and adverse childhood experiences. Many of these factors are the outcomes of other Closing the Gap targets; progress towards these relevant targets will also help to reduce imprisonment rates for First Nations adults.
- The Australian Government funded the evaluations of programs designed to reduce the rates of offending for First Nations Australians, incarceration and recidivism. These evaluations identified elements of programs that were good practice and well managed, including the following:

- First Nations courts and conferences provide a more culturally appropriate and inclusive process and encompass the wider circumstances of offenders and victims, and may contribute to reducing recidivism.
- Community participation in supporting offenders' re-integration post-release and in preventing re-offending has brought ownership of the justice process and improved accountability and support for offenders.
- Effective service coordination and partnerships with allied services can assist offenders to navigate the complex justice system and access the services they need.
- The Australian Law Reform Commission has recommended the availability and flexibility of community-based sentencing options to prevent First Nations Australians returning to the justice system.
- Programs to improve education and employment-related skills for those within the prison system could contribute to reducing re-offending.
- To reduce the higher risk of imprisonment among those removed from family or having a relative removed from family, healing programs are essential.
- Other efforts to reduce the over-representation of First Nations Australians in the criminal justice system include:
 - maternal health, parenting skills and family-based programs
 - holistic intensive programs for First Nations young people in out-of-home care
 - actions targeting those at high risk of offending
 - therapeutic and holistic support to attend to criminogenic needs
 - programs targeting aggression and problem sexual behaviour
 - prison-based rehabilitative programs, including prison services for people with a cognitive disability
 - prisoner through-care programs, including employment-focused re-entry programs
 - access to appropriate legal services (ALRC 2017)
 - early intervention, prevention, justice reinvestment and diversion initiatives (PricewaterhouseCoopers 2017).

10.1 Introduction

Outcome 10 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander adults not being over-represented in the criminal justice system.

The target associated with this outcome is to reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15%, from a 2019 baseline rate of around 2,142 per 100,000 adult population to around 1,821 per 100,000 adult population by 2031.

Outcome	Aboriginal and Torres Strait Islander people are not over-represented in the criminal justice system.
Target	By 2031, reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15%.
Indicator	Age-standardised imprisonment rate (per 100,000 adult population).
Measure	The measure is defined as: <i>Numerator</i> – number of Aboriginal and Torres Strait Islander people aged 18 or over in the legal custody of adult corrective services as at 30 June <i>Denominator</i> – number of Aboriginal and Torres Strait Islander people aged 18 or over as at 30 June and is presented as an age-standardised rate (per 100,000 adults).

The term 'First Nations adults' is used throughout this chapter to refer to Aboriginal and Torres Strait Islander people aged 18 or over.

For this target, both crude and age-standardised imprisonment rates (per 100,000 adult population) for First Nations adults are presented. Following the Australian Bureau of Statistics (ABS) methodology (ABS 2021), crude imprisonment rates measure the actual rates of imprisonment and are not adjusted for any differences in population structures that may influence the rates. Age-standardised imprisonment rates are derived from the crude imprisonment rates and account for differences in age structure between First Nations and non-Indigenous adult populations. Throughout this chapter, the age-standardised adult imprisonment rate (per 100,000 adults) is referred to as the ASAIR. To compare the differences in the imprisonment rates of First Nations and non-Indigenous adults, their respective ASAIRs are usually presented as a rate ratio. See Glossary for more details.

The main data source used for reporting trends on First Nations and non-Indigenous adult imprisonment is the National Prisoner Census, published by the ABS (ABS 2023). Most of the terminology in this chapter is directly adopted from the Glossary of that census (and included in the Glossary of this chapter).

The 2014–15 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) is the most recent available survey that captures Australia-wide information on First Nations adults' contact with the justice system and experience of incarceration. The survey collects data not only on whether or not the respondent has ever been in prison but also on whether or not the respondent had been in prison during the last 5 years before the survey. Data from the years 2014–2015 and the 5 years before the survey are the only available unit record data source that can be used to model the factors associated with First Nations adult imprisonment. (See the 2014–15 NATSISS questionnaires for definitions and detailed descriptions of the variables used in the analysis (ABS 2016)).

The structure of the rest of this chapter is as follows:

- Section 10.2 outlines the current picture and time trends of First Nations incarceration rates at the national, state and territory levels, disaggregated by demographic characteristics and other target indicators.
- Section 10.3 discusses the broad findings of the literature review.
- Section 10.4 presents the results from the regression modelling of the factors associated with adult incarceration, based on the 2014–15 NATSISS, where key factors are identified and ranked based on their relative importance.
- The chapter concludes with summary and discussion of policy implications in Section 10.5.

10.2 Criminal justice target: current picture and time trends

10.2.1 National

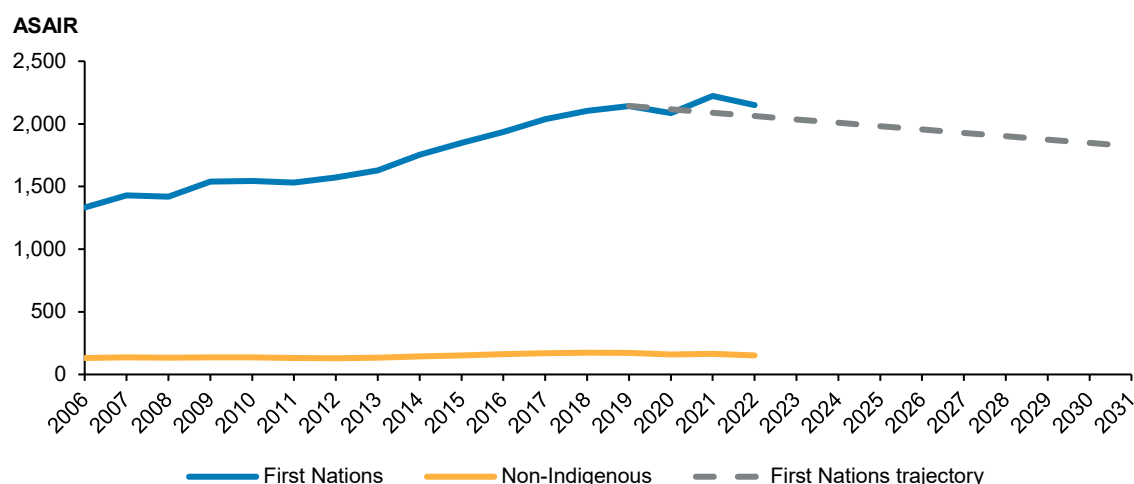
Based on the 2021 Census, the First Nations population aged 18 and over represented around 3% of the total Australian adult population (ABS 2021); as at 30 June 2022, First Nations people represented around 32% (12,902 out of 40,348) of all adults in prison in Australia (supplementary Table S10.1) (ABS 2023).

Nationally, the age-standardised adult imprisonment rate (ASAIR, measured as per 100,000 adult population) for First Nations adults was around 2,150 in 2022 – over 14 times as high as the non-Indigenous ASAIR (150) (Figure 10.1 Table S10.1). As Figure 10.1 shows, the First Nations ASAIR has fluctuated between the baseline year in 2019 and 2022. Despite decreases for a few years in between, it increased from around 1,300 in 2006. Over the same period, the non-Indigenous ASAIR increased from around 130 to 150 – a much lower increase than for the First Nations ASAIR. This is reflected in the increase in the First Nations to non-Indigenous ASAIR ratio (rate ratio) – from 10 in 2006 to 14 in 2022. The data in Figure 10.1 reveal that First Nations ASAIRs are growing faster than non-Indigenous ASAIRs and, also, that the gap between the 2 populations has increased since 2006.

In 2022, the First Nations ASAIR needed to be around 2,063 in order to meet its 2031 national target of 1,821 (Productivity Commission 2023). However, the observed rate of 2,150 in 2022 was higher, indicating that, as of 2022, the target is not on track to be met by 2031.

An imprisonment rate of 1,821 per 100,000 First Nations adults in 2031 would equate to about 13,800 First Nations adults, compared to an estimated 13,170 in 2022 (based on ABS [2011-to-2031] estimations and projections of First Nations population aged 18 and above for 2022 and 2031). This would represent 630 fewer First Nations adults in prison in 2031 compared to 2022. Or, the ASAIR would need to decrease on average by 37 per year among First Nations adults between 2022 and 2031.

Figure 10.1: Age-standardised adult imprisonment rate, by Indigenous status, 2006–2022



Note: ASAIR is the age-standardised adult imprisonment rate (people in prison per 100,000 adult population).

Sources: AIHW analysis of Table 42, *Prisoners in Australia 2021* (ABS 2021); ABS 2023.

10.2.2 State and territory

The ASAIRs vary substantially by state and territory (Figure 10.2; Table S10.2). In 2022, Tasmania had the lowest First Nations ASAIR (around 680), followed by the Australian Capital Territory (around 1,500) and Victoria (around 1,600). These 3 jurisdictions had lower ASAIRs than the 2031 national target of around 1,821. New South Wales (around 1,900) and Queensland (around 2,000) had an ASAIR higher than the 2031 national target, though lower than the national ASAIR in 2022 (around 2,200). South Australia (around 2,500), the Northern Territory (around 2,800) and Western Australia (around 3,200) had ASAIRs higher than the 2031 national target and the ASAIR in 2022 (around 2,200).

Between 2019 and 2022, the First Nations ASAIRs decreased in Victoria, Western Australia, Tasmania and the Australian Capital Territory; increased in Queensland, South Australia and the Northern Territory; and remained unchanged in New South Wales.

Figure 10.2: Adult imprisonment rate among First Nations people, by state and territory, 2022



Note: ASAIR is the age-standardised adult imprisonment rate (people in prison per 100,000 adult population).

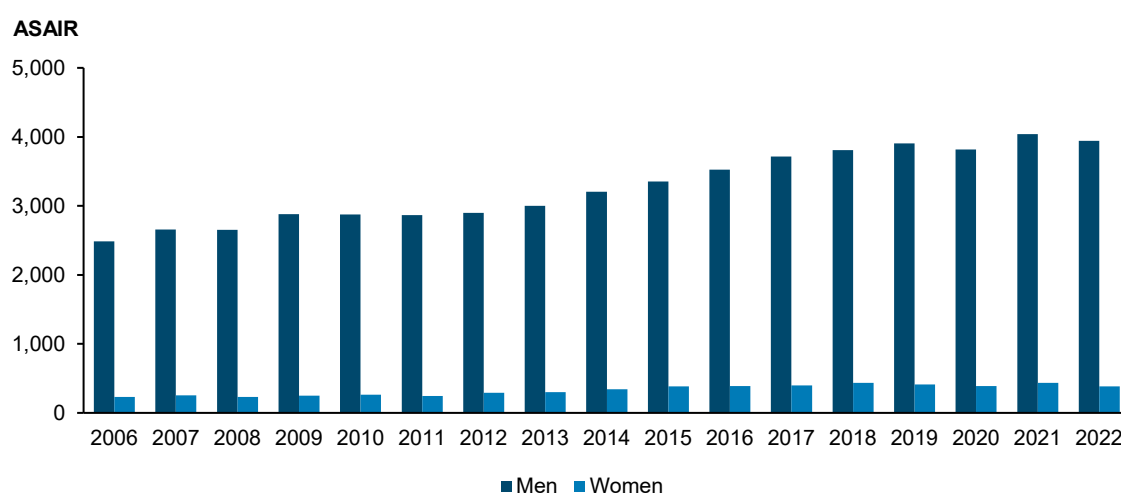
Source: ABS 2023.

10.2.3 Sex

As at 30 June 2022, of the total First Nations adults in prison, 91% (around 11,700) were men and 9.0% (around 1,200) were women (ABS 2023). The ASAIR for First Nations men (around 3,900) was 10 times as high as the ASAIR for First Nations women (around 385) (Figure 10.3; Table S10.3). Thus, the proportion in prison and imprisonment rates were much higher for First Nations men than for First Nations women.

The ASAIRs for First Nations men and women fluctuated between 2019 and 2022. Despite reductions for a few years between 2006 and 2022, First Nations ASAIRs increased for both sexes.

Figure 10.3: Age-standardised adult imprisonment rate among First Nations people, by sex, 2006–2022



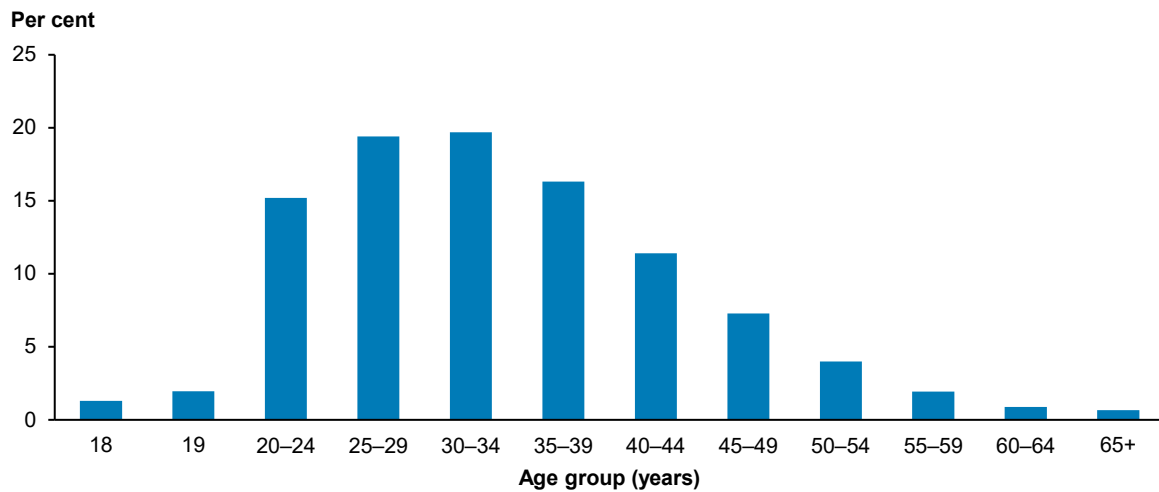
Note: ASAIR is the age-standardised adult imprisonment rate.

Sources: AIHW analysis of Table 42, *Prisoners in Australia* 2021 (ABS 2021); Productivity Commission 2023.

10.2.4 Age

As at 30 June 2022, the average (mean) age of First Nations adults in prison was 34, compared with 40 for non-Indigenous adults in prison. The median age for First Nations adults in prison (33) was lower than the median age for non-Indigenous adults in prison (37) (ABS 2023). Around 1 in 5 (20%) First Nations adults in prison were aged 30–34 and a further 19% were aged 25–29 (Figure 10.4; Table S10.4).

Figure 10.4: Distribution of First Nations adults in prison, by age group, 30 June 2022

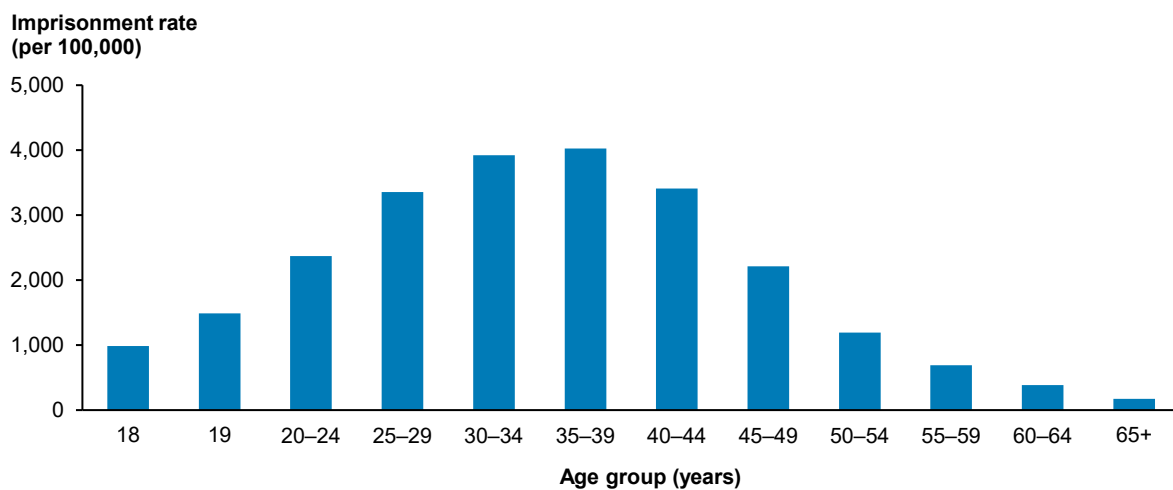


Note: Data by age group were available for around 12,900 First Nations adults in prison.

Source: AIHW analysis of ABS 2023.

The rate of imprisonment among First Nations adults increased with each successive age group, from about 980 among 18-year-olds to around 4,300 for those aged 35–39; it then declined gradually to around 145 for those aged 65 and over (Figure 10.5; Table S10.4).

Figure 10.5: Adult imprisonment rate among First Nations people, by age group, 30 June 2022



Note: Data by age group were available for around 12,900 First Nations adults in prison.

Source: AIHW analysis ABS 2023.

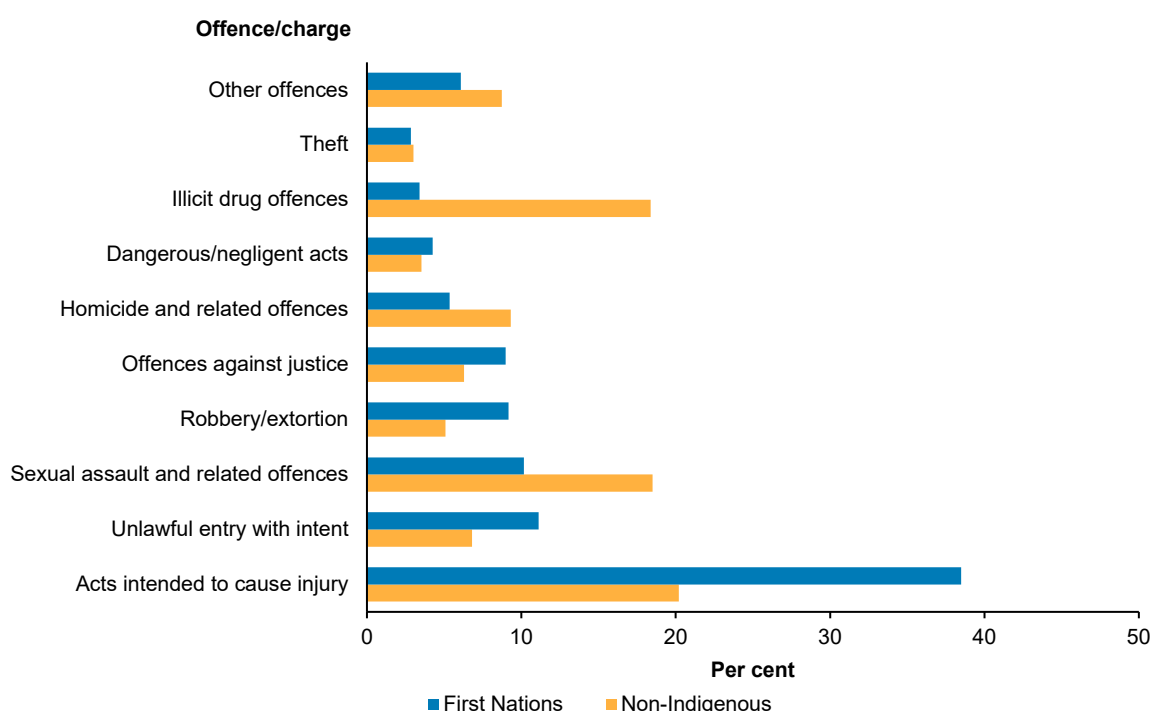
10.2.5 Most serious offences/charges

As at 30 June 2022, the most common charge among First Nations adults in prison was ‘acts intended to cause injury’ (38%), followed by ‘unlawful entry with intent’ (11%) (Figure 10.6; Table S10.5). The latter offence relates to the unlawful entry of a structure with the intent to commit an offence, where the entry is either forced or unforced. ‘Sexual assault and related offences’ was the third most common charge, recorded as the most serious charge for 10% of First Nations adults in prison. Together, these 3 types of offences contribute to around 60% of First Nations adult imprisonment.

Over two-thirds of First Nations adults in prison (70%) were incarcerated due to violence-related offences, and offences that cause harm – which include ‘acts intended to cause injury’, ‘unlawful entry with intent’, ‘sexual assault and related offences’, ‘homicide and related offences’, and dangerous/negligent acts.

While a higher proportion of First Nations people in prison were charged with offences such as ‘acts intended to cause injury’, ‘unlawful entry with intent’, ‘offences against justice’ and ‘robbery and extortion’ than non-Indigenous people in prison, the proportion of First Nations people in prison charged for offences such as ‘sexual assault and related offences’, ‘illicit drug offences’, ‘homicide and related offences’ and ‘other offences’ was lower than that for non-Indigenous people in prison.

Figure 10.6: Proportion of adults in prison, by most serious offence/charge and Indigenous status, 30 June 2022



Notes

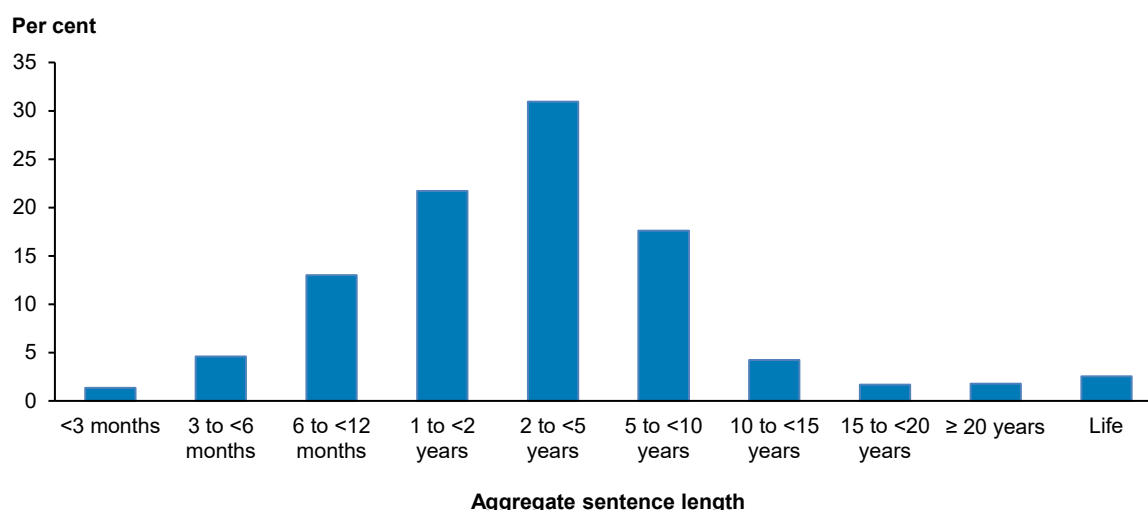
1. The proportions are based on around 12,900 First Nations and around 27,400 non-Indigenous adults in prison. The total number of people in prison excludes those with a post-sentence detention order or for whom a most serious offence/charge is unknown. Even after including people in prison with a post-sentence detention order or for whom a most serious offence/charge is unknown, proportions do not differ much (0.1 percentage points lower).
2. ‘Other offences’ include abduction/harassment, fraud/deception, weapons/explosives, property damage and environmental pollution, public order offences, traffic and vehicle regulatory offences, miscellaneous offences (all under 1.5% for First Nations and 2.1% for non-Indigenous).

Source: AIHW analysis of ABS 2023.

10.2.6 Legal status and aggregate sentence length

As at 30 June 2022, 61% (around 7,900) of the First Nations adults in prison were sentenced (ABS 2023): one-half for less than 2.5 years (median aggregate sentence length) and just over one-quarter (28%) for 5 years and more (Figure 10.7; Table S10.6).

Figure 10.7: Proportion of First Nations adults in prison, by aggregate sentence length, 30 June 2022



Notes

1. The proportions are based on around 7,900 First Nations adults in prison who were sentenced. The total number of people in prison includes those for whom sentence length is unknown.
2. The sentence length type 'Other' refers to other indeterminate sentences and was excluded from this figure due to very small (0.5%) proportions. Therefore, these proportions shown in the figure may not add up to 100%.
3. Life includes indeterminate life and life with a minimum. The people in prison with indeterminate and life with minimum sentences were excluded from the aggregate sentence length calculations.

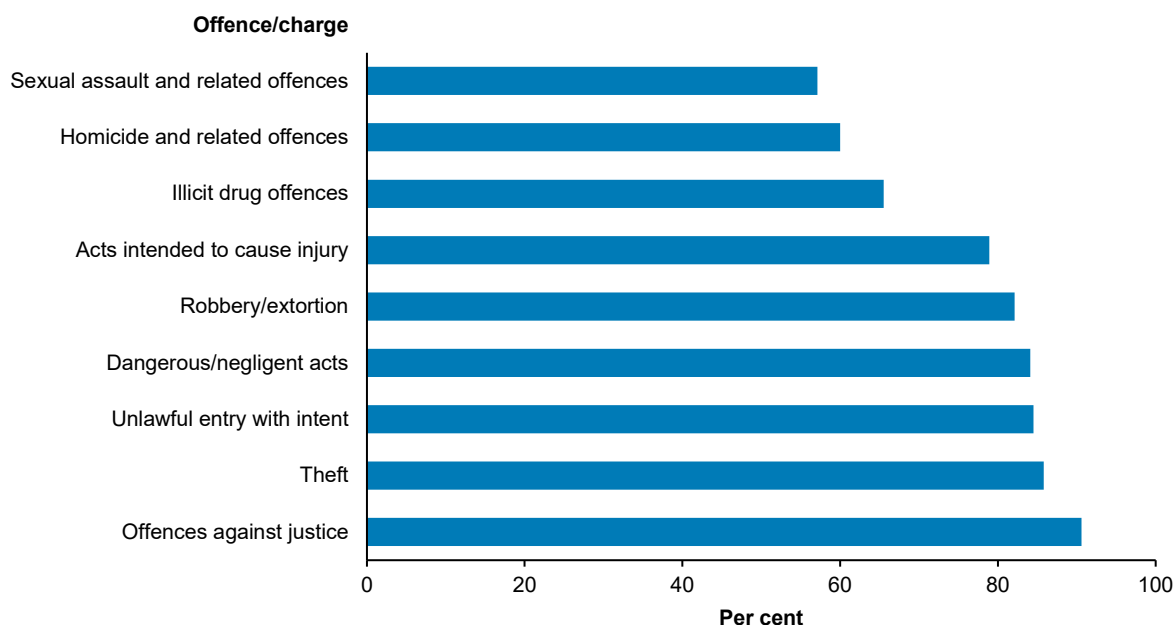
Source: AIHW analysis of ABS 2023.

10.2.7 Prior imprisonment

As at 30 June 2022, 78% of First Nations and 52% of non-Indigenous adults in prison had a prior imprisonment under a sentence in an adult prison (ABS 2023).

Figure 10.8 and Table S10.7 present the proportion of First Nations people in prison with a history of prior imprisonment, by selected most serious offences/charges. The offences/charges in the previous imprisonment are unknown. The highest proportion (91%) of First Nations adults in prison with prior imprisonment had a current most serious offence/charge of 'offences against justice'. This charge relates to offences against justice procedures, government security and government operations. First Nations people in prison charged with 'theft' and 'unlawful entry with intent' also had high levels of prior imprisonment – 86% and 85%, respectively.

Figure 10.8: Proportion of First Nations adults in prison with prior imprisonment, by selected current most serious offence/charge, 30 June 2022



Notes

1. The percentages include people in prison serving post-sentence detention orders.
2. The proportions are computed for each of the current most serious offence/charges, and therefore should be interpreted as a percentage of adults in prison with prior imprisonment in a specific offence/charge.

Source: ABS 2023.

10.3 Literature review

10.3.1 First Nations people and the justice system

The purpose of Target 10 – by 2031, reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15% – is to make progress towards abolishing the over-representation of First Nations people in the criminal justice system (Outcome 10 of the 2023 Commonwealth Closing the Gap Implementation Plan).

This over-representation of First Nations people in prison and the disproportionate rate of incarceration among them has long been reported. In 1988, First Nations people were 29 times as likely to be in police cell custody as non-Indigenous Australians (RCIADIC 1991). In 2016, compared with non-Indigenous Australians, First Nations people were:

- 7 times as likely to be charged with a criminal offence and appear before the courts
- 11 times as likely to be held in prison on remand awaiting trial or sentence
- 12.5 times as likely to receive a sentence of imprisonment (ALRC 2017).

Recent literature confirms that First Nations people were more likely to be questioned, arrested and convicted than non-Indigenous Australians (Harrison and Trownson 2021; Martin 2018) and that First Nations over-representation exists at all stages of the criminal justice system (ALRC 2017).

First Nations people come into contact with the criminal justice system at younger ages than non-Indigenous Australians, with their over-representation greater for offences that are more

likely to lead to imprisonment (Productivity Commission 2016). The Royal Commission into Aboriginal Deaths in Custody recognised that the fundamental causes for the over-representation of First Nations people in custody are not factors associated completely within the criminal justice system but are symptomatic of the broader social and economic inequality that First Nations people face.

Findings of the *Pathways to Justice* report

The 2017 Australian Law Reform Commission report *Pathways to Justice* – inquiry into the incarceration rate of Aboriginal and Torres Strait Islander people (ALRC 2017) presented a detailed analysis and recommendations on how education and employment, health and disability, housing and homelessness, and child protection and youth justice determine disproportionate incarceration rates of First Nations people in social and historical contexts. The report emphasised that implementation of the recommendations was expected to:

- promote substantive equality before the law
- promote fairer enforcement of the law and fairer application of legal frameworks
- reduce the disproportionate rate of incarceration and improve community safety
- reduce recidivism by providing effective diversion, support and rehabilitation programs
- promote justice reinvestment by redirecting resources from incarceration to prevention, rehabilitation and support (ALRC 2017).

Together, these measures were expected to reduce re-offending and the long-term economic and social cost of First Nations incarceration. Reduced First Nations incarceration and greater support for those in contact with the criminal justice system was expected, in turn, to improve health, social and economic outcomes for First Nations people.

Factors associated with incarceration among First Nations people

Identifying factors associated with First Nations incarceration is a complex task as factors associated with imprisonment cover a range of individual, household, community, law, justice and societal characteristics within different contexts; there are also substantial interactions among these factors.

The 1991 Royal Commission into Aboriginal Deaths in Custody (RCIADIC 1991) concluded that the disadvantaged and unequal position of First Nations people in the wider Australian society is the most important driver of their conflict with the criminal justice system. Since then, a large body of theoretical and empirical literature has focused on studying contributing factors to offending behaviour and imprisonment, and the resulting over-representation of First Nations people.

Theoretical literature on contact with criminal justice has identified plausible explanations that help in understanding the disproportionate nature of First Nations contact with the justice system relative to the non-Indigenous population (Weatherburn 2014). Weatherburn (2014) reviewed 4 theoretical explanations:

- cultural/conflict theory which highlights normative differences or clashes between 2 groups
- social disorganisation theory, which deals with the effects of colonisation and First Nations social norms
- strain/social opportunity theory, which explains through socioeconomic disadvantages
- lifestyle theory, which attributes offences by First Nations people to lifestyle factors, such as drug and alcohol consumption, and long-term reliance on income support.

Contributing factors

Empirical literature indicates that there are a wide range of socioeconomic, health and cultural factors associated with high rates of offending and imprisonment among First Nations people. These include those discussed below:

- *Adverse childhood experiences:* Experience of maltreatment (physical, emotional and psychological abuse, neglect, sexual abuse and witnessing family violence) during childhood has serious and long-term effects on social and emotional wellbeing and health. Children and young people who have been abused or neglected are at greater risk of engaging in criminal activity and of entering the youth justice system (AIHW 2022, 2023).
- *Alcohol and illicit drug use:* Higher frequency and larger quantity of alcohol and illicit drug use (Butler et al. 2003; Hall et al. 1994; Weatherburn 2008; Weatherburn et al. 2006) are associated with increased criminal activities, violence, family breakdown, child abuse and neglect, and foetal alcohol spectrum disorder (ALRC 2017; Chikritzhs and Brady 2006; Morgan et al. 2022; Productivity Commission 2016; Weatherburn 2014), increasing the likelihood of contact with the justice system. Butler and colleagues (2003) found that over one-quarter of First Nations people surveyed in New South Wales prisons were intoxicated at the time of the offence that led to their imprisonment. In 2022, over one-half (56%) of First Nations prison entrants were considered to be at high risk of alcohol-related harm and 71% used illicit drugs in the previous 12 months (AIHW 2023).
- *Criminal justice system:* A large body of literature highlights the role of 'structural bias' or 'systemic discrimination' that a First Nations person faces at various points in Australia's justice system (ALRC 2017; Senate Finance and Public Administration References Committee (2016). For example, First Nations people are:
 - more likely to be questioned by police, charged with a criminal offence, arrested, and appear before the courts than non-Indigenous Australians. However, Weatherburn et al. (2024) note that it would be a mistake to assume that the high rate of First Nations arrest is indicative of high rate of offending. They add that the evidence indicates that First Nations Australians are more likely to be arrested and detained than non-Indigenous Australian for similar offences.
 - less likely to be diverted from the justice system than non-Indigenous people who had committed the same type of offence, with the same number of prior contacts and the same history of custody (ALRC 2017; Harrison and Trounson 2021; Martin 2018; Snowball 2008)
 - more likely to be imprisoned for minor offences, such as abusive language and unpaid fines (Black and Trounson 2019)
 - less likely to be granted bail even after controlling for several other factors (ALRC 2017; Gelb and Ritchie 2013)
 - more likely to serve sentences often leading to an ineligibility to access rehabilitation or mental health programs, and less likely to be eligible for assisted re-integration into the community after serving short sentences (AIHW 2021).
- *Education:* Early school leaving, low educational attainment, and low school performance are positively associated with subsequent entry into the criminal justice system (ALRC 2017; Baker 1998; National Crime Prevention 1999). In 2022, just under one-quarter (24%) of First Nations prison entrants reported their highest level of completed schooling as year 8 or below.
- *Family violence:* The Australian Law Reform Commission report (ALRC 2017) indicates that the majority of First Nations women in prison have experienced physical and sexual

abuse and family violence, and it calls for actions to deal with family violence among First Nations communities – specifically, to reduce and, ultimately, prevent it.

- *Income and financial stress:* First Nations people who are unemployed, had lack of adequate income and/or had long-term reliance on income support are more likely to be involved in crime and resulting incarceration (ALRC 2017; Weatherburn 2014).
- *Intergenerational trauma:* The trauma associated with colonisation, being a member of the Stolen Generations, and the forced removal of First Nations children increases the risk of arrests and over-representation of First Nations people in the Australian prison system (Cunneen et al. 2013; McCallum 2022; Walters 2011; Weatherburn 2014). The colonisation of Aboriginal and Torres Strait Islander land and the (ongoing) oppressive practices that followed have resulted in a legacy of unresolved intergenerational trauma for Indigenous Australians. The experience of unresolved historical trauma is a risk factor for re-traumatisation, and the cumulative effect of trauma-on-trauma can manifest itself through other risk factors, such as family violence, incarceration, substance misuse and self-harm (McCallum 2022). This trauma can be passed between generations, both vicariously and through prolonged exposure to stressors, leading to a cycle of trauma that is not dealt with (AIHW 2023).
- *Physical and mental health:* Hearing impairment, cognitive impairment/disability or mental and physical illness are common factors associated with imprisonment among First Nations people (AMA 2015; ALRC 2017; Shepherd et al. 2017). A study on Victorian prisoners found that First Nations people in prison with a cognitive disability had offended earlier, had committed more offences, and were more likely to re-offend than First Nations people in prison without a cognitive disability (Shepherd et al. 2017). In 2022, 42% of First Nations prison entrants reported being told that they had a mental health condition at some stage in their lives (AIHW 2023).
- *Recidivism:* In 2022, almost 2 in 5 (39%) First Nations entrants had been in prison at least 5 times before (AIHW 2023). First Nations people are more likely than non-Indigenous people to cycle in and out of prison (Brolan and Harley 2018) and to have additional contact with the justice system. Further, First Nations people in prison are more likely to have served a prior prison sentence (Allard 2010). Imprisonment worsens existing social and economic inequality and affects family, children and the broader community; as well, it can have intergenerational effects. This cycle can lead to the normalisation of incarceration where prison no longer acts as a deterrent but instead becomes an inevitable part of life (Brown 2010). The higher rates of incarceration among First Nations people compared with non-Indigenous Australians are strongly attributed to higher rates of recidivism (Ryan et al. 2022; Wundersitz 2010).
- *Remoteness:* First Nations people living in remote areas had higher rates of arrest, being charged by police and incarceration than First Nations people living in non-remote areas (Queensland Productivity Commission 2019). Taylor and colleagues (2018) estimated that, for remote communities in the Northern Territory, between 4% and 14% of men aged 20–39 were away from their community in prison at any given point in time. However, in a more recent study based on survey and linked administrative data for around 1,200 prisoners, Ryan and colleagues (2022) found no relationship between remoteness and reincarceration for either First Nations or non-Indigenous Australians.
- *Unemployment:* High rates of unemployment (AIHW 2023) and low-quality employment (Hunter 2001; Weatherburn 2014) are associated with imprisonment. In 2022, over one-half (57%) of First Nations prison entrants reported being unemployed in the 30 days before entering prison (AIHW 2023).

- *Unstable housing/homelessness*: A higher rate of First Nations incarceration and recidivism were found to be associated with inadequate housing conditions (ALRC 2017). In 2022, over one-half (54%) of First Nations prison entrants experienced homelessness in the 4 weeks before imprisonment – 9.8% in sleeping rough and 46% in short-term or emergency accommodation (AIHW 2023). A lack of secure accommodation is also suggested to be a major barrier, discouraging First Nations people in prison from applying for bail, which leads, in turn, to higher rates of people on remand (ALRC 2017; Bartels 2019; Sanderson et al. 2011).
- *Other factors*: These other factors were also noted in the literature: family dissolution and dysfunction, youth boredom and peer delinquency (ALRC 2017; Douglas and Fitzgerald 2018; Harrison and Trounson 2021; Shepherd et al. 2017; Shepherd et al. 2020; RCIADIC 1991; Weatherburn 2014) as well as language and cultural barriers (Douglas and Fitzgerald 2018; Sanderson et al. 2011).

Studies have found that a strong attachment to culture is a protective factor and is associated with a reduced probability of being arrested or re-offending (Productivity Commission 2020).

Key risk factors for First Nations offending

While several risk factors play major roles, Weatherburn (2014) listed 4 key risk factors for First Nations offending: exposure to child neglect, school attendance and performance, unemployment, and drug and/or alcohol use. ALRC (2017) added additional drivers of disproportionate First Nations incarceration: children's history of contact with the juvenile justice system; children's lived experiences (related to out-of-home care and child neglect, as identified by Weatherburn (2014)); physical and mental illness; cognitive impairment; and experiences of physical and sexual abuse.

Based on previous studies, Weatherburn (2014) conceptualised a 'vicious cycle' involving key risk factors: parents exposed to financial or personal stress, or who use drugs and alcohol, are more likely to abuse or neglect their children. Neglected or abused children are more likely to associate with delinquent peers and have low school performance. Low school performance increases the risk of unemployment, which, in turn, increases the risk of involvement in crime. Involvement in crime increases the risk of arrest and imprisonment, both of which reduce the chances of legitimate employment, while at the same time increasing the risk of drug and alcohol use.

To break this 'vicious cycle', Weatherburn (2014) suggested 2 broad strategies:

- firstly, to change the way the criminal justice system responds to First Nations offending (such as a focus on programs that reduce the return of First Nations offenders convicted of violent, property and justice procedure offences)
- secondly, to change the factors/conditions responsible for increases in First Nations people offending (such as reducing First Nations child abuse and neglect, reducing alcohol and illicit drug use, and increasing school performance and employment opportunities).

10.3.2 Empirical estimates

Despite a large body of existing evidence on incarceration and arrests among First Nations people, and the availability of at least 3 rounds of NATSISS for 1994, 2002 and 2014–15, only a handful of studies have modelled the net effects of factors associated with First Nations self-reported incarceration and arrests. Supplementary Table S10.8 provides a

summary of these studies, and reports odds ratios/coefficients along with confidence intervals and marginal effects, where available.

Using the 2014-15 NATSISS data Weatherburn et al. (2024) model the primary factors associated with risk of First Nations arrest, including substance use, stress and trauma, adverse social environment, exposure to arrest, human/economic/social capital, and state/territory of residence. The study confirmed that First Nations arrest rates in Australia are influenced by multiple interconnected factors, including age, gender, substance use, psychological distress, and socioeconomic conditions. Protective factors included marriage, stable housing, social support, school completion, and higher income. Substance use was found to be the strongest predictor of arrest, with consumption of alcohol and illicit drugs, compared to no use, increasing the odds of having been arrested in the past five years by more than 3 times among First Nations Australians aged 15–50. Psychological distress and experiences of trauma, including being part of the Stolen Generation, also substantially elevated arrest risk. Completing school and achieving higher income levels were the most effective protective factors, highlighting the importance of addressing broader socioeconomic disadvantages.

Weatherburn and colleagues (2006) examined factors associated with incarceration among First Nations adults using 2002 NATSISS data. They also found that First Nations adults were more likely to have been charged or imprisoned if they used illicit drugs or alcohol, did not complete year 12 or were unemployed. While these results are relevant for the First Nations population – as noted by Hunter (2001) – this study did not ensure that First Nations respondents were at least 18 years old at the time of their imprisonment, given that the imprisonment reference period was 0–5 years before the 2014–15 survey. Thus, the results are not fully applicable to adult imprisonment.

Hunter (2001) estimated the correlates of First Nations arrests for youths and adults. Based on 1994 NATSIS data, the study found that those who were unemployed, had not completed year 12, who lived in a crowded household, who were removed from their family, who lived with people who were arrested, and/or who had consumed alcohol were at a higher risk of arrest (self-reported). However, Hunter (2001) included all First Nations people over 12 years of age (excluding people in prison) as the study population and therefore, the results are not strictly comparable with those for the arrests of First Nations adults.

10.4 Modelling factors affecting First Nations adult imprisonment

This section uses the 2014–15 NATSISS unit record data to analyse the factors associated with adult imprisonment, based on the survey respondent's self-reporting on whether they had been incarcerated in the last 5 years.

One issue with the selected outcome from the NATSISS survey, however, is that it does not refer to the age of the person at the time of their incarceration(s) within the last 5 years. Therefore, it is difficult to ensure that the respondents were 18 years or over at the time of incarceration or arrests by police. One way to impose this age criterion is to restrict the sample to include only respondents who were 18 years or over 5 years before the 2014–15 NATSISS survey date. Therefore, this analysis includes only those respondents to the NATSISS who were 23 years or older. With this age adjustment, the restricted sample size for this analysis was 5,842 individuals.

In this chapter, 2 separate statistical approaches are employed to model the target outcome:

- Logistic regression models are estimated to identify and quantify associations between outcomes of interest and a range of other demographic and socioeconomic variables.
- Random forest models are used to estimate and rank the relative importance of these factors.

For more information about logistic regression and random forest analyses see Appendix A.

About 3.6% (209) of respondents aged 23 and over reported having been incarcerated in the last 5 years before the 2014–15 survey. The bivariate distributions of First Nations adults by whether they had been incarcerated in the last 5 years and by the key factors identified in the literature review are presented in Table S10.9.

10.4.1 Multivariate logistic regression results

This section presents the results of the logistic regression modelling undertaken of unit record data from the 2014–15 NATSISS to identify and quantify the role of specific factors associated with incarceration among First Nations adults, controlling for other characteristics (Table 10.1). Note that while most of the contributing factors identified in the literature are included in the analysis, some were not available in the NATSISS survey.

Since the NATSISS is a cross-sectional survey, it is difficult to identify explanatory variables for adult imprisonment that describe the situation before the imprisonment happened. Many of the characteristics seen at the time of the survey could reflect the consequences of the imprisonment rather than be explanatory factors for the imprisonment. This issue is dealt with in a simple manner by estimating 2 alternative models predicting a person being in prison in the last 5 years.

Model 1 includes only explanatory variables that are constant or unchanging and are likely to have occurred before the imprisonment; hence, these variables are likely to be key factors associated with imprisonment if their effects are statistically significant. The variables selected as constant characteristics for Model 1 are sex, age group, whether the person has ever been in paid employment, whether the person has ever experienced homelessness, whether the person was ever removed from natural family, whether the person has ever experienced physical harm, and geographic characteristics. However, Model 1 can include only a limited set of characteristics.

An alternative Model 2 (extended model) is estimated by including several other characteristics that are associated with imprisonment but which can possibly be consequences of imprisonment. The additional variables in the extended model have still been chosen carefully so as not to include variables that could have changed substantially in the 5 years before the survey. These selected characteristics include highest educational attainment, diagnosis of long-term health conditions, experience of psychological distress, household crowding, family type and SEIFA IRSD deciles.

Model 2 is the preferred model to analyse the factors associated with First Nations adult imprisonment; however, the results should be treated with caution because the characteristics used cannot be treated as preceding the imprisonment.

Another model was estimated for a sample limited to men only, to further understand key factors associated with a higher odds of imprisonment among First Nations men. The outcomes are discussed briefly below but regression results are not presented here.

For the logistic regression models, the estimates of odds ratios and marginal effects corresponding to each explanatory variable are presented. For this chapter, however, interpretation and discussion are restricted to odds ratios for significant variables.

Logistic regression analyses

Table 10.1 presents results of the logistic regression analyses (models 1 and 2) predicting First Nations adults aged 23 and older having been incarcerated in the 5 years before the 2014–15 NATSISS. The outcomes in Model 1 indicate that, net of other factors, the odds of incarceration among First Nations adults are (at a statistically significant level):

- 5.7 times as high for men as for women
- 2.7 and 2.6 times as high for those in age groups 23–32 years and 33–42 years, respectively, as for those aged 43 and older
- 2.5 times as high for those who were never in paid employment as for those who have been employed
- 1.7 times as high for those who have reported either self or relatives, or both, to have been removed from family, as for those who did not report having experienced removal from family
- 1.9 times as high for those living in remote areas as for those living in non-remote areas
- 3.2–3.8 times as high for those living in Western Australia, South Australia or the Northern Territory as for those living in New South Wales.

The outcomes of the analysis in Model 2, with additional controls, indicate that, net of other factors, the odds of incarceration among First Nations adults are (at a statistically significant level):

- 7.2 times as high for men as for women
- 3.1 times as high for those in age groups 23–32 years and 33–42 years as for those aged 43 and older
- 1.7 times as high for those who have reported either self or relatives, or both, to have been removed from family, as for those who did not report having experienced removal from family
- 3.6 times as high for those who had not attained a year 12 or equivalent qualification as for those who had
- 2.3 times as high for those who lived in a crowded household as for those who lived in households that were not crowded
- 3.8 and 4.7 times as high for those belonging to a one-parent or other type of family, respectively, as for with those belonging to a couple-parent family
- 3.1–4.1 times as high for those living in Western Australia, South Australia or the Northern Territory as for those living in New South Wales.

Some key contributing factors identified in the literature were not found to be statistically significant in both models. For instance:

- homelessness
- long-term health condition
- experience of very high psychological stress (indicating mental health condition)
- identification of individuals with a tribal group, a language group or a clan.

The results of the analysis limited to the male sample only (not presented here) showed that the key factors are similar to Model 2 results. The odds of imprisonment among First Nations men were still higher for those in younger age groups, those with the highest educational attainment below year 12, those living in single-parent families, and those living in crowded households.

Table 10.1: Logistic regression results on incarceration of First Nations adults in last 5 years, odds ratio and marginal effects estimates, 2014–15 NATSISS

Variable (and reference category)	Level	Model 1		Model 2	
		OR	ME (%)	OR	ME (%)
Sex (Female)	Male	5.74***	5.1***	7.19***	5.6***
Age group (43+ years)	23–32	2.72***	2.9***	3.14***	3.2***
	33–42	2.64***	2.8**	3.09***	3.1***
Employment ^a (has been in paid employment)	Never been in paid employment	2.49**	4.0	1.48	1.3
Has ever experienced homelessness (no)	Yes	1.35	1.0	1.34	0.9
Removal from family ^a (no removal)	Either self, relatives or both have been removed from natural family	1.72**	1.8	1.71**	1.6
Identification with a tribal group, a language group or a clan	Does not identify	0.95	–0.2	1.05	0.2
Remoteness area (non-remote)	Remote	1.85**	2.2**	1.16	0.4
State or territory (NSW)	Vic	1.85	1.3	2.01	1.5
	Qld	2.05	1.6	2.12	1.6
	WA	3.81***	4.0***	4.16***	4.2***
	SA	3.23***	3.2***	3.37***	3.2***
	Tas	1.53	0.8	1.50	0.8
	ACT	0.85	–0.2	1.64	1.0
	NT	3.82***	4.0***	3.12***	2.9***
Highest education ^a (attained year 12 or equivalent)	Did not attain year 12 or equivalent	n.a.	n.a.	3.55***	3.3***
Social marital status (not married)	Married	n.a.	n.a.	2.19	2.5
Diagnosed with a long-term health condition (no)	Yes	n.a.	n.a.	1.10	0.3
Experience of very high psychological distress ^{(a)(b)} (no)	Yes	n.a.	n.a.	1.20	0.6
Has ever experienced physical harm (no)	Yes	n.a.	n.a.	1.32	0.9
Lives in a crowded household ^(b) (no)	Yes	n.a.	n.a.	2.30***	2.9**
Family type (couple-parent family)	One-parent family	n.a.	n.a.	3.87**	4.3
	Other family	n.a.	n.a.	4.69**	5.3**
SEIFA IRSD decile (deciles 5–10)	Decile 1 (lowest)	n.a.	n.a.	1.04	0.1
	Deciles 2–4	n.a.	n.a.	2.16	2.4**

^a Based on the Kessler–5 (K5) measure of psychological distress. Overall levels of distress are based on how often respondents reported experiencing each feeling. Very high level is a score of 15 or more.

[^] Variables marked with this have ‘not stated/relevant’ or ‘unknown’ as level/categories. Those categories are also included in the regression model, but estimates are not presented.

ME = marginal effects; OR = odds ratio.

Notes

1. The dependent variable is whether incarcerated in last 5 years. To ensure that only adults are included in the analysis, the sample is restricted to those aged 23 in 2014–15 (i.e. those at least 18 years old 5 years earlier). Age groups are selected based on sufficiency of data given that only less than 4% of respondents were incarcerated in the last 5 years.
2. Model 1 includes predetermined characteristics that do not generally change in the 5 years before the survey. The symbol n.a. indicates that the variable is not included in Model 1. Model 2 is an extended version of Model 1, with some additional variables.
3. SEIFA, Index of Relative Socioeconomic Disadvantage: calculated at the ABS Statistical Area 1 geography level.
4. Appropriate survey weights are applied. Odds ratios and marginal effects are reported up to 2 decimal places and 3 decimal places, respectively. Marginal effects are reported in percentage points. Statistical significance levels: ***: $p < 0.01$; **: $p < 0.05$.

Source: AIHW analysis of 2014–15 NATSISS.

10.4.2 Random forest analysis

This section presents the results of random forest analysis, with the estimation and ranking of the relative importance of the same set of factors included in the logistic regression analyses presented in Table 10.1. The variable importance rankings from the random forest obtained from 2 alternative methods (Method A and Method B) are presented in Figure 10.9. The results are presented only for the extended model with additional variables (Model 2 in Table 10.1), which is the preferred model.

The ranking of relative importance results in Figure 10.9 suggests the following:

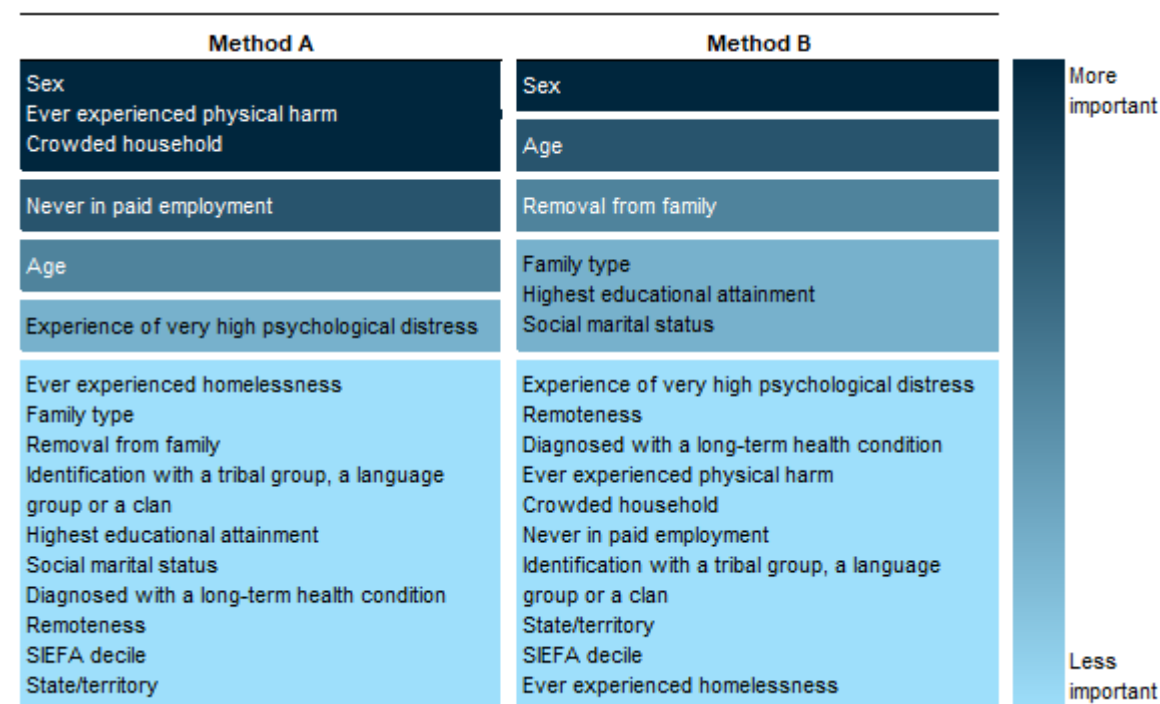
- Sex has the highest ranking of importance for adult incarceration (indicating the much higher incidence of incarceration among men).
- Rankings of the remaining groups of variables vary slightly by the method used. For example:

In Method A, in addition to sex, experience of physical harm and household crowding are ranked in the highest group of importance, followed by paid employment (second highest), age (third – medium importance group), experience of very high psychological distress (fourth – less important group). The rest of the characteristics (experience of homelessness; family type; removal from family; identification with a tribal group, a language group or a clan; highest educational attainment; social marital status; long-term health condition; remoteness; SEIFA IRSD decile and state) were among the least important factors.

In Method B, age was ranked in the second highest importance group, followed by removal from family (third – medium importance group), family type, highest educational attainment, and social marital status (fourth – less important group). The rest of the characteristics were in the least important group.

While the rank order is not consistent across Method A and Method B, the appropriate insight is that any variable ranked high in either method can be interpreted as numerically being a more important factor.

Figure 10.9: Relative importance groupings of variables predicting adult incarceration, First Nations people, 2014–15 NATSISS



Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: AIHW analysis of 2014–15 NATSISS.

10.5 Policy implications

This chapter broadly examined the progress on Target 10, which is to reduce the rate of Aboriginal and Torres Strait Islander adults held in incarceration by at least 15% – from a 2019 baseline rate of around 2,142 per 100,000 adult population to around 1,821 per 100,000 adult population by 2031. Using the National Prisoner Census published by the ABS, this chapter analysed patterns and trends in age-standardised imprisonment rates of First Nations adults at the national, state and territory levels. At disaggregated levels, the analysis was carried out for selected demographic characteristics (sex and age), and by most serious offences/charges, by legal status and aggregate sentence length, and by prior imprisonment.

This chapter also presented broad findings from the literature review on this extensive topic, followed by primary data analysis of contributing factors associated with the incarceration of First Nations adults, using logistic regression and random forest models based on 2014–15 NATSISS unit records.

Findings from the trend analysis

The analysis of imprisonment rates shows that the ASAIR fluctuated between the 2019 baseline year (around 2,100 per 100,000 adults) and 2022 (around 2,200). Overall, the ASAIRs increased between 2006 and 2022. In 2022, the First Nations ASAIR was 14 times as high as the rate for non-Indigenous adults. Despite lower First Nations ASAIRs in some states and territories, as of 2022, the First Nations ASAIR at the national level was higher not only than the 2019 baseline level but also than the agreed 2022 progress point on the trajectory to meet the 2031 target rate.

At disaggregated levels, First Nations adults in prison were mostly men. The top 3 most serious offences/charges among First Nations adults were ‘acts intended to cause injury’, ‘unlawful entry with intent’, and ‘sexual assault and related offences’. The majority of First Nations adults in prison (78%) had prior imprisonment.

Findings from the literature review

Contributing factors to incarceration among First Nations people in the existing literature included intergenerational trauma, educational outcomes, physical and mental health issues, economic factors (such as unemployment, financial strain, lack of adequate income, long-term reliance on income support), alcohol and other drug use, adverse childhood experiences, family violence, unstable housing or homelessness, the criminal justice system, history of prior imprisonment and other factors.

Findings from the logistic regression analysis

Our findings from the logistic regression show that the odds of incarceration among First Nations adults were statistically significantly higher for:

- First Nations men
- those who were relatively younger (aged 23–32 and 33–42)
- those who did not attain at least a year 12 or equivalent educational qualification
- those who had experienced removal from the natural family
- those living in crowded households

- those living in a single-parent family or other families (compared with those living in couple families)
- those living in Western Australia, South Australia or the Northern Territory (compared with those living in New South Wales).

Key factors associated with First Nations adult incarceration

Sex (being male) was the most important factor of First Nations adult incarceration identified through random forest models (in both random forest methods used). Experience of physical harm and living in a crowded household were also in the group of highest importance under one method, while younger age and having been removed from family were ranked in the second and third groups of importance in the second method.

One limitation of this analysis is that because the NATSISS is a cross-sectional survey, it is difficult to identify determinants of adult imprisonment that are directly related to the time before imprisonment. For this reason, some factors identified in the literature as drivers were not included in the analysis as they may be a consequence of imprisonment (for example, alcohol and drug use and financial stress) or information was not available in the data set (for example, adverse childhood experiences).

Factors increasing the risk of imprisonment found in the current analysis included a range of modifiable factors such as education, employment, housing, removal from family, living in a single-parent family and experience of physical harm. As well, the literature review suggests that drivers of First Nations imprisonment also include physical and mental health, financial stress, alcohol and drug use, and adverse childhood experiences.

These findings highlight the complex range of interrelated factors associated with involvement with the criminal justice system that need to be considered for driving the change in this target outcome. Many of these factors are the outcomes of other Closing the Gap targets. Therefore, progress towards these relevant Closing the Gap targets will also help to reduce imprisonment rates for First Nations adults.

Initiatives to reduce offending, incarceration and recidivism for First Nations people

The Australian Government funded an evaluation of 20 programs designed to reduce the rates of offending for First Nations Australians, incarceration and recidivism, particularly among First Nations youths and perpetrators of violent crime. The evaluation identified elements of programs that were good practice and well managed, including the following:

- First Nations courts and conferences provide a more culturally appropriate and inclusive process and encompass the wider circumstances of offenders and victims, and may contribute to reducing recidivism.
- Community participation in supporting offenders' re-integration post-release and preventing re-offending has brought ownership of the justice process and improved accountability and support for offenders.
- Effective service coordination and partnerships with allied services can assist offenders to navigate the complex justice system and access the services they need.
- Monitoring and evaluation of programs need to be embedded in the program design with clear objectives and goals (Cultural Indigenous Research Centre Australia 2013a, 2013b).

Justice Reinvestment strategies

The Australian Government and states and territories are exploring the potential of Justice Reinvestment strategies (Willis and Kapira 2018). Justice Reinvestment initiatives in Australia have been designed to empower First Nations Australians and identify the drivers of crime, developing tailored local solutions. These solutions are chosen for their potential to prevent crime (for example, night patrols or alcohol restrictions) and reduce recidivism (for example, by rehabilitating prisoners returning to the community) (ALRC 2017; Dawes and Davidson 2019).

Community-based sentencing

The Australian Law Reform Commission has recommended the availability and flexibility of community-based sentencing options to prevent First Nations Australians returning to the justice system (ALRC 2017). Circle sentencing is another alternative criminal justice process that involves the presiding magistrate working with a group of First Nations elders and respected members of the community, victims and the offender's family to determine the appropriate sentence.

Other initiatives

Other efforts to reduce the over-representation of First Nations Australians in the criminal justice system include:

- maternal health, parenting skills and family-based programs
- holistic intensive programs for First Nations young people in out-of-home care
- actions targeting those at high risk of offending
- therapeutic and holistic support to attend to criminogenic needs
- programs targeting aggression and problem sexual behaviour
- prison-based rehabilitative programs, including prison services for people with a cognitive disability
- prisoner through-care programs, including employment-focused re-entry programs
- access to appropriate legal services (ALRC 2017)
- early intervention, prevention, justice reinvestment and diversion initiatives (PricewaterhouseCoopers 2017).

To mitigate the higher risk of imprisonment among those removed from family or having a relative removed from family, healing programs are essential. The Healing Foundation's Our Men Our Healing program aims to develop the capacity of all men through cultural, educational and therapeutic healing activities. An evaluation of the program reported that in Wurrumiyanga (on Bathurst Island in the Northern Territory) there was a 50% reduction in the number of men registered with the Northern Territory Department of Correctional Services and a reduction in rates of recidivism (Healing Foundation 2015).

For those within the prison system, programs to improve education and employment-related skills could contribute to reducing re-offending.

- For example, the Fairbridge Bindjareb Project (FBP) in Western Australia provides industry training that leads to work opportunities in the resource sector for First Nations people in custody. An evaluation of the project found a 68% increase in employment and a 42% reduction in recidivism among First Nations people who participated in the project, compared with those who offended but were not part of the project (PricewaterhouseCoopers 2017).

Further research is needed into resilience and protective factors to aid approaches to prevention and to add more evidence on effective prevention strategies and interventions for reducing victimisation, offending and re-offending, and contact with the criminal justice system. Having linked longitudinal administrative data could significantly expand the depth of analysis possible. The ABS Criminal Justice Data Asset (CJDA) integrates data from police, courts, and corrective services to track how family and domestic violence (FDV) offenders move through the justice system. Once fully developed, it will provide insights into offender outcomes, including corrective services.

A pilot study has confirmed the feasibility of the CJDA, and efforts are underway to make it available for policy and research. Future expansions may include health and welfare datasets to offer a more comprehensive view of both perpetrators and victim-survivors (https://www.aihw.gov.au/family-domestic-and-sexual-violence/resources/key-information-gaps-and-development-activities#:~:text=The%20ABS%20Criminal%20Justice%20Asset,criminal%20courts%20and%20corrective%20services.)).

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Youth justice

11

Summary

Target

The target associated with Outcome 11 of the 2020 National Agreement is to reduce the rate of Aboriginal and Torres Strait Islander young people (10–17 years) in detention by at least 30% by 2031 from a 2018–19 baseline of 31.9 per 10,000 young people.

Background

- While the vast majority of Aboriginal and Torres Strait Islander (First Nations) young people have never been under youth justice supervision or in detention, they are substantially significantly over-represented in youth justice supervision.
- Imprisonment or detention can affect people's social, health and socioeconomic outcomes, with adverse consequences for their employment, financial situation, housing, and physical and mental health.
- Children under youth justice supervision are a particularly vulnerable group. Many have poor physical or mental health, have had contact with the child protection system (including out-of-home care placements), have experienced substance abuse, or have poor school attendance and attainment.
- It has been shown that those who are first involved with the criminal justice system at a younger age are more likely to re-offend.

Current status

- Nationally, the rate (number per 10,000) of First Nations young people aged 10–17 who were in detention on an average day in 2022–23, was 29.8. This rate is above the 2022 trajectory point projected to meet the national target of 22.3 per 10,000 by 2031.
- In 2022–23, on an average day, around 1,500 First Nations young people aged 10–17 were under community supervision, and around 445 were in detention. Most of those in detention were unsentenced (around 375 or 84%), with a smaller proportion sentenced (99 or 22%). The number of unsentenced and sentenced young people in detention may not sum to total number of young people in detention as young people may have changed legal status during the same day, or been on both types of orders at the same time.
- First Nations youth were 27 times as likely as non-Indigenous youth to be in detention in 2022–23.
- In 2022–23, the rate of First Nations young people in detention in New South Wales (20 per 10,000), Victoria (9 per 10,000), South Australia (19 per 10,000) and Tasmania (7 per 10,000) were all lower than the 2031 national target of 22.3 per 10,000. Queensland (46 per 10,000) and the Northern Territory (43 per 10,000) had the highest rates.
- In 2021–22, the rate of First Nations young people aged 10–17 in detention was similar in *Major cities* (26 per 10,000) and *Inner regional and outer regional* areas combined (25 per 10,000), but higher in *Remote and very remote* areas combined (37 per 10,000).
- In 2022–23, boys (52 per 10,000) were 7 times as likely as girls (7 per 10,000) to be in detention on an average day.
- Nationally, the number of First Nations young people in sentenced detention on an average day fell from around 145 in 2018–19 (the Closing the Gap baseline year) to 94 in 2021–22.

Key factors

- Policy initiatives aimed at reducing the over-representation of First Nations youth in the justice system are multifaceted. They focus on preventing First Nations young people from having contact with the justice system, diverting them from further contact after an initial contact, delivering culturally appropriate services to meet the multiple and complex needs of those in contact with the system, and dealing with the drivers of contact with the system at a local community level. Promising prevention interventions include:
 - primary prevention initiatives – to reduce petrol sniffing among young people, conduct night patrols and settle family disputes
 - secondary prevention initiatives – to remediate existing problem behaviour
 - tertiary prevention initiatives – to focus on the homes, families, schools, neighbourhoods and friends of chronic and violent youth offenders.
- It is critical to develop preventive measures to reduce First Nations people's engagement in crime and contact with the criminal justice system. Key to successful prevention and early intervention is to build positive long-term relationships with families, communities and service providers.
- Other promising practices of First Nations youth justice programs include recognising the importance of having adequate resources, together with culturally appropriate and competent services; collaborating effectively; attending to the multiple and complex needs of offenders; engaging with families; and conducting culturally appropriate parental education.
- Areas that need further in-depth research and evaluation include:
 - how First Nations participants fare in mainstream justice programs
 - how sustainable are the outcomes
 - whether collaborative case management in youth crime prevention and reduction programs is effective for First Nations young people
 - how effective are the structured, cognitive behavioural programs based on 'Western' psychological theories.

11.1 Introduction

Outcome 11 of the 2020 National Agreement on Closing the Gap relates to reducing the over-representation of Aboriginal and Torres Strait Islander young people in the criminal justice system.

The target associated with this outcome is to reduce the rate of Aboriginal and Torres Strait Islander young people (10–17 years) in detention by at least 30% by 2031 from a 2018–19 baseline of 32.1 per 10,000 young people on an average day.

Outcome	Aboriginal and Torres Strait Islander young people are not over-represented in the criminal justice system.
Target	By 2031, reduce the rate of Aboriginal and Torres Strait Islander young people (10–17 years) in detention by at least 30%.
Indicator	The rate of Aboriginal and Torres Strait Islander young people aged 10–17 years in detention.
Measure	<i>Numerator</i> – average daily number of Aboriginal and Torres Strait Islander young people aged 10–17 years in supervised youth detention. <i>Denominator</i> – number of Aboriginal and Torres Strait Islander people aged 10–17 years in the population. Presented as a rate (per 10,000 young people).

The vast majority of Aboriginal and Torres Strait Islander (First Nations) young people have never been under youth justice supervision or in detention. However, First Nations young people are significantly over-represented in the youth justice system. Although 5.8% of young Australians aged 10–17 in Australia were of Aboriginal or Torres Strait Islander origin according to the 2021 Census of Population and Housing (Census), around 63% of those aged 10–17 in detention on an average day in 2022–23 were First Nations people.

Children under youth justice supervision are a particularly vulnerable group. Many have poor physical or mental health, have had contact with the child protection system (including out-of-home care placements), have experienced substance abuse, or have poor school attendance and attainment (AIHW 2022a).

The over-representation of young First Nations people in justice systems in Australia has been documented for decades (House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs 2011; Johnston 1991). Imprisonment or detention can affect people's social, health and socioeconomic outcomes, with adverse consequences for their employment, financial situation, housing, and physical and mental health (see review in AIHW and NIAA 2023). As the *Uluru Statement from the Heart* states: '... our youth languish in detention in obscene numbers. They should be our hope for the future' (First Nations National Constitutional Convention 2017).

The source of the data presented in this chapter is the Youth Justice National Minimum Data Set (YJ NMDS). The YJ NMDS contains information on all children and young people in Australia who are supervised by youth justice agencies, both in the community and in detention, and is a compilation of data from state and territory administrative systems. Information is reported annually in *Youth Justice in Australia*, which presents the average daily population under youth justice supervision for each year and explores key aspects of

youth justice supervision and recent annual trends (AIHW 2023c). *Youth detention population in Australia* is another annual report; it focuses on quarterly trends over a 4-year period and presents the average nightly population for each quarter. The data are reported differently from those in *Youth Justice in Australia 2022–23* (AIHW 2023c) to get a better understanding of the characteristics and seasonal trends of young people in detention in order to help support staff, case workers and policy makers to get the best outcomes for these young people (AIHW 2022c).

Numbers in this chapter include those for young people under youth justice supervision of all ages (including those aged 18 and over), unless otherwise specified. Where possible, data are presented for those aged 10–17, the age group used for the Closing the Gap target measure. However, in some cases, data were available only for all people in the youth justice system, and include data for those aged 18 and over. While the upper age limit for the youth justice system is 17 (at the time of the offence) in all states and territories, some people aged 18 and over are also involved in the system. This can occur when:

- the young person committed the offence when aged 17 or under, but was sentenced when aged 18 or over
- the supervision continues once the young person turns 18
- the young person is particularly vulnerable or immature (AIHW 2023c).

Those aged 18 and over when in youth justice supervision or detention represent a substantial proportion of the total people in the youth justice system; for instance, in 2022–23, on an average day, 19% of First Nations people under youth justice supervision (around 460) were aged 18 and over and 8.1% of First Nations people in youth detention (39) were aged 18 and over. Given this, numbers for all those in the youth justice system may differ from the numbers for those aged 10–17 in the system. Note that rates are age specific and are calculated for young people aged 10–17 as this is the core age group of the youth justice population.

11.1.1 Overview of the youth justice system in Australia

The youth justice system is the set of processes and practices for managing children and young people who have committed, or allegedly committed, an offence. In Australia, the youth justice system primarily covers young people aged 10–17 at the time of the offence. A major feature of the system is the supervision of young people on legal orders. Youth justice supervision may occur in the community or in detention facilities.

Among the states and territories, variations in the numbers and rates of young people under supervision reflect differences in youth justice legislation, policy and practice. This includes differences in police practices, the types of legal orders available and the options for diversion (AIHW 2023c).

The Australian youth justice system is based on 2 main principles (which are incorporated in state and territory legislation): that young people should be detained only as a last resort, and for the shortest appropriate period (Chrzanowski and Wallis 2011). This is consistent with international guidelines, such as the United Nations Convention on the Rights of the Child and the Standard Minimum Rules for the Administration of Juvenile Justice (UN 1985, 1989).

Diverting young people from further involvement in the justice system is crucial to applying these principles. Forms of diversion include:

- police warnings

- referral to services such as drug and alcohol treatment
- bail supervision for those at risk of remand
- youth justice conferences (a meeting between a young offender, their victim and other people who know about the offence – see, for example, NSW Government 2023).
Alternatives to detention include:
 - transfer to specialist courts or programs
 - supervised or unsupervised community orders (AIHW 2022c).

Most young people under youth justice supervision in Australia are supervised in the community. Different supervision scenarios, according to whether the supervision is community-based or in detention, and whether the supervision is sentenced or unsentenced (referred to as the ‘legal status’ of the supervision), are shown in Table 11.1.

Table 11.1: Types of youth justice supervision

Type of supervision	Community-based	Detention
Unsentenced	Supervised or conditional bail Home detention bail	Remanded in custody (can be police- or court-referred)
Sentenced supervision	Probation or similar Suspended detention Parole or supervised release	Sentenced to detention

Source: AIHW 2023c.

Sentenced and unsentenced detention

Young people might be in detention while they are:

- unsentenced – that is, while they are awaiting the outcome of their court matter, or awaiting sentencing after being found or pleading guilty
- sentenced – that is, when they have been found guilty in court and have received a legal order to serve a period of detention (AIHW 2023c).

11.1.2 Changes to the minimum age of criminal responsibility

Among the recommendations of the Royal Commission into the Protection and Detention of Children in the Northern Territory were for Australia to raise the minimum age of criminal responsibility from 10 to 12 and to keep young people aged 14 and under out of detention unless they have committed a serious crime or pose a serious risk to the community (NT Royal Commission Australian Government 2017).

On 1 August 2023, the Northern Territory Government raised the minimum age of criminal responsibility from 10 to 12 when it passed the *Criminal Code Amendment ACT 2022*. However, since then a new Northern Territory government elected on 24 August 2024 has confirmed that it plans to lower the minimum age of criminal responsibility from 12 to 10 in its first sitting of parliament.

On 1 November 2023, the Australian Capital Territory (ACT) raised the minimum age of criminal responsibility from 10 to 12 when the ACT Legislative Assembly passed the Justice (Age of Criminal Responsibility) Legislation Amendment Bill 2023.

On 10 September 2024, the *Youth Justice Bill 2024* that had been passed by the Victorian Parliament on 16 August 2024 received Royal Assent, raising the minimum age of criminal responsibility in Victoria from 10 to 12.

At the federal level and in New South Wales, Queensland, Western Australia, South Australia, the minimum age of criminal responsibility remains 10 years of age (Ransley et al. 2024).

The Tasmanian Government has committed to the implementation of all the recommendations from the Commission of Inquiry into the Tasmanian Government's Responses to Child Sexual Abuse in Institutional Settings (Col). Recommendation 12.11 of the Col includes that the Tasmanian Government should introduce legislation to increase the minimum age of criminal responsibility to 14 years and work towards increasing the minimum age of detention to 16 years through developing alternatives to detention for children aged 14 and 15 years who are found guilty of serious violent offences and who may be a danger to themselves or the community (Commission of Inquiry into the Tasmanian Government's Responses to Child Sexual Abuse 2023).

In 2022–23, there were 31 First Nations children aged 10–13 in detention on an average day, around 7% of all First Nations people aged 10–17 in detention on an average day (AIHW 2023b).

11.2 Youth justice target: current picture and time trends

11.2.1 National

Nationally, the rate (number per 10,000) of First Nations young people aged 10–17 who were in detention on an average day in 2022–23, was 29.8. This rate is above the 2022 trajectory point projected to meet the national target of 22.3 per 10,000 by 2031. Over time, the rate ranged from 32–34 between 2013–14 and 2018–19, before falling to 24 in 2020–21, and then rising to 30 in 2022–23 (figures 11.1 and 11.2; table S11.1 and S11.2).

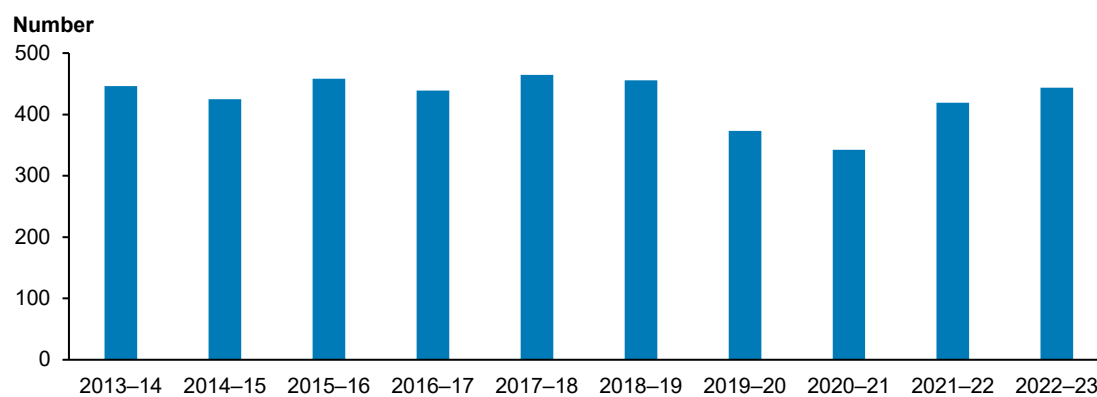
Similarly, the number of First Nations young people aged 10–17 in detention on an average day remained fairly steady between 2013–14 and 2018–19, ranging from a minimum of around 425 (in 2014–15) to a maximum of 464 (in 2017–18) (Figure 11.1; supplementary Table S11.1). The number fell to around 340 in 2020–21, before increasing to around 445 in 2022–23.

In 2022–23, First Nations youth were 27 times as likely as non-Indigenous youth to be in detention, compared with 23 times as likely in 2018–19. Since the baseline year of 2018–19, the over-representation of First Nations youth in detention fell initially, then rose in 2021–22 and 2022–23. Between 2013–14 and 2021–22, the rate of non-Indigenous young people aged 10–17 who were in detention remained steady at around 1.3–1.5 per 10,000 (Figure 11.2).

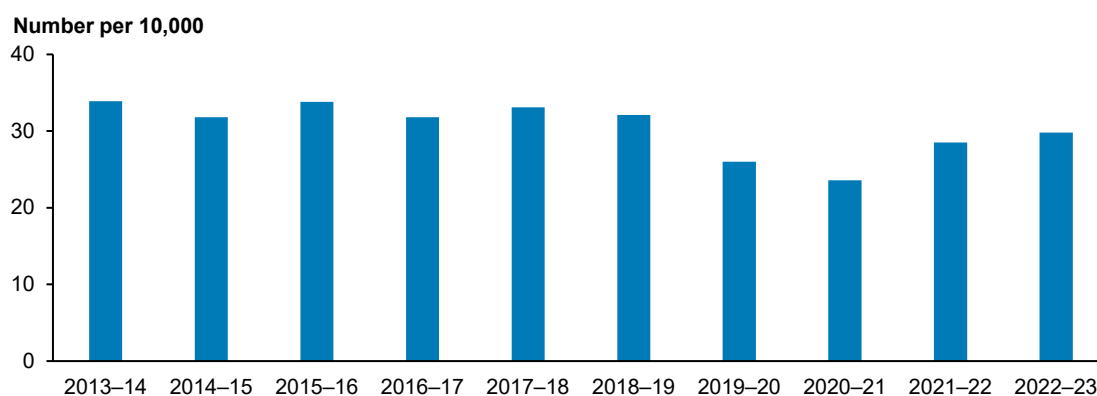
To meet the 2031 national target of a reduction of at least 30% from 32.1 per 10,000 in the baseline year of 2018–19, the rate would need to drop to at least 22.3 by 2031. In 2031, the population of First Nations young people aged 10–17 is projected to be about 170,500 (ABS 2011-to-2031). A youth detention rate of 22.3 per 10,000 First Nations young people in 2031 would equate to about 380 First Nations young people being in detention on an average day, compared with 518 in 2022–23. That would represent 138 fewer First Nations young people in detention on an average day in 2031, compared with 2022–23.

Figure 11.1: First Nations young people aged 10–17 in detention on an average day, 2013–14 to 2022–23

(a)



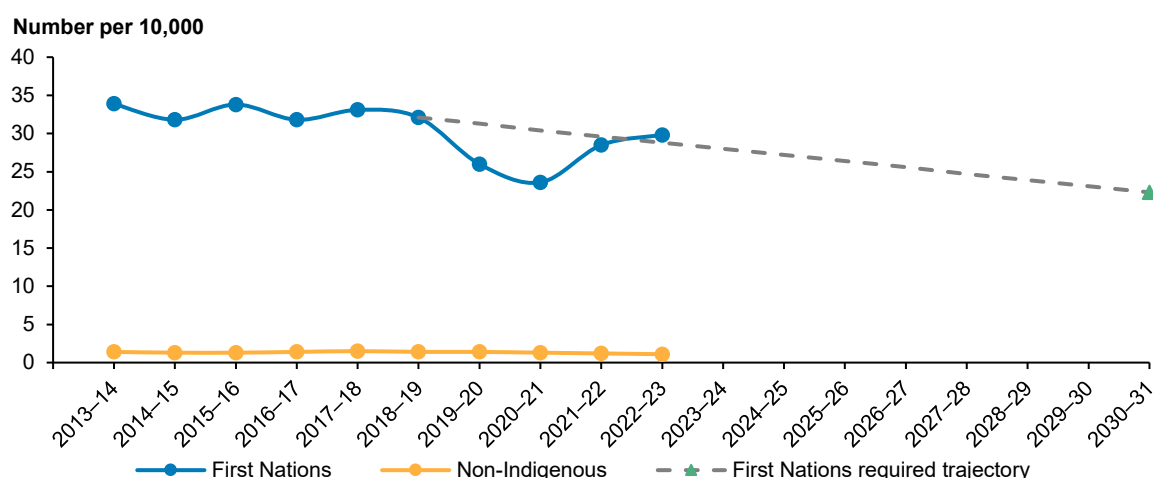
(b)



Note: Trend data may differ from those previously published due to data revisions.

Source: AIHW 2023c, Tables S81a and S83a.

Figure 11.2: Young people aged 10–17 in detention on an average day, by Indigenous status, 2013–14 to 2022–23 and trajectory required to meet 2031 Closing the Gap target



Note: First Nations and non-Indigenous rates are based on data reported in *Youth Justice in Australia 2022–23* (AIHW 2024) and may differ from those previously published due to data revisions. First Nations required trajectory is based on data reported on the Closing the Gap Dashboard (Productivity Commission 2022).

Sources: AIHW 2023c, Table S83a; Productivity Commission 2022.

Impacts of the COVID-19 pandemic

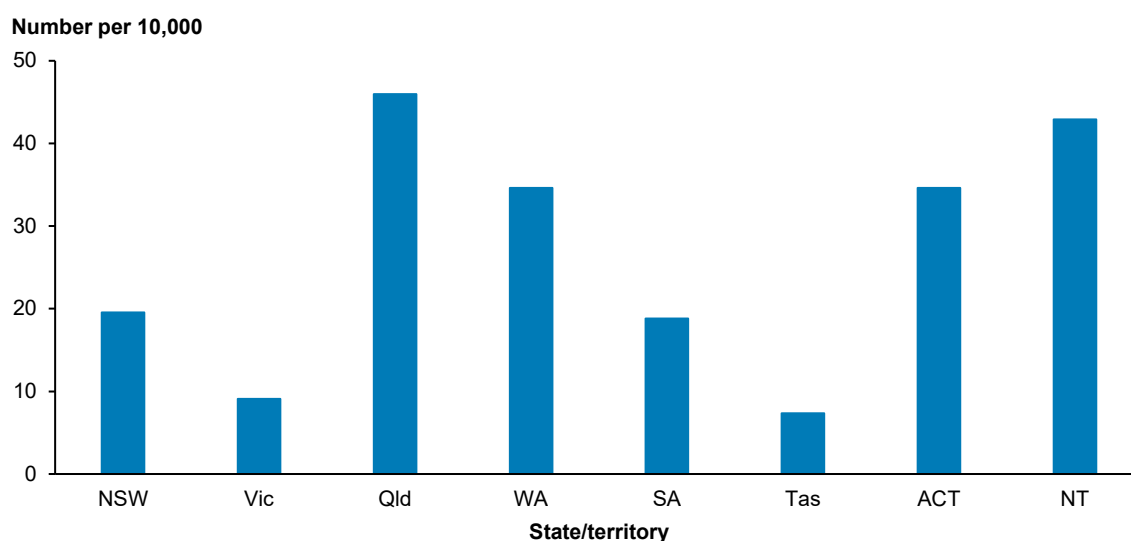
The results for the most recent years raise the question of how the COVID-19 pandemic has affected youth justice outcomes and data. COVID-19 has had substantial impacts on the operations of youth justice centres and other places of custody, courts and tribunals, though these impacts may differ across jurisdictions.

The direct impact of COVID-19 on the number of young people under youth supervision is difficult to determine due to factors that include the variability of the data; variations in legislation, policy and practices across states and territories; and the relatively small numbers of young people under supervision. More research is needed to better understand the impact of COVID-19 (and the associated social restrictions) on youth justice supervision in Australia (AIHW 2023c).

11.2.2 State and territory

In 2022–23, the rate of First Nations young people in detention was the lowest in New South Wales (20 per 10,000), Victoria (9 per 10,000), South Australia (19 per 10,000) and Tasmania (7 per 10,000). The Northern Territory (43 per 10,000) and Queensland (46 per 10,000) had the highest rates in detention (Figure 11.3; Table S11.3).

Figure 11.3: Nations young people aged 10–17 in detention on an average day, by state and territory, 2022–23



Source: AIHW 2023c, Table S75.

The size of First Nations youth justice populations in states and territories can be affected by the size of the First Nations population in that state or territory, as well as by differences in state-based legislation, policies and practices. Changes to legislation, policies and practices can have an impact on the trend.

- For example, in the Northern Territory, new youth justice legislation was enacted on 15 May 2021 – the *Youth Justice Legislation Amendment Act 2021*. The intent of the Act is to target repeat youth offenders to reduce youth crime. The Act resulted in some key changes to processes of the youth justice system. This change in legislation may have had an impact on the number and rate of young people in detention in the Northern Territory (AIHW 2022c).

By state and territory, the largest numbers of First Nations young people aged 10–17 in detention on an average day in 2022–23 had been usual residents of:

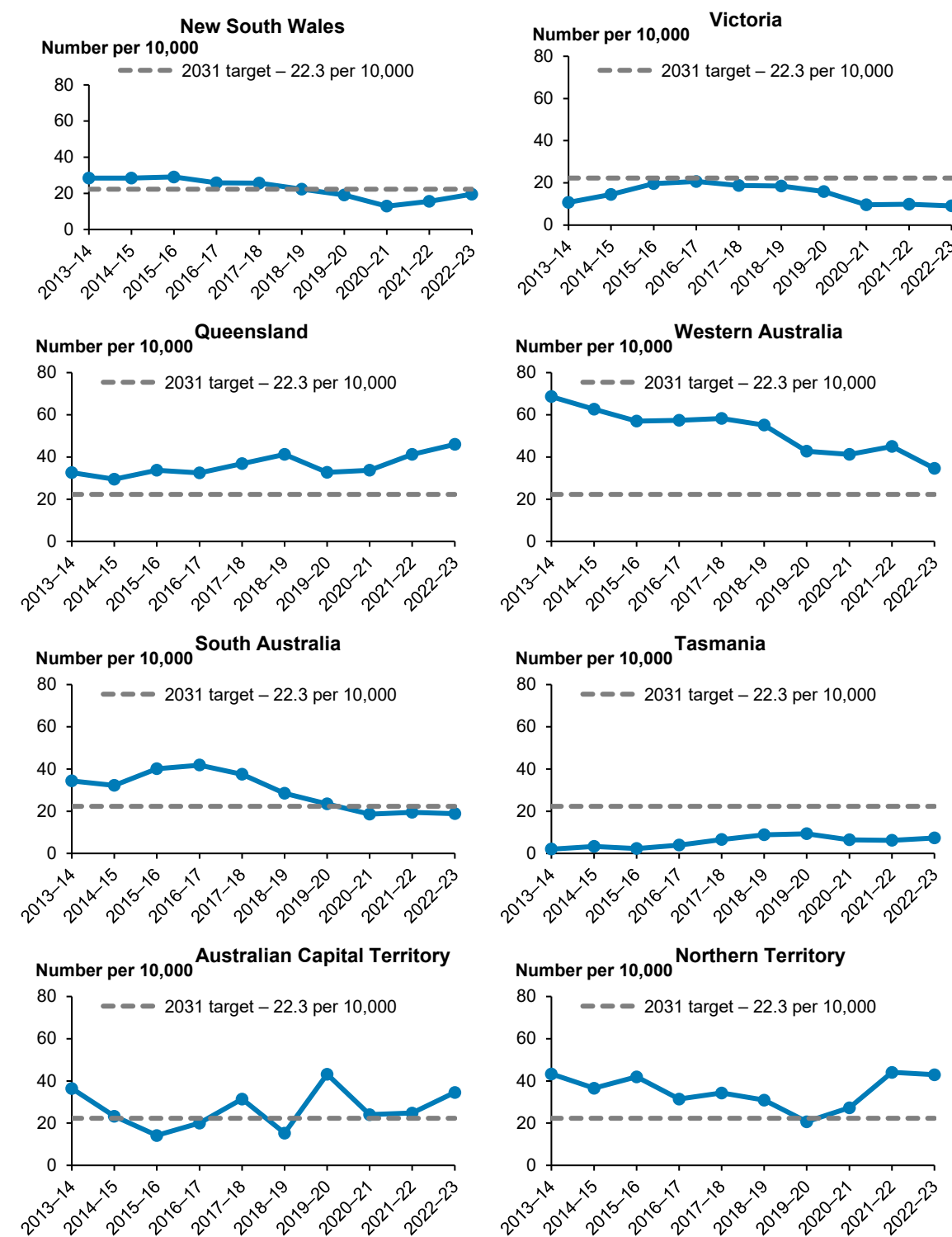
- Queensland (around 200)
- New South Wales (98)
- Western Australia (63)
- Northern Territory (49).

Between 2013–14 and 2022–23, in the states and territories with data available, the rate of First Nations young people in detention has generally:

- fallen in New South Wales and Western Australia
- risen initially, followed by a drop in Victoria and South Australia
- fallen initially, followed by a rise in the Northern Territory
- fluctuated in Queensland, Tasmania and the Australian Capital Territory (Figure 11.4; Table S11.3).

Again, the COVID-19 pandemic may have affected the trend over time for the most recent years.

Figure 11.4: First Nations young people aged 10–17 in detention on an average day, by state and territory, 2013–14 to 2022–23



Note: Trend data may differ from those previously published due to data revisions.

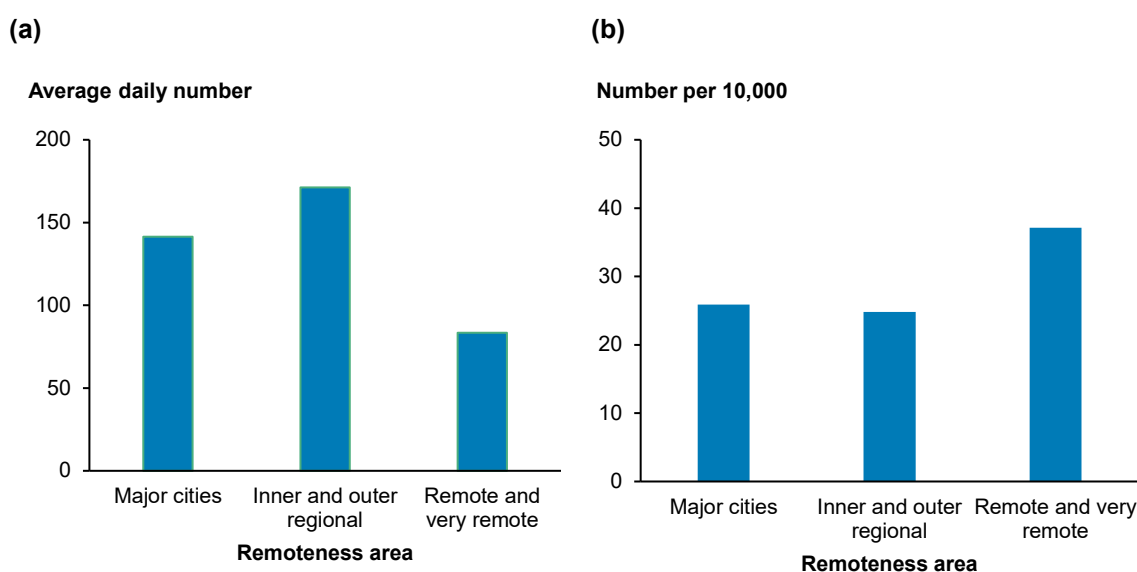
Source: AIHW 2023c4, Table S83a.

11.2.3 Remoteness area

Data by remoteness were not available for 2022–23 at the time of publication. The postcode of a young person's last known address was used to determine their remoteness area.

The highest number of First Nations young people aged 10–17 in detention on an average day in 2021–22 lived in *Inner and outer regional* areas before entering detention – around 170 (Figure 11.5; Table S11.4). The rate of First Nations young people aged 10–17 in detention on an average day was similar in *Major cities* (26 per 10,000) and *Inner and outer regional* areas combined (25 per 10,000) but was higher in *Remote and very remote* areas combined (37 per 10,000).

Figure 11.5: First Nations young people aged 10–17 in detention on an average day, by remoteness, 2021–22



Note: Remoteness area of usual residence is derived from postcode of a young person's last known address. Some young people are excluded due to missing or invalid postcodes or because the postcode was not listed in the Remoteness areas–postcode correspondence file.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

The remoteness area distribution of First Nations young people aged 10–17 in detention on an average day in 2021–22 (where they usually lived, based on the postcode of their last address) was:

- *Major cities* (around 140, or 34%)
- *Outer regional* areas (around 100, or 25%)
- *Inner regional* areas (69, or 17%)
- *Remote* areas (48, or 12%)
- *Very remote* areas (35, or 8%).

The remoteness area distribution of First Nations young people aged 10–17 in detention on an average day in 2021–22 was compared with the distribution of the First Nations population aged 10–17 from 2021 Census. The YJ NMDS 2021–22 information was classified using the 2016 remoteness classification (as the 2021 remoteness classification was not available at the time). However, the remoteness distributions of the First Nations population aged 10–17 from the 2016 and 2021 Censuses are very similar.

This comparison indicates that First Nations young people who usually lived in *Outer regional* or *Remote* areas accounted for a disproportionate share of the number of First Nations young people in detention.

11.2.4 Socioeconomic index

This chapter uses Socioeconomic Indexes for Areas (SEIFA), an area-level socioeconomic summary measure developed by the ABS; it comprises 4 indexes that ranks geographic areas across Australia according to their relative socioeconomic advantage and disadvantage. The analysis in this section is based on the Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD) of the area in which a young person lives, grouped into 5 quintiles (fifths) (ABS 2021). Quintile 1 contains the 20% of areas with the greatest level of disadvantage (and lowest level of advantage). Quintile 5 contains the 20% of areas with the lowest level of disadvantage (and highest level of advantage). The postcode of a young person's last known address was used to determine their socioeconomic area.

Data for 2022–23 were not available by SEIFA IRSAD at the time of publication. The YJ NMDS 2021–22 information was classified using the 2016 SEIFA IRSAD classification (as the 2021 SEIFA IRSAD classification was not available at the time). The distribution of First Nations young people aged 10–17 in detention on an average day in 2021–22 across IRSAD quintiles (based on the area where they usually lived before entering detention) was as follows:

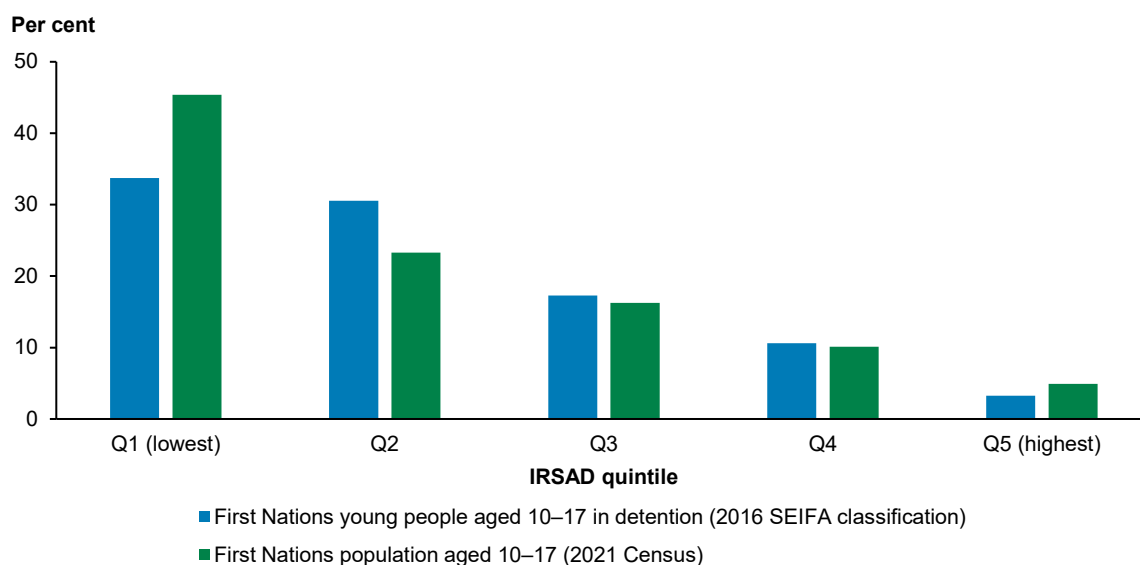
- Quintile 1 or most disadvantaged (34% or around 140)
- Quintile 2 (31% or around 125)
- Quintile 3 (17% or 72)
- Quintile 4 (11% or 44)
- Quintile 5 or least disadvantaged (3.3% or 14) (Figure 11.6; Table S11.9).

The distribution of First Nations young people aged 10–17 in detention on an average day in 2021–22 across socioeconomic areas was compared with that of the First Nations population aged 10–17 from the 2021 Census (Figure 11.6).

First Nations young people who usually lived in the second lowest socioeconomic group accounted for a disproportionate share of the number of First Nations young people in detention, compared with their population share.

While a large proportion of First Nations young people aged 10–17 (nearly half) lived in areas classed as being among the 20% of most disadvantaged (and least advantaged) areas in Australia, a much smaller proportion of those in detention lived in these areas before entering youth justice supervision.

Figure 11.6: First Nations young people aged 10–17 in detention on an average day, 2021–22, and distribution of the First Nations population aged 10–17, 2021^(a), by IRSAD quintile



(a) 2021 Census data using 2016 SEIFA IRSAD index. See ABS 2021 for more information about SEIFA indexes.

Note: SEIFA is derived from postcode of a young person's last known address. Some young people are excluded due to missing or invalid postcodes or because the postcode was not listed in the SEIFA–postcode correspondence file.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22, Census.

11.2.5 Age group and sex

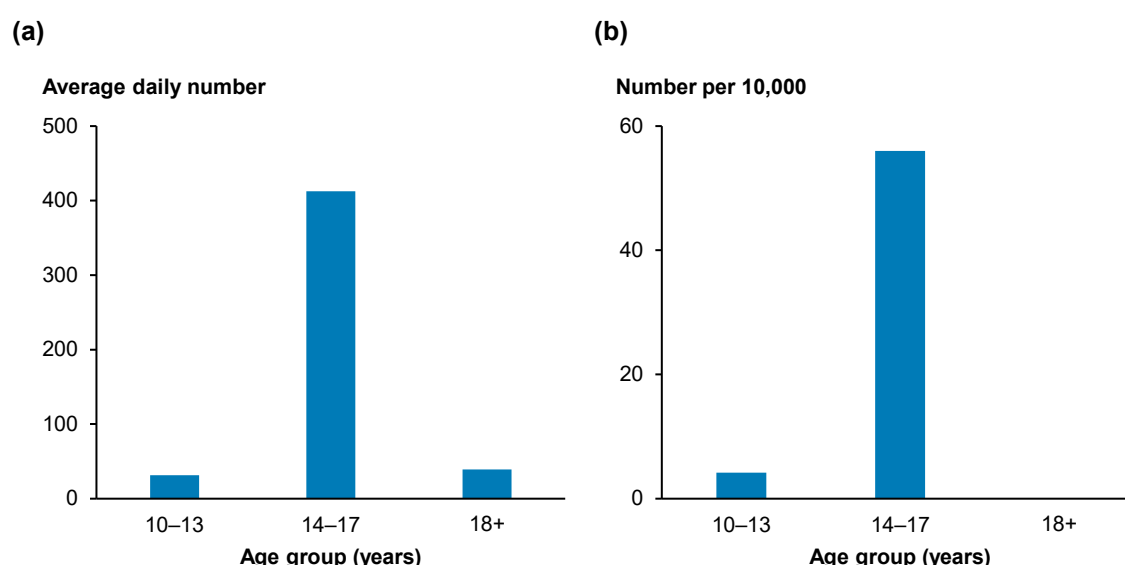
In the Youth Justice National Minimum Data Set, age is reported as the young person's age at the start of the first relevant period of supervision, unless that period began before the financial year in question, in which case the age at the start of the financial year.

In 2022–23, of the 445 First Nations young people aged 10–17 in detention on an average day:

- around 410 or 93% were aged 14–17
- 31 or 7.1% were aged 10–13.

There were 39 First Nations young people aged 18 and over in detention on an average day (Figure 11.7; Table S11.6).

Figure 11.7: First Nations young people in detention on an average day, by age group, 2022–23



Notes

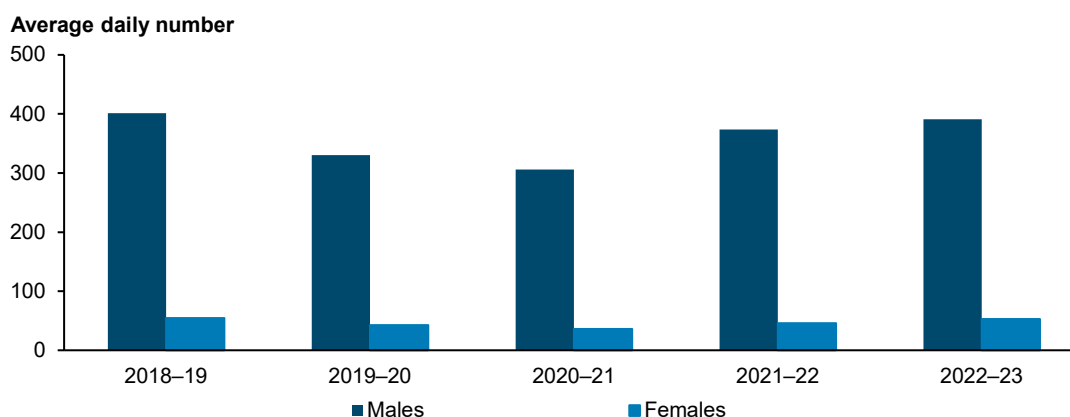
1. Age on an average day is calculated based on the age a young person is each day that they are under supervision. If the age of a young person changes during a period of supervision, the average daily number under supervision will reflect this.
2. Rate cannot be calculated for those aged 18 and over.

Source: AIHW 2023c4, Data tables S78a and S78c.

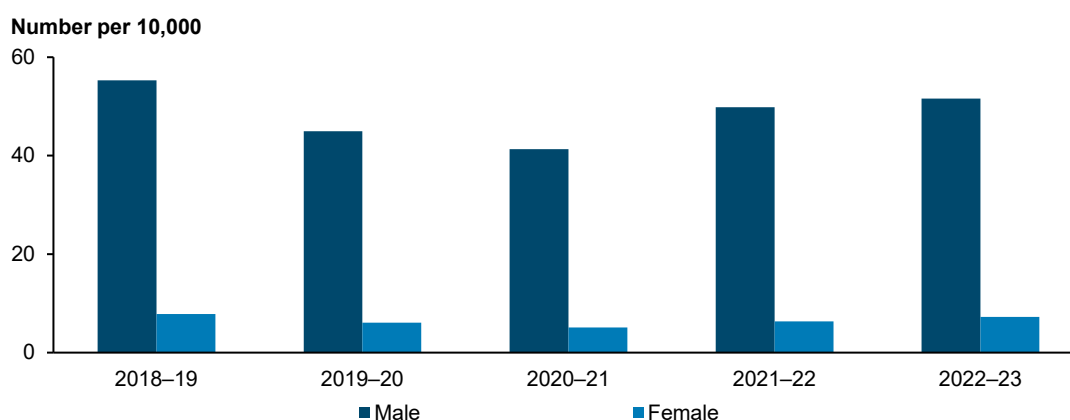
The majority of First Nations young people aged 10–17 who were in detention on an average day in 2022–23 were boys (390 or 88% boys compared with 53 or 12% girls) (Figure 11.8; Table S11.7). Among First Nations young people aged 10–17, boys (52 per 10,000) were 7 times as likely as girls (7 per 10,000) to be in detention on an average day. The rate of First Nations boys in detention decreased progressively from 55 in 2018–19 to 41 in 2020–21, then rose to 52 in 2022–23. For First Nations girls in detention, the rate fell from 7.8 in 2018–19 to 5.1 in 2020–21 before rising to 7.3 in 2022–23.

Figure 11.8: First Nations young people aged 10–17 in detention on an average day, by sex, 2018–19 to 2022–23

(a)



(b)



Note: Trend data may differ from those previously published due to data revisions.

Source: Productivity Commission 2024.

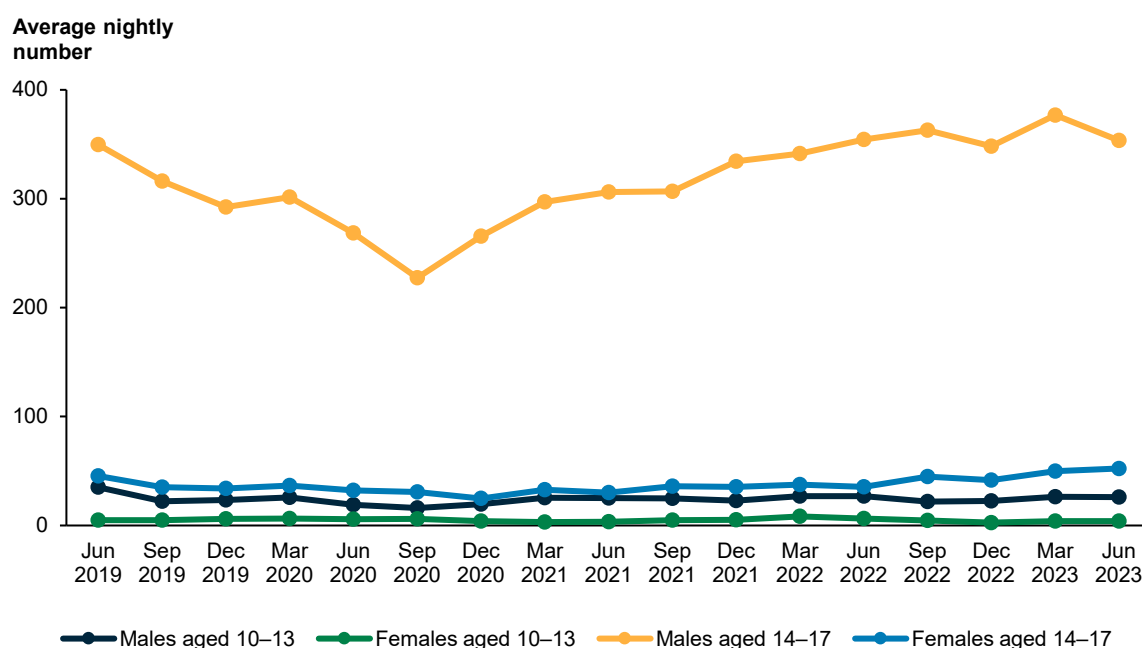
The following section presents results from *Youth detention population in Australia 2023* (AIHW 2022c). That report focuses on quarterly trends in the numbers and rates of young people in detention over the 4-year period from the June quarter 2019 to the June quarter 2023, and presents information on the average nightly population for each quarter. The data are reported differently from those in *Youth Justice in Australia 2022–23* (AIHW 2023c) to get a better understanding of the characteristics and seasonal trends of young people in detention in order to help support staff, case workers and policy makers to get the best outcomes for these young people (AIHW 2022c).

Most First Nations young people aged 10–17 in detention are boys aged 14–17 – around 355 on an average night in the June 2023 quarter, compared with:

- 26 boys aged 10–13
- 4 girls aged 10–13
- 52 girls aged 14–17 (Figure 11.9; Table S11.8).

The number of boys aged 14–17 in detention on an average night fell from around 350 in the June 2019 quarter to around 225 in the September 2020 quarter, then rose to around 355 in the June 2023 quarter. The purpose of these data is to understand seasonal changes in the number of young people in youth detention. Figure 11.9 presents numbers rather than rates as quarterly population data for First Nations people are not available.

Figure 11.9: First Nations young people aged 10–17 in detention on an average night, by age group and sex, June 2019 quarter to June 2023 quarter



Note: Trend data may differ from those previously published due to data revisions.

Source: AIHW 2022c, Data tables S2 and S3.

Again, these results raise the question of how the COVID-19 pandemic has affected youth justice data trends. More research is needed to better understand not only the impact of COVID-19 (and the associated social restrictions) on youth detention in Australia, but also the impact of other factors, including variability of the data due to the relatively small numbers of young people in detention; and variations in legislation, policy and practices across states and territories.

11.2.6 Young people in unsentenced and sentenced detention

In 2022–23, there were around 2,000 First Nations young people aged 10–17 under youth justice supervision on an average day, representing more than half (57%) of all young people under youth justice supervision in Australia.

Most young people in youth justice supervision in Australia are in community-based supervision, with a smaller number in detention (Figure 11.10).

In 2022–23, around 1,500 First Nations young people aged 10–17 were in community supervision on an average day. Most had been sentenced (almost 1,300 or 82%), with a much smaller proportion being unsentenced (about 405 or 26%). Note that the number of unsentenced and sentenced young people on an average day may not sum to the total number of young people as young people may have changed legal status during the same day or been on both types of orders at the same time.

Unsentenced community-based supervision includes:

- being on bail while waiting for charges to come to court, or sentencing.

Sentenced community-based supervision includes:

- probation and similar orders – supervision in the community, where regular reporting to the youth justice agency and participation in treatment programs may be required
- suspended detention – supervision in the community, where the young person must meet certain conditions (for example, abiding by a curfew, reporting to police or living at a specified address) or not re-offend within a specified time
- parole – or supervised release – supervision in the community that follows a period of detention (AIHW 2023c).

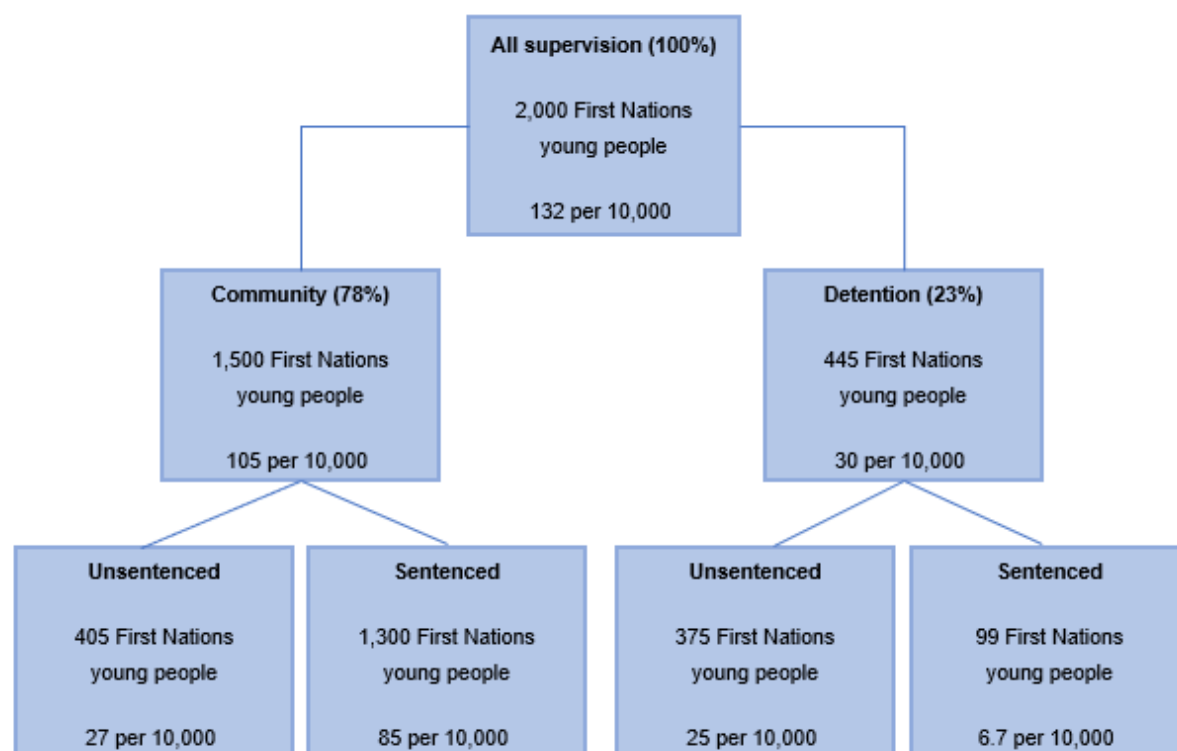
Compared with the number in community supervision, a smaller number of young people in Australia are in detention. In 2022–23, around 1,500 First Nations young people aged 10–17 were in community supervision, and around 445 in detention, on an average day. Most First Nations young people in detention were unsentenced (around 375 or 84%), while a smaller proportion were sentenced (99 or 22%). Again, note that the number of unsentenced and sentenced young people on an average day may not sum to the total number of young people as young people may have changed legal status during the same day, or been on both types of orders at the same time.

Unsentenced detention is where a young person is remanded in custody by the police or by a court and includes:

- awaiting their initial court appearance
- being charged with an offence and awaiting the outcome of their court matter
- being found guilty, or having pleaded guilty, and awaiting sentencing.

Sentenced detention is where a young person is detained in a youth justice detention centre following sentencing.

Figure 11.10: First Nations young people aged 10–17 under supervision on an average day, by supervision type and whether unsentenced or sentenced, 2022–23



Notes

1. Number of unsentenced and sentenced young people on an average day may not sum to total number of young people as young people may have changed legal status during the same day, or been on both types of orders at the same time.
2. Number of young people in community supervision and detention on an average day may not sum to total number of young people under youth justice supervision because some young people were under community-based supervision and in detention on the same day.

Source: AIHW 2023c, Data tables S3a, S4a, S65a, S66a, S74a, S75a, S109a and S110a.

The numbers and rates of First Nations young people aged 10–17 in unsentenced or sentenced community supervision or detention by state and territory on an average day in 2022–23 are shown in Table 11.2. In 2022–23, across states and territories the rate of First Nations young people aged 10–17 in:

- *unsentenced community supervision* ranged from 9.5 per 10,000 in New South Wales to 87 per 10,000 in the Northern Territory
- *sentenced community supervision* ranged from 19 per 10,000 in the Australian Capital Territory to around 140 per 10,000 in Western Australia and 115 per 10,000 in Queensland
- *unsentenced detention* ranged from 6.5 per 10,000 in Tasmania to around 42 per 10,000 in Queensland, 40 per 10,000 in the Northern Territory and 26 per 10,000 in the Australian Capital Territory
- *sentenced detention* ranged from 1.1 per 10,000 in Victoria to around 21 per 10,000 in the Northern Territory (Table 11.2).

Table 11.2: First Nations young people aged 10–17 in unsentenced or sentenced^(a) community supervision or detention^(b) on an average day, by state and territory, 2022–23

Legal status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Community supervision									
Number									
Unsentenced	47.6	15.9	138.3	38.4	55.2	5.6	4.2	98.7	403.9
Sentenced	332.8	21.0	500.1	255.7	39.5	15.1	2.5	89.5	1,256.1
Total	368.0	34.8	582.8	284.5	86.8	20.6	6.3	151.4	1,535.1
Rate (number per 10,000)									
Unsentenced	9.5	15.0	31.6	21.1	67.8	10.6	33.2	87.3	27.2
Sentenced	66.5	19.8	114.3	140.5	48.5	28.3	19.3	79.2	84.5
Total	73.5	32.9	133.2	156.3	106.6	38.5	49.5	134.0	103.2
Detention									
Number									
Unsentenced	73.0	8.5	182.7	44.7	13.5	3.5	3.2	45.5	374.7
Sentenced	25.0	1.1	25.4	18.6	2.2	0.9	2.5	23.2	98.9
Total	97.8	9.6	201.2	63.0	15.3	3.9	4.4	48.5	443.7
Rate (number per 10,000)									
Unsentenced	14.6	8.0	41.8	24.5	16.6	6.5	25.5	40.3	25.2
Sentenced	5.0	1.1	5.8	10.2	2.7	1.7	19.7	20.5	6.7
Total	19.5	9.1	46.0	34.6	18.8	7.3	34.6	42.9	29.8

(a) Number of unsentenced and sentenced young people on an average day may not sum to total number of young people as young people may have changed legal status during the same day, or been on both types of orders at the same time.

(b) Number of young people in community supervision and detention on an average day may not sum to total number of young people under youth justice supervision because some young people were under community-based supervision and in detention on the same day.

Notes

1. These data should be interpreted with caution due to potential issues with recording and updating of custodial order details in Tasmania.
2. In the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This has resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention.
3. The number on an average day is calculated by summing the number of days each young person spends under supervision during the financial year and dividing this by the total number of days in the year.

Source: AIHW 2023c4, Data tables S65a, S66a, S109a and S110a.

Changes in the rates of young people aged 10–17 under supervision on an average day over the whole period from 2018–19 to 2022–23 are shown in Table 11.3. Over this period:

- rates of youth justice supervision overall among First Nations young people aged 10–17 fell across all states and territories except the Northern Territory
- rates of community supervision among First Nations young people aged 10–17 fell across all states and territories except South Australia and the Northern Territory
- rates of detention among First Nations young people aged 10–17 fell across most states and territories but increased in Queensland, the Australian Capital Territory and the Northern Territory.

Table 11.3: Overall change in young people aged 10–17 under supervision on an average day, by supervision type, Indigenous status, and state and territory, 2018–19 to 2022–23

Indigenous status	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
Community-based supervision									
First Nations	↓	↓	↓	↓	↑	↓	↓	↑	↓
Non-Indigenous	↓	↓	↓	↓	↑	↓	↓	↔	↓
Total	↓	↓	↓	↓	↑	↓	↓	↑	↓
Detention									
First Nations	↓	↓	↑	↓	↓	↓	↑	↑	↓
Non-Indigenous	↓	↓	↔	↔	↓	↑	↑	↑	↔
Total	↓	↓	↔	↓	↓	↑	↑	↑	↓
All supervision									
First Nations	↓	↓	↓	↓	↓	↓	↓	↑	↓
Non-Indigenous	↓	↓	↓	↓	↔	↓	↓	↑	↓
Total	↓	↓	↓	↓	↔	↓	↓	↑	↓

Notes

1. Arrows indicate an overall change between 2018–19 and 2022–23. Trends might have fluctuated between these years, particularly for smaller jurisdictions. The horizontal yellow arrow indicates no change.
2. Data might differ from those previously published due to data revisions.
3. Age on an average day is calculated based on the age a young person is each day that they are under supervision. If the age of a young person changes during a period of supervision, the average daily number under supervision will reflect this. Average daily data broken down by age will not be comparable with data in *Youth justice in Australia* releases before 2019–20.

Source: AIHW 2023c4, Data tables S12a, S45a and S83a.

11.2.7 Unsenteded detention

National trend

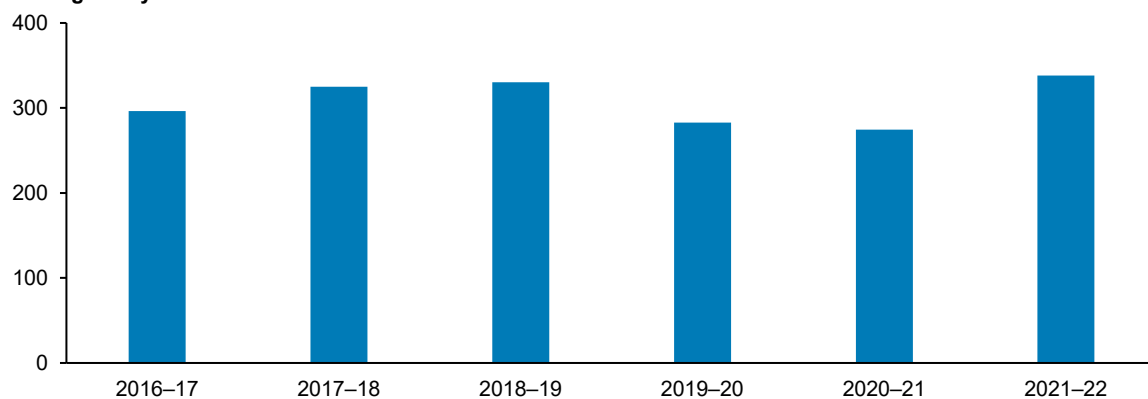
On an average day in 2022–23, around 445 First Nations young people aged 10–17 were in detention. Of these, most (84% or around 375) were unsenteded and almost all of these (98% or around 370) were on remand (awaiting trial).

Time trend data including 2022–23 data on First Nations young people in unsenteded detention were not available at the time of publication. In 2021–22, the number of young people aged 10–17 in unsenteded detention on an average day was 340, similar to that in 2018–19 (330), although the numbers decreased in 2019–20 and 2020–21 (Figure 11.11; Table S11.10). The rates followed a similar pattern. As noted previously, the COVID-19 pandemic may have had an impact on some changes in recent years.

Figure 11.11: First Nations young people aged 10–17 in unsentenced detention on an average day, 2016–17 to 2021–22

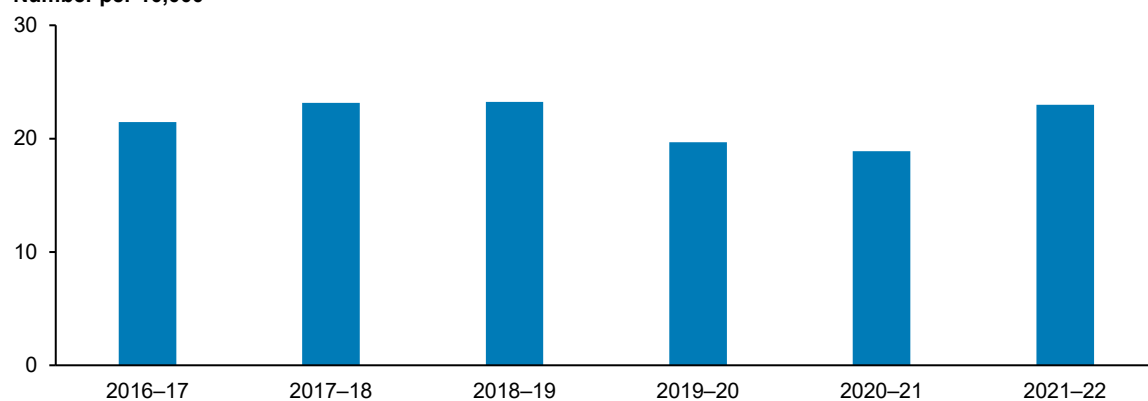
(a)

Average daily number



(b)

Number per 10,000



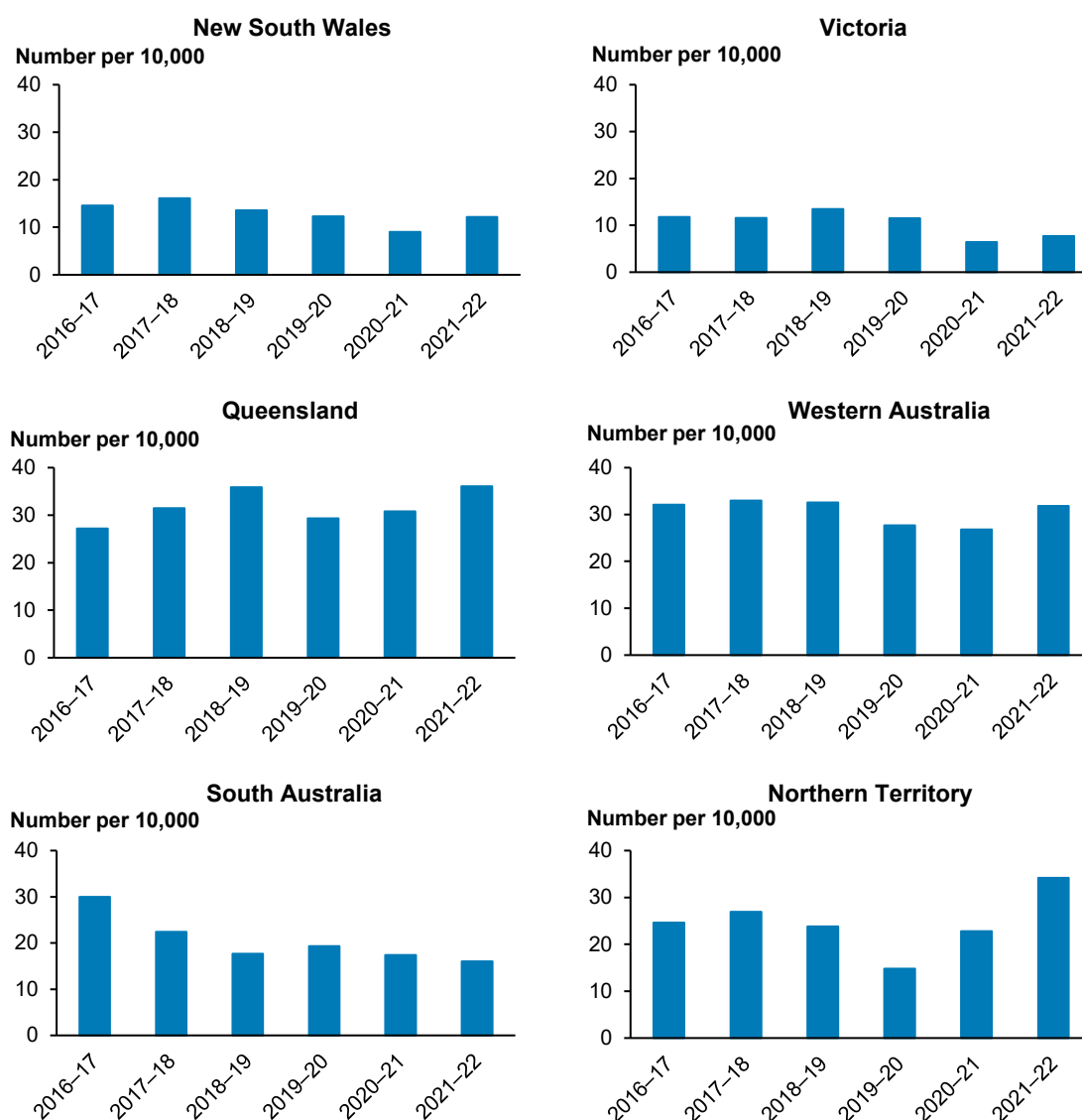
Note: Trend data may differ from those previously published due to data revisions.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

State and territory trends

Across states and territories with larger First Nations populations, the pattern of change over time between 2016–17 and 2021–22 was similar to the national pattern (Figure 11.12; Table S11.10). That is, the number and rate of First Nations young people in unsentenced detention decreased in 2019–20 and/or 2020–21, before increasing in 2021–22. (Numbers for Tasmania and the Australian Capital Territory are very small and variable, so are not presented.)

Figure 11.12: First Nations young people aged 10–17 in unsentenced detention on an average day, by state and territory, 2016–17 to 2021–22



Notes

1. In the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This has resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention.
2. Trend data may differ from those previously published due to data revisions.

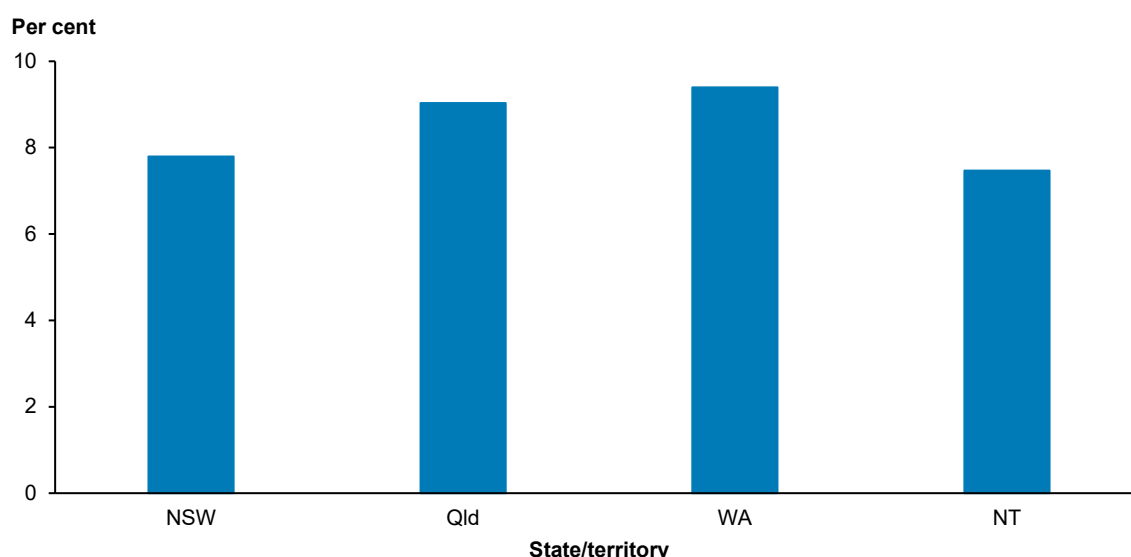
Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

State and territory by age

Across states and territories, the percentage of those aged under 14 among First Nations young people aged 10–17 in unsentenced detention varied. Information is presented here for the 4 states and territories with the largest First Nations populations (New South Wales, Queensland, Western Australia and the Northern Territory) (Figure 11.13; Table S11.11).

Nationally, just around 8% of First Nations young people aged 10–17 in unsentenced detention on an average day were aged under 14. Across the 4 states and territories shown in Figure 11.13, the percentage of those aged under 14 among First Nations young people aged 10–17 in unsentenced detention ranged from 7.5% in the Northern Territory to 9.4% in Western Australia.

Figure 11.13: Proportion of First Nations young people aged 10–13 among those aged 10–17 in unsentenced detention on an average day, by selected states and territories, 2022–23



Source: AIHW 2023c, Data Table S113a.

Average time during the year spent in unsentenced detention

The average time during the year spent in unsentenced detention is calculated based on periods of unsentenced detention that began and ended within the relevant financial year. It therefore excludes any time in unsentenced detention extending beyond that financial year. Young people are typically placed in unsentenced detention for relatively short periods while awaiting the outcome of the legal matter or sentencing (AIHW 2023c).

Between 2016–17 and 2021–22, the average length of time First Nations young people aged 10–17 spent in unsentenced detention during the year increased:

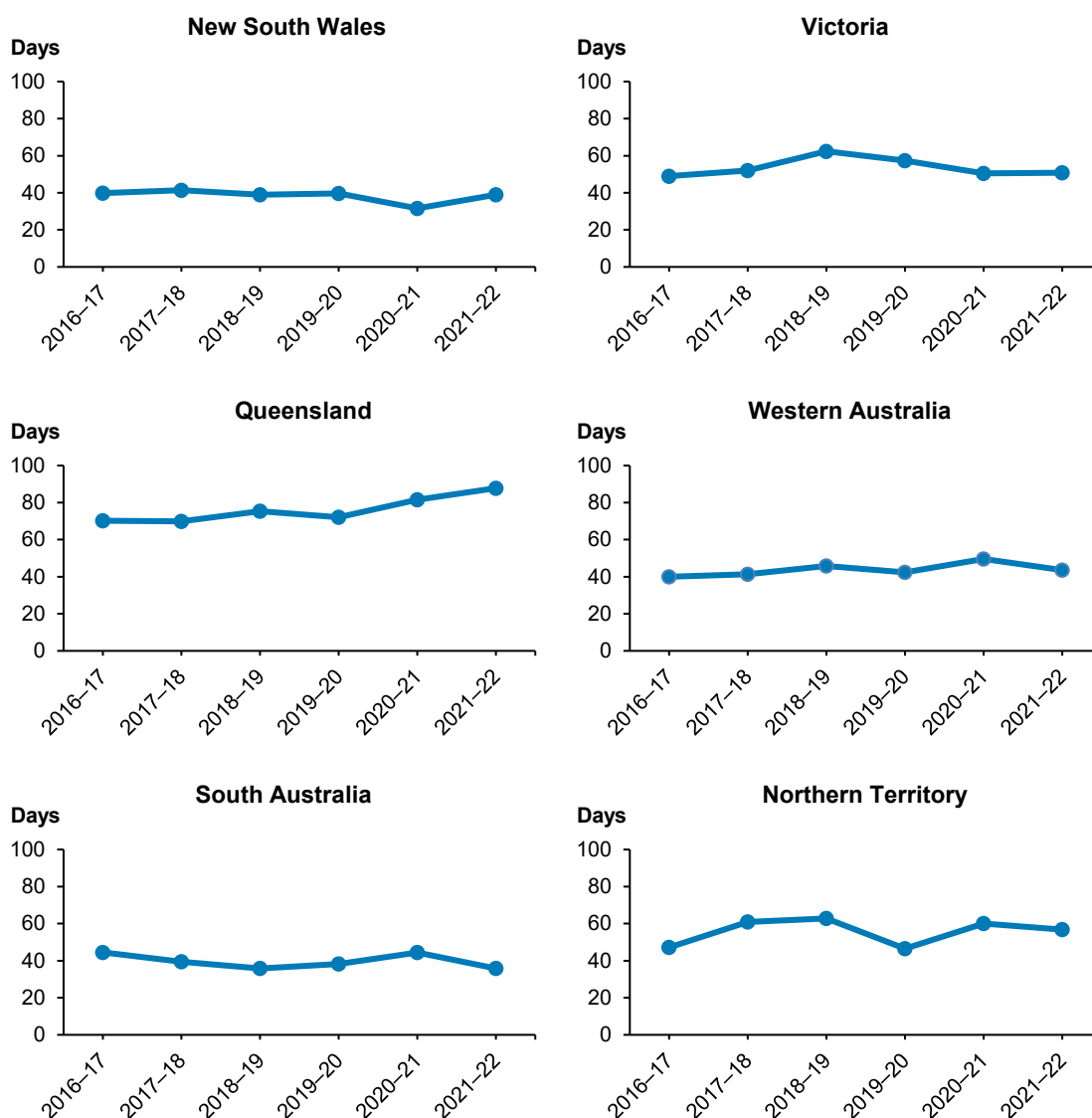
- nationally from 49 days to 57 days
- by 18 days in Queensland
- by 10 days in the Northern Territory.

Results for Tasmania and the Australian Capital Territory are not presented because of the small number of First Nations young people aged 10–17 in detention, leading to greater variability in changes over time (Figure 11.14; Table S11.12).

Median length of completed periods of unsentenced detention

Young people often have more than one period of unsentenced detention in a year. While First Nations young people aged 10–17 spent an average of 57 days in total in unsentenced detention in 2021–22, the median length of individual completed periods, or episodes, of unsentenced detention was 8 days. The median length of completed periods ranged from 2 days in New South Wales and the Australian Capital Territory to 24 days in Queensland (Table S11.13).

Figure 11.14: Average length of time First Nations young people aged 10–17 spent in unsentenced detention during the year, by state and territory, 2016–17 to 2021–22



Notes

1. Trend data may differ from those previously published due to data revisions.
2. Average duration calculated from the summed length of periods of unsentenced detention that occurred within the financial year.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

Completion of periods of unsentenced detention

In 2022–23 at a national level, 57% of periods of unsentenced detention (or remand) among First Nations young people aged 10–17 ended with release on bail, and 41% ended when the young person completed the hours and/or conditions of their detention order without it being revoked, overturned or ending due to an escape.

The proportion of First Nations young people's remand periods that ended because the young person was released on bail varied across states and territories, ranging from 26% in South Australia to 79% in Tasmania.

In 2020–21, of completed remand periods among First Nations young people (aged 10–18+), about 77% were followed by a supervised sentence within 1 day – 59% by a community-based sentence and 19% by a detention sentence (AIHW 2023c, Data tables S118 and S119).

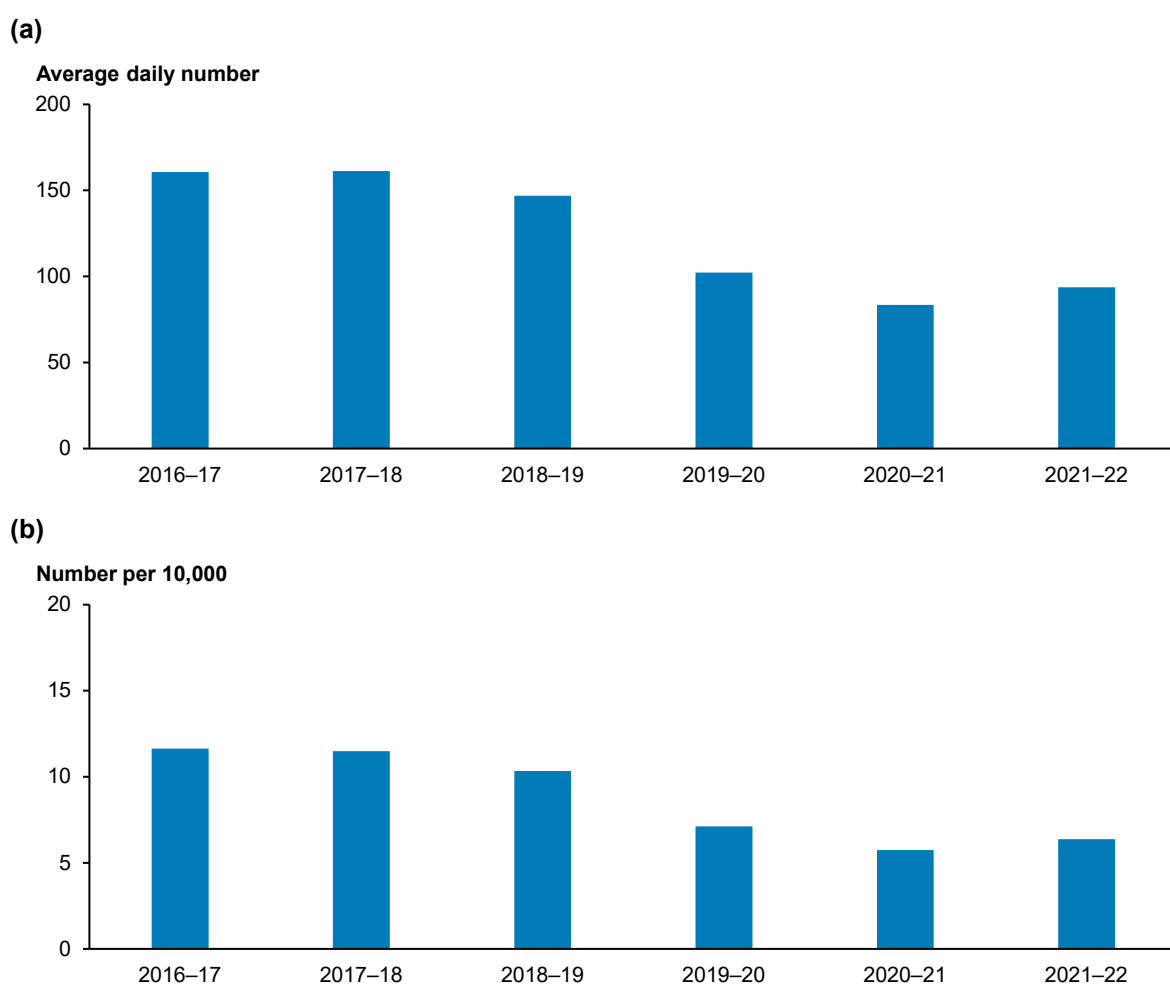
Sentenced detention

National trend

On an average day in 2022–23, of the 445 First Nations young people aged 10–17 in detention, 99 (22%) were in sentenced detention.

Time trend data including 2022–23 data on First Nations young people in sentenced detention were not available at the time of publication. Nationally, the number of First Nations young people in sentenced detention on an average day fell from around 145 in 2018–19 (the Closing the Gap baseline year) to 94 in 2021–22 (Figure 11.15; Table S11.14).

Figure 11.15: First Nations young people aged 10–17 in sentenced detention on an average day, 2016–17 to 2021–22



Note: Trend data may differ from those previously published due to data revisions.

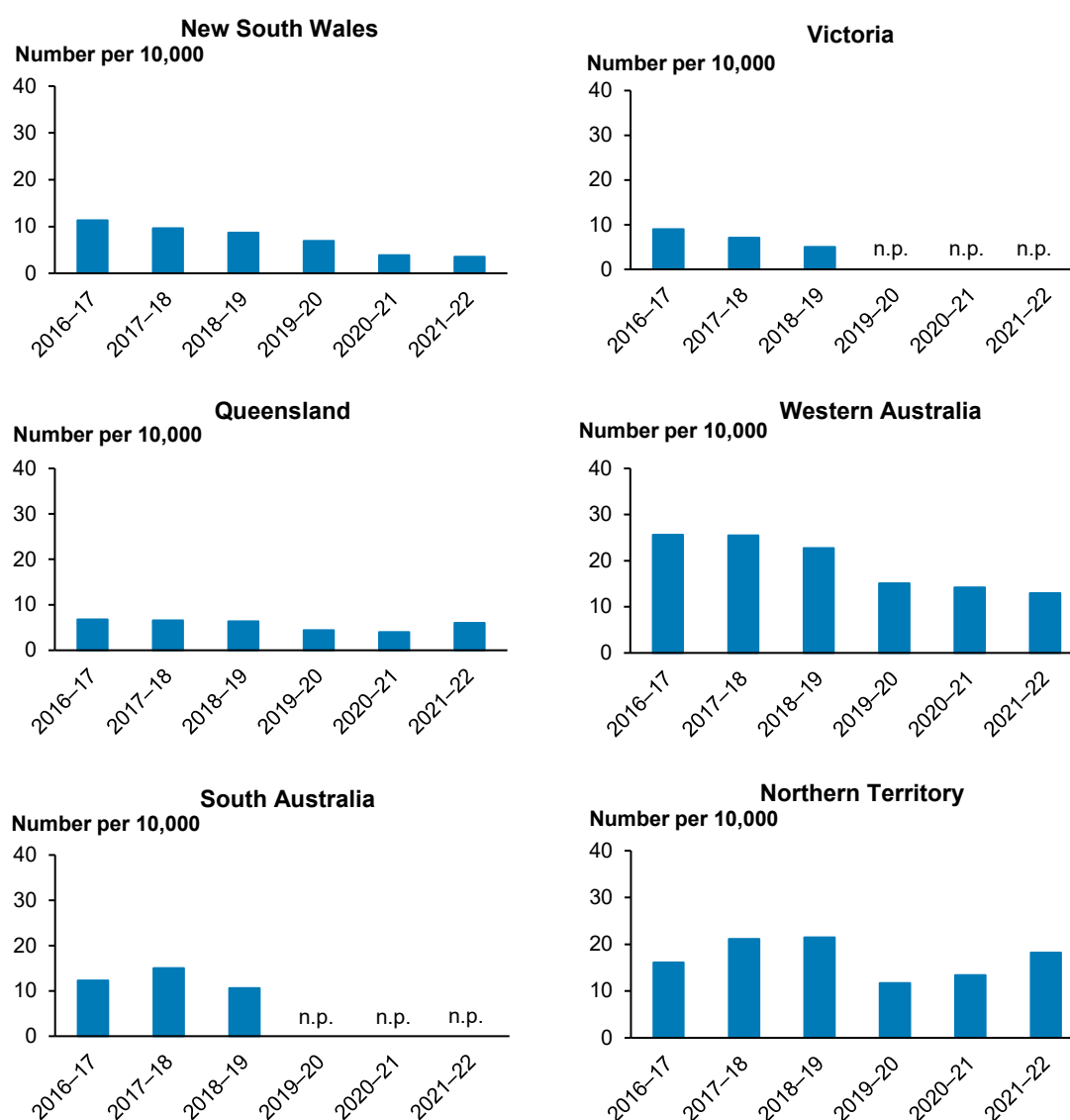
Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

State and territory trends

From 2016–17 to 2021–22, the number of First Nations young people in sentenced detention on an average day decreased in New South Wales, Victoria, Western Australia and South Australia. (Numbers for Tasmania and the Australian Capital Territory are very small and variable, so are not presented.)

In the Northern Territory, the number increased except between 2018–19 and 2019–20. Note that, in the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention (AIHW 2023c). In Queensland, the rate generally decreased, before increasing in 2021–22 (Figure 11.16; Table S11.14).

Figure 11.16: First Nations young people aged 10–17 in sentenced detention on an average day, by state and territory, 2016–17 to 2021–22



Notes

1. In the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This has resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention.
2. Trend data may differ from those previously published due to data revisions.
3. Rates are not published where there were fewer than 5 young people.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

Average time in sentenced detention

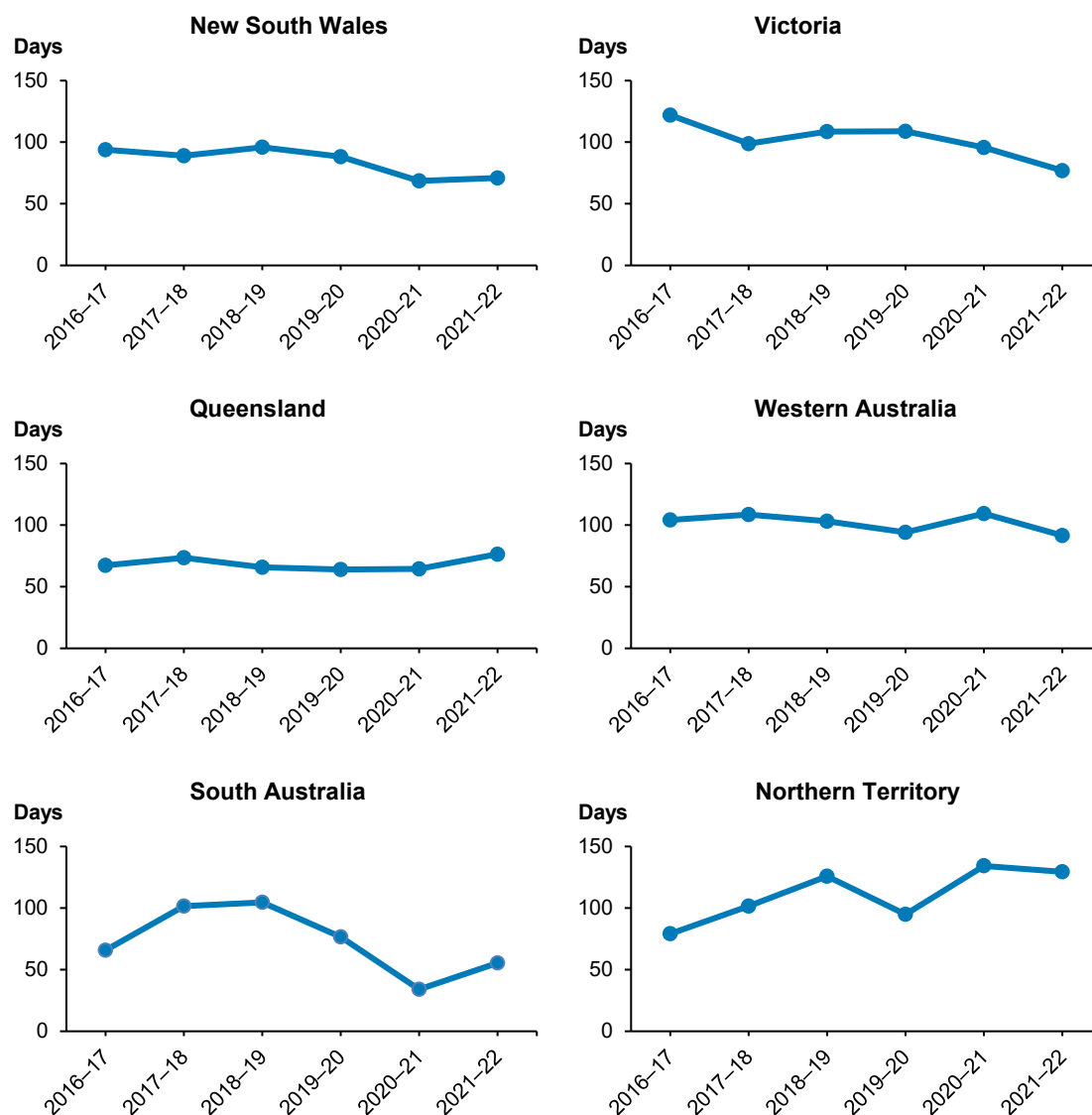
The average time during the year spent in sentenced detention is calculated based on periods of sentenced detention that began and ended within the relevant financial year, and therefore excludes any time in sentenced detention extending beyond that financial year.

Nationally, the average length of time First Nations young people spent in sentenced detention during the year was 86 days in 2021–22, a decrease from 94 days in 2018–19. The average length of time First Nations young people spent in sentenced detention during the year decreased overall in most states and territories except for Queensland where it remained fairly stable and the Northern Territory where it increased overall. Note that in the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention (AIHW 2023c) (Figure 11.17; Table S11.15).

Median length of completed periods of sentenced detention

Young people may have more than one period of sentenced detention in a year. While First Nations young people aged 10–17 spent an average of 86 days in total in sentenced detention in 2021–22, the median length of individual completed periods, or episodes, of sentenced detention was lower at 50 days. The median length of completed periods ranged from 33 days in South Australia to 75 days in Victoria (Table S11.13).

Figure 11.17: Average length of time First Nations young people aged 10–17 spent in sentenced detention during the year, 2016–17 to 2021–22



Notes

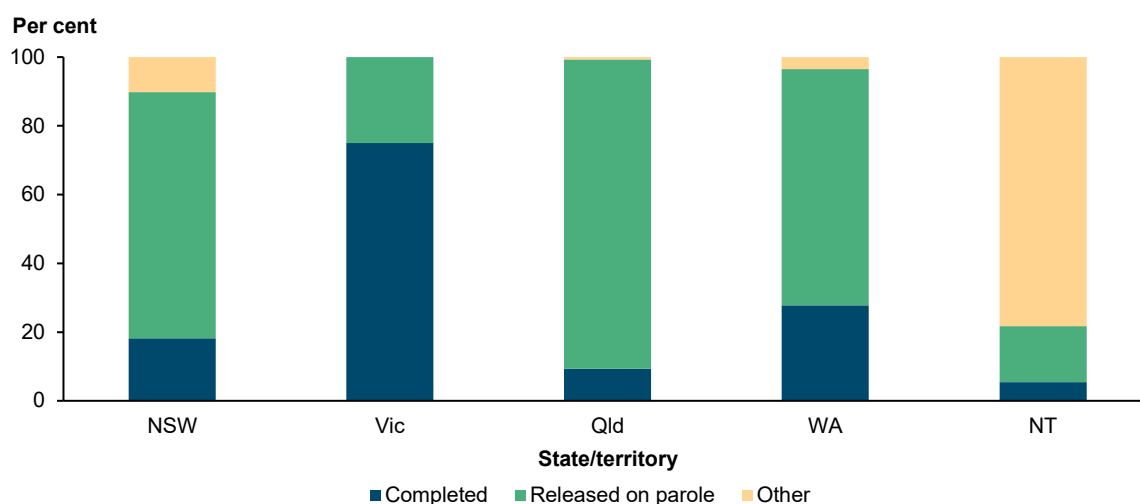
1. In the Northern Territory, sentenced periods were backdated to take into account time spent in unsentenced detention. This has resulted in a large number of young people reported as being in sentenced and unsentenced detention at the same time and an over-count of young people in sentenced detention.
 2. Trend data may differ from those previously published due to data revisions.
 3. Average duration calculated from the summed length of periods of sentenced detention that occurred within the financial year.
- Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

Completion of periods of sentenced detention

Around 3 in 5 (62%) of the sentenced detention periods for First Nations young people that ended in 2021–22 ended because the young person was released on parole (supervised release). Around 1 in 5 (20%) ended with the period being completed (where a young person has completed the hours and/or conditions of their detention order without it being revoked, overturned or ending due to an escape). The remaining 1 in 5 (18%) ended for other reasons, including transfer (which can include transfer to another youth detention centre, the adult system or interstate).

The proportion of First Nations young people's remand periods that ended because the young person was released on parole varied across states and territories, ranging from 16% in the Northern Territory to 90% in Queensland (Figure 11.18; Table S11.16).

Figure 11.18: Periods of sentenced detention for First Nations young people aged 10–17, by end reason^(a) and state and territory, 2021–22



(a) 'Other' potentially includes Death; Transfer to another jurisdiction; Transfer to another youth detention centre within the jurisdiction; Release on bail; Escape; Abscond on leave pass; Other reason. For 2021–22, values were zero for Release on bail; Death; Escape; Abscond on leave pass.

Note: In some states and territories, a minimum duration of sentenced detention applies before a young person may be considered eligible for supervised release or parole. This affects the results and comparability.

Source: AIHW Youth Justice National Minimum Dataset 2000–01 to 2021–22.

11.2.8 Detention entries and exits and average time spent in detention

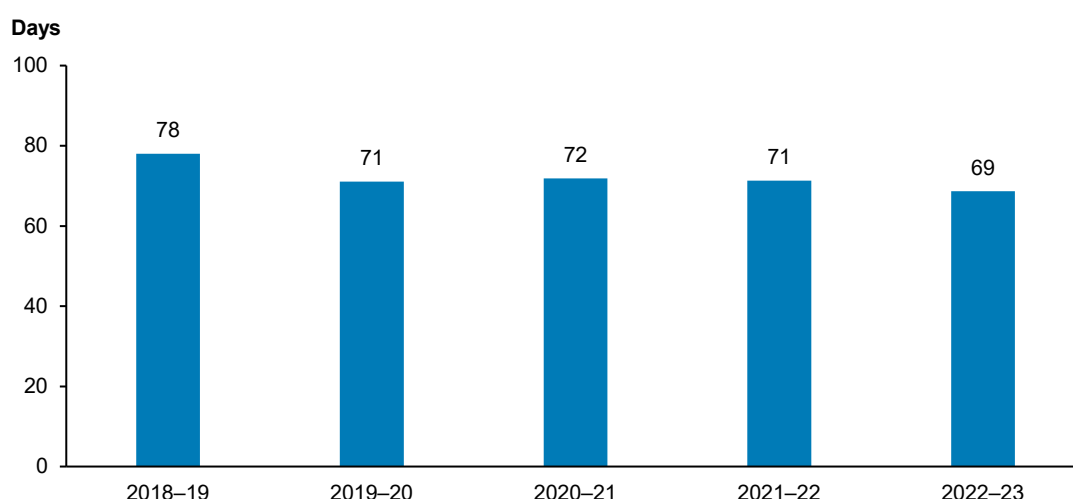
The AIHW *Youth Justice in Australia* reports use the term ‘reception’ to describe a young person’s entry to detention, and the term ‘release’ to describe a young person’s exit from detention. See AIHW 2023c for more information about how these terms are defined and measured.

In 2022–23, around 2,400 First Nations young people were received into detention. Just over half (54%) of First Nations young people were received into detention more than once during the year (AIHW 2024, Data Table S105a).

The numbers of young people released from detention were very similar to the numbers received into detention. In 2022–23, around 2,500 First Nations young people were released from detention during the year (AIHW 2024, Data Table S105b).

The average number of days that First Nations young people spent in detention during the year has fallen from 78 days in 2018–19 to 69 days in 2022–23 (Figure 11.19; Table S11.17).

Figure 11.19: Average length of time First Nations young people spent in detention during the year, 2018–19 to 2022–23



Notes

1. Trend data may differ from those previously published due to data revisions.
2. Average duration calculated from the summed length of periods of detention that occurred within the financial year.

Source: AIHW 2023c, Data Table S102.

11.2.9 Whether new to youth justice supervision

During 2022–23, there were around 4,600 First Nations young people under youth justice supervision and around 34% (around 1,600) were new to supervision in that year. This proportion remained similar between 2018–19 and 2022–23, ranging between 28–34%, except for a noticeable dip to 25% in 2019–20 (AIHW 2024, Data Table S17).

In comparison, during 2022–23, there were around 2,600 First Nations young people in detention and around 40% (1,000) were new to supervision in that year. This was an increase from 30% in 2018–19 (AIHW 2024, Data Table S91).

11.2.10 Young people in detention – age first entered youth justice supervision or youth detention

Age at first entry to supervision is the age a young person was the first time they came under youth justice supervision, and includes periods of supervision that occurred before the reference period. It has been shown that those who are first involved with the criminal justice system at a younger age are more likely to re-offend (Shirley 2017). Recent analysis has also shown that the younger that young people under youth justice supervision during 2020–21 were at their first supervision, the more likely they were to have had an interaction with the child protection system in the 5 years from 1 July 2016 to 30 June 2021 (AIHW 2022b).

This section focuses on young people in detention, and presents information about:

- the age they first entered detention
- the age they first entered youth justice supervision of any type (that is, they may have first entered youth justice supervision via community-based supervision).

Of First Nations young people who spent some time in detention in 2022–23:

- 41% were aged 10–13 when they first entered youth justice supervision (Figure 11.20)
- 37% were aged 10–13 when they first entered detention (Table 11.4; Table S11.18).

Table 11.4: First Nations young people in detention, 2022–23, by age first entered supervision or detention

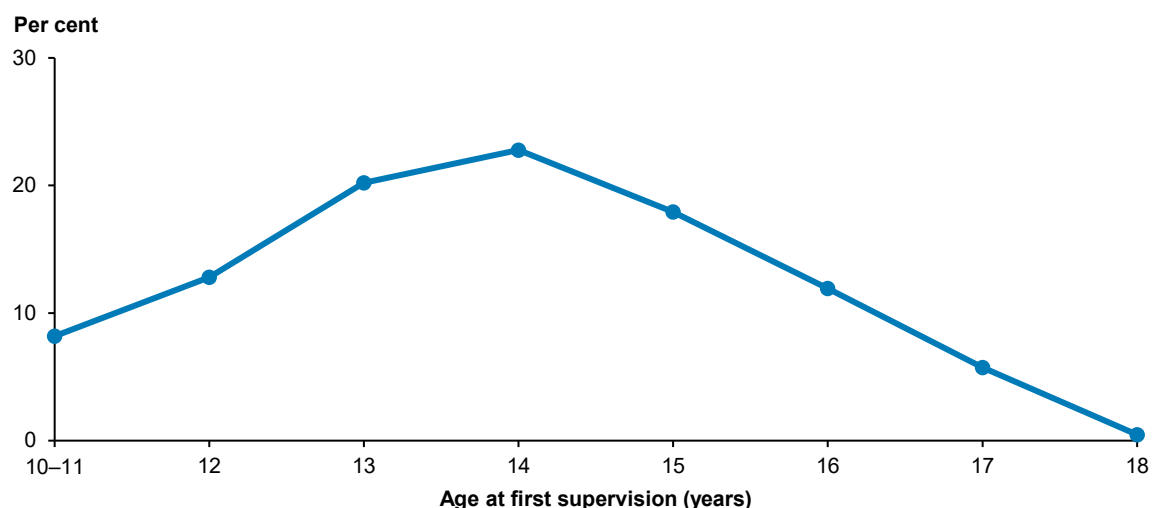
Age (years)	Age first entered youth justice supervision		Age first entered detention	
	Number	%	Number	%
10–11	210	8.2	164	6.4
12	329	12.8	301	11.7
13	519	20.2	488	19.0
10–13	1,058	41.2	953	37.1
14	585	22.8	572	22.3
15	460	17.9	465	18.1
16	306	11.9	355	13.8
17	147	5.7	208	8.1
14–17	1,498	58.3	1,600	62.3
10–17	2,556	99.5	2,553	99.4
18+	12	0.5	15	0.6
Total	2,568	100.0	2,568	100.0

Notes

1. Total includes young people with unknown date of first supervision/detention.
2. Age calculated as at start of first supervision/detention period.
3. For Tasmania and the Australian Capital Territory, young people aged 18 and over in detention during the year have been excluded due to small numbers.

Source: AIHW 2024, Data tables S92 and S94.

Figure 11.20: First Nations young people in detention, by age at first supervision, Australia, 2022–23



Notes

1. Age calculated as at start of first period of supervision.
2. Information on first supervision is not available for all young people in detention. Young people with unknown date of first supervision are excluded.
3. For Tasmania and the Australian Capital Territory, young people aged 18 and over in detention during the year have been excluded due to small numbers.

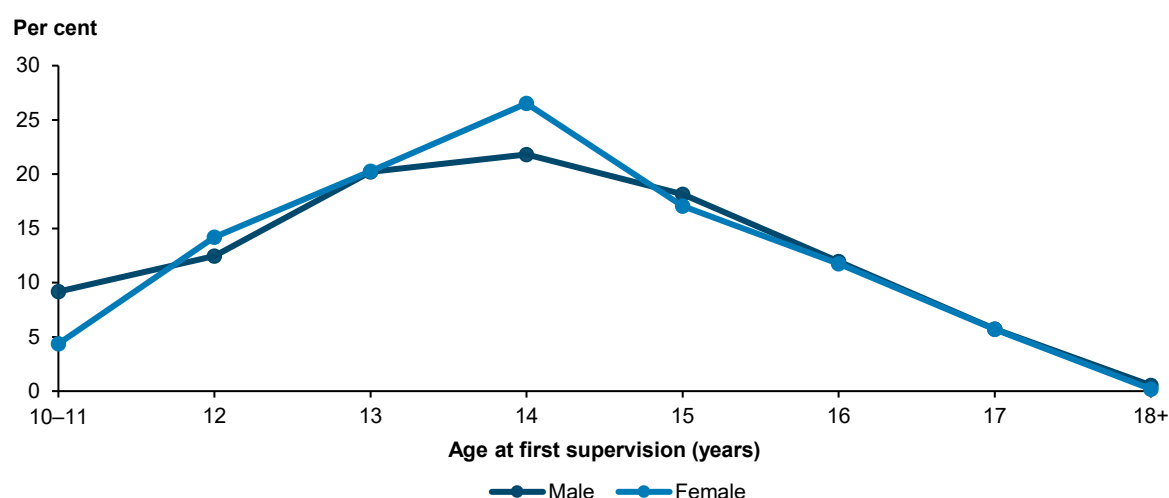
Source: AIHW 2023c, Data Table S92.

Young people in detention – age first entered youth justice supervision by sex

First Nations young people (including those aged 18 and over) who were in detention at any time during 2022–23 had most commonly entered youth justice supervision (either community-based supervision or detention) for the first time when aged 13 or 14.

The most common age at which First Nations boys and girls first entered youth justice supervision was 14 (22% of boys, 27% of girls) followed by 13 (20% of boys, 20% of girls). Among First Nations young people in detention, the proportions first entering youth justice supervision at the ages of 10 and 11 were higher for boys than girls (Figure 11.21; Table S11.19).

Figure 11.21: First Nations young people in detention, by age at first supervision and sex, Australia, 2022–23



Notes

1. Age calculated as at start of first period of supervision.
2. Information on first supervision is not available for all young people in detention. Young people with unknown date of first supervision are excluded.
3. For Tasmania and the Australian Capital Territory, young people aged 18 and over in detention during the year have been excluded due to small numbers.

Source: AIHW 2023c, Data Table S92.

11.3 Literature review

11.3.1 Factors associated with youth detention

This section presents a summary of factors associated with First Nations youth detention (or associated outcomes) most commonly identified from the literature.

The first part of the literature review includes a number of empirical studies that identified key factors associated with youth offending, which, in turn, is a driver of youth detention. The second part includes a small number of empirical studies that examined whether being a First Nations person was associated with different justice system outcomes, such as prosecution, cautions or diversions.

The current review covered studies specific to First Nations people as well as to other/broader population groups. The key factors identified for different reference populations are summarised in Table 11.5, which also gives the count of the relevant studies in each category.

The most common factors cited in these studies were:

- child abuse and neglect/child maltreatment
- school attendance, attainment and retention
- being a First Nations person
- family circumstances/parenting
- mental health conditions
- foetal alcohol syndrome disorder (FASD).

Table 11.5: Key factors associated with young people being in youth detention (or related outcomes) identified from the literature^(a)

	Total number of studies	First Nations people	Other Indigenous populations	General population: Australia	General population: international
Studies focused on youth offending					
Child abuse and neglect/child maltreatment	4	3		1	
School attendance, attainment and retention	3	1		2	
Parenting style/parental supervision	2			2	
Mental health	2	2			
FASD	2			1	1
Studies focused on justice system responses					
Being a First Nations person ^(b)	3	3		3	

(a) The same reference may be counted in more than one row or column, so subtotals of these may not be the sum of the components.

(b) As a factor associated with prosecution versus being cautioned (Weatherburn and Thomas 2022), or prosecution versus diversion (Ringland and Smith 2013), or receiving a court summons versus diversion (Papalia et al. 2019).

11.3.2 Empirical literature

In general, there is a lack of accessible data that include information about young people, their family characteristics and youth detention, although some linked data sets are available to certain researchers. These include:

- the New South Wales Human Services Dataset (<https://www.facs.nsw.gov.au/resources/research/human-services-dataset-hsds>)
- The University of Adelaide's Better Evidence, Better Outcomes, Linked Data platform, with linked data sets compiled through a collaboration with SA–NT DataLink and data custodians and data managers from government partners at the state and federal level (<https://health.adelaide.edu.au/betterstart/bebold>)
- a collaboration between the Menzies School of Health Research, the Northern Territory Government and the SA-NT DataLink data integration authority (described in He et al. (2019a))
- a linked data collection developed by the Australian Institute of Health and Welfare (AIHW) to report on the relationships between child protection and youth justice supervision (AIHW 2022b).

There are a small number of empirical studies focusing on factors associated with First Nations youth offending. He et al. (2019a:1) notes that there is 'scant research on juvenile delinquency in the Northern Territory', despite high rates of youth detention in that jurisdiction. The existing evidence base comprises studies that range in size, use diverse methods, and often relate to a single Australian jurisdiction. However, some findings do emerge from the literature more broadly, supporting the key factors presented here.

The empirical studies include:

- a study of 2,830 children born in the Northern Territory (He et al. 2019a)
- a study of 1,533 First Nations children born between 1996 and 2001 living in remote communities of the Northern Territory (He et al. 2019b)
- a study of 10,438 First Nations children born in the Northern Territory between 1999 and 2006 (He et al. 2021)
- a study of a sample of 4,428 assessments completed with youth offenders in Western Australia from 2016 to 2020 (using an assessment tool called the Youth Level of Service/Case Management Inventory, which is administered at the pre-sentence stage to inform sentencing and help develop case management plans) (Dellar et al. 2022)
- a small study of young people aged 10–<18 in one youth detention centre in Western Australia (99 completed a full assessment used to determine a diagnosis of FASD) (Bower et al. 2018)
- a study of 7,223 mother and infant pairs, where the mothers attended a Queensland hospital for their first antenatal visit between 1981 and 1983, and were then followed up at intervals to 14 years after the birth of the baby (Doolan et al. 2013)
- a study of 159 adolescents (aged 13–17) on remand in South Australia in 2008–09 and comparison groups of 13–17-year-olds (1,283) and 13–17-year-old First Nations children (1,100) who participated in population health surveys (Sawyer et al. 2010)
- a study of 10,441 completed self-report questionnaires from secondary school students in New South Wales (completed between September and November 1996) (Baker 1998).

The range of estimates on the effects of the key factors associated with youth offending, as reported in 5 of these studies, are summarised in Table 11.6. These studies used multivariate modelling to examine the effects of multiple explanatory variables on the outcome simultaneously.

Findings about key factors associated with youth offending are discussed below. Some of these are also identified by Weatherburn (2014) as those whose influence on offending (in general populations) is well established.

Child abuse and neglect/child maltreatment

Definitions of 'child abuse and neglect' and 'child maltreatment' are often used interchangeably in the literature (AIFS 2018). *Child maltreatment* is a broad term that covers physical, sexual and emotional abuse and neglect of children under 18 (World Health Organization 2024). *Child neglect* refers to 'any serious acts or omissions by a person having the care of a child that, within the bounds of cultural tradition, constitute a failure to provide conditions that are essential for the healthy physical and emotional development of a child' (AIHW 2023a).

- He and colleagues (2019b) found that, for First Nations boys born in remote communities in the Northern Territory, compared with no maltreatment notification before year 7, the risk of youth offending was:
 - 2.71 times higher for those reported as being subjected to more than one type of maltreatment before year 7
 - 2.24 times higher for those reported as being subjected solely to physical abuse
 - 1.69 times higher for those reported as being subjected solely to neglect
- For First Nations girls, compared with no maltreatment notification before year 7, the risk of youth offending was:
 - 4.49 times higher for those reported as being subjected to more than one type of maltreatment
 - 4.33 times higher for those reported as being subjected solely to physical abuse
- Another study that included both First Nations and non-Indigenous children in the same analysis found that those with a history of both abuse and neglect had the highest cumulative risk of being proven guilty of offending (53.6% for boys, 17.1% for girls), followed by those with:
 - solely a neglect substantiation (30.9% and 13.4%, respectively)
 - solely an abuse substantiation (11.0% and 6.7%, respectively)
 - no abuse or neglect substantiation (4.9% and 1.8%, respectively) (He et al. 2019a).
- Mindful of the over-representation of First Nations youth in detention, an earlier study of children born in Queensland found that First Nations children were more likely to have a youth justice history than non-Indigenous children, and this remained true after adjusting for social disadvantage, substantiated maltreatment and both social disadvantage and substantiated maltreatment (Doolan et al. 2013). The authors suggested that the over-representation of First Nations youth in the youth justice system may be due to a combination of factors, including systemic discrimination against First Nations young people, and First Nations youths having greater freedom in the community without close parental supervision than non-Indigenous youth. The authors also noted that the study may not have adequately controlled for other possible variables.

Contact with the child protection system

- He and colleagues (2021) found that, for First Nations boys in the Northern Territory, compared with those with no record of contact with the child protection system (CPS) before the age of 10:
 - among those with a CPS notification only (that is, not substantiated), the relative risk of first offence was 5.0 times as high
 - among those with a substantiation only (that is, not placed in out-of-home care [OOHC]), the risk was 6.9 times as high
 - among those placed in OOHC, the risk was 13.7 times as high.

By age 14, the relative risks were lower at 1.9 for notifications only, 2.2 for substantiations only and 3.0 for those placed in OOHC.

For First Nations girls in the Northern Territory, compared with those with no record of CPS contact before the age of 10, He and colleagues (2021) found that:

- among those with a CPS notification only, the relative risk of first offence was 6.8 times as high
- among those with a substantiation only, the risk was 16.3 times as high
- among those placed in OOHC, the risk was 27.6 times as high.

By age 14, the relative risks were lower, at 2.8 for notifications only; 3.7 for substantiations only and 4.0 for those placed in OOHC.

This study found no substantial difference in the risk of first offence for those with unsubstantiated CPS notifications compared with those with substantiated notifications.

- He and colleagues in an earlier study (2019a) that included both First Nations and non-Indigenous children in the analysis found that among children born in the Northern Territory in 1999, for all boys to age 16, the cumulative risk for a proven-guilty youth offence was:
 - 3.2% for those with no history of contact with the CPS
 - 11.5% among the notification only group
 - 18.7% among the substantiation group
 - 33.7% among those who had been placed in OOHC.

For girls, the corresponding cumulative risks for a proven-guilty youth offence were:

- 0.6% among those with no CPS contact
- 5.9% among the notification only group
- 8.9% among the substantiation only group
- 3.2% among the OOHC group.

Family circumstances/parenting and parental supervision

- A study of youth offenders in Western Australia examined areas of 'criminogenic need' (attributes of an offender associated with recidivism) including family circumstances/parenting, which comprised the following items: 'inadequate supervision', 'difficulty in controlling behaviour', 'inappropriate discipline', 'inconsistent parenting', 'poor father–youth relations' and 'poor mother–youth relations'. The study found that the chances of re-offending were higher among those with:
 - 'inadequate supervision' (1.89 times as high)
 - 'inappropriate discipline' (1.91 times as high)
 - 'inconsistent parenting' (1.96 times as high)

- ‘poor mother–youth relations’ (1.95 times as high) (Dellar et al. 2022).
- A study of secondary school students in New South Wales found that students with lower levels of adult supervision were more likely to be participants in each of the crimes of assault (1.3–1.4 times as likely among those with medium or low supervision, compared with high), malicious damage (1.6–2.2 times as likely), and acquisitive property crime (1.9–2.6 times as likely). Adult supervision was categorised as follows:
 - *high supervision* – the student’s going out 0 to 1 night without adult supervision in a normal week
 - *medium supervision* – the student’s going out 2 to 3 nights without adult supervision in a normal week
 - *low supervision* – the student’s going out 4 or more nights without adult supervision in a normal week (Baker 1998).

School attendance and attainment

- A study of youth offenders in Western Australia found that the chances of re-offending were higher among those with low school achievement (Dellar et al. 2022).
- He and colleagues (2019b) found that, for First Nations boys born in remote communities in the Northern Territory, compared with those with year 7 attendance less than 60%, the risk of youth offending was lower for those with attendance between 60% and less than 80% (0.67 times as likely); for those with attendance of 80% or greater, it was 0.49 times as likely. For First Nations girls, there was a lower risk of offending (0.38 times as likely) for those enrolled by their mothers at year 7 compared with those who were not.
- A study of secondary school students in New South Wales found that students with below average school attainment were more likely to be participants in each of the crimes of assault (1.4 times as likely compared with average or above) and acquisitive property crime (1.5 times as likely). The same study found that school truancy was strongly associated with participation in:
 - each of the crimes of assault (1.7 times as likely among those with some truancy, and 3.2 times as likely among those with a lot of truancy, compared with none)
 - malicious damage (2.7 times as likely among those with some truancy, and 4.7 times as likely among those with a lot of truancy, compared with none)
 - acquisitive property crime (3.9 times as likely among those with some truancy, and 8.8 times as likely among those with a lot of truancy, compared with none) (Baker 1998).

Mental health

While no studies were found that used multivariate analysis to assess mental health as an explanatory factor for youth detention, studies have shown that the prevalence of mental health conditions among young people in detention is considerably higher than in the general community.

- A study of First Nations young people in a youth detention centre in Queensland found that all girls, and 94.6% of boys scored above the clinical cut-off on at least one of the 5 mental health scales (Stathis et al. 2012).
- A study of 13–17-year-olds on remand in South Australia found that among First Nations adolescents:

- 55.8% of those on remand had a score on the Strengths and Difficulties Questionnaire indicating mental health problems compared with 32.1% in the community
- 19.1% of those on remand reported making a suicide attempt during the previous 12 months compared with 4.3% of those in the community (Sawyer et al. 2010).
- Results of a recent systematic review of the prevalence of mental disorders among adolescents in youth detention and correctional facilities suggests that mental disorders are much more common among young people in detention than in the general population, with the prevalences varying according to the specific disorder (Beaudry et al. 2021).
- An Australian study which compared the prevalence of mental disorders among prisoners and community respondents interviewed with the same screening instrument found that the overall prevalence of any psychiatric illness was 80% for prisoners compared with 31% for the community, adjusting for differences in age, sex and education in the prison and community samples (Butler et al. 2006).

Fetal Alcohol Spectrum Disorder

No studies were found that assessed FASD as an explanatory factor for youth detention using multivariate analysis. However, studies have shown the disproportionate prevalence of FASD among those in youth detention.

- A widely cited study of young people in detention in one youth detention centre in Western Australia (of whom 73% were First Nations people) found that 36% (or 363.6 per 1,000) were diagnosed with FASD – the highest reported prevalence of FASD in a youth justice setting anywhere in the world (Bower et al. 2018).
- This Bower and colleagues study (2018) is the Australian study cited in a systematic review of the global literature, which also found a FASD prevalence (median across studies) in the correctional populations of Canada of 108.7 per 1,000 and the United States of 112.8 per 1,000, compared with the estimated prevalence of FASD in the general global population of 7.7 per 1,000 (Popova et al. 2019).

Being a First Nations person

There is a small body of recent literature relating to young people already involved with the criminal justice system and their pathways within the system, focusing on whether being a First Nations person is statistically significantly associated with specific justice system outcomes. The empirical studies include:

- a study of 38,439 individuals who had been warned, cautioned, referred to a youth justice conference or referred to court in New South Wales between 1 January 2010 and 31 December 2021 (Weatherburn and Thomas 2022)
- a study of 53,632 first-time youth offenders in Australia who turned 18 between 2000 and 2010 (Papalia et al. 2019)
- a study of records of cautions, conferences and Children's Court matters (19,121 cases relating to 13,541 people) with a reference date between 1 July 2010 and 30 June 2011 for those aged between 10 to 21 at the time of police proceedings (Ringland and Smith 2013).

The range of estimates on the effects of being a First Nations person on young people's justice system outcomes, as reported in these 3 studies, are summarised in Table 11.7. These studies used multivariate modelling to examine the effects of multiple explanatory variables on the outcome simultaneously and the results are as follows.

- A recent large study examined whether First Nations young people were more likely to be prosecuted than cautioned, compared with non-Indigenous young people (Weatherburn and Thomas 2022). The study found that, after adjusting for the effects of factors that police are required to consider, and controlling for a range of other factors, the odds of a young First Nations defendant being cautioned rather than prosecuted were just over half (0.57) those of a young non-Indigenous defendant.

The authors of this study point out that their results are consistent with those of an earlier study by Ringland and Smith (2013) (of the contrast between prosecution and diversion), which found that the odds of a young First Nations defendant's being diverted from court were about half (0.53) those of a young non-Indigenous defendant.

In discussing their results, Weatherburn and Thomas (2022:17) canvass potential explanations for these differences including racial discrimination – citing 'multiple reports ... in the media and in Government reports over many years documenting police and custodial officer mistreatment of young Indigenous defendants' – and the extensive range of other matters that police can consider when issuing a caution.

- Another recent study by Papalia and colleagues (2019) found that the odds of receiving a court summons following the first offence (rather than a diversionary alternative) were around 2 times higher for First Nations young offenders. This study discusses some potential explanations for the differences between First Nations and non-Indigenous young offenders, referring to various other sources from the literature, which include:
 - a lack of diversionary options in rural and remote Australia
 - conscious or unconscious bias by justice authorities
 - a higher number of previous informal cautions for First Nations youth
 - authorities being reluctant to divert First Nations youth due, for example, to concerns about their accommodation, family supervision and support, substance use, mental health or school attendance.

Table 11.6: Empirical results on key factors associated with youth offending identified in 5 relevant studies

	Dellar et al. 2022	He et al. 2021	He et al. 2019a	He et al. 2019b	Baker 1998
Reference population	Youth offenders in WA from 2016–2020	First Nations children born in the NT between 1999 and 2006	Children born in the NT in 1999	First Nations children born in the NT between 1996 and 2001	Secondary school students in NSW in 1996
Outcome variable and units for the empirical results	Risk of re-offending	Risk of youth offending – first alleged offence	Cumulative risk for first proven guilty offence	Risk of youth offending – first proven guilty offence	Risk of participation in assault, malicious damage or acquisitive property crime
Key factors used in the analyses					
Child maltreatment	–	13.7 (boys), 27.6 (girls), times as high ^(a) 3.0 (boys), 4.0 (girls), times as high ^(b)	33.7% (boys), 13.2% (girls) ^(c)	2.7 times (boys), 4.5 times (girls) ^(d)	–
School attendance and attainment	1.8 times as high (low achievement)	–	–	0.5 times (boys) ^(e) , 0.4 times (girls) ^(f)	1.4–1.5 times as high (below average school achievement) ^(g) 1.7–3.9 times as high (some truancy) ^(g) 3.2–8.8 times as high (a lot of truancy) ^(g)
Parenting	1.9–2.0 times as high ^(h)	–	–	–	1.3–1.9 times as high (medium supervision) ^(g) 1.4–2.6 times as high (low supervision) ^(g)

(continued)

Table 11.6 (continued): Empirical results on key factors of youth offending identified in 5 relevant studies

	Dellar et al. 2022	He et al. 2021	He et al. 2019a	He et al. 2019b	Baker 1998
Covariates used in the analyses	42 risk factors across 8 domains: prior/current offences; family circumstances/parenting; education/employment; peer relations; substance abuse; leisure/recreation; personality/behaviour; antisocial attitudes/orientation.	Level of child protection system (CPS) contact Timing of CPS contact Mother's Aboriginal status Various pregnancy complications Various labour complications	None	Child maltreatment experience School engagement Whether or not a child was enrolled by mother Community factors (remoteness and community-level socioeconomic disadvantage) Community effects (school attendance data for the community in which the child attended year 7)	Supervision Family structure School attainment Truancy Aboriginality Parents' country of birth Language spoken at home Gender

– No data.

- (a) Those placed in OOHC before the age of 10, compared with those with no record of CPS contact before the age of 10; results for notifications and substantiations are lower (see Section 11.3.2).
- (b) Those placed in OOHC before the age of 14, compared with those with no record of CPS contact before the age of 14; results for notifications and substantiations are lower (see Section 11.3.2).
- (c) Among those to age 16 who had been placed in OOHC; results for notifications and substantiations are lower (see body of report).
- (d) For those reported for more than one form of maltreatment; results are lower for individual types of maltreatment (see body of report).
- (e) Those with high school attendance, compared with those with low school attendance.
- (f) Those enrolled by their mothers at year 7, compared with those who were not.
- (g) Depending on the type of crime: assault; malicious damage; acquisitive property crime.
- (h) Depending on the exact factor: inadequate parental supervision; inappropriate discipline; inconsistent parenting; poor relations between the mother and the young person.

Table 11.7: Empirical results on key factors associated with justice system outcomes for young offenders identified in 3 relevant studies

	Weatherburn and Thomas 2022	Papalia et al. 2019	Ringland and Smith 2013
Reference population	Data from the NSW Re-Offending Database, containing records on individuals who had been warned, cautioned, referred to a youth justice conference or referred to court between 1 Jan 2010–31 Dec 2021 ^(a)	First-time youth offenders in Australia who turned 18 between 2000 and 2010 ^(b)	Data from the NSW Re-Offending Database for records of cautions, conferences and Children's Court matters with a reference date between 1 July 2010 and 30 June 2011 for those aged between 10 to 21 at the time of police proceedings ^(c)
Outcome variable and units for the empirical results	Odds of being prosecuted (vs cautioned)	Adjusted odds of receiving a court summons following first offence rather than a diversionary alternative	Police use of diversion (i.e. cautions and police-referred conferences) (vs police referral to Children's Court)
Key drivers used in the analyses			
Being a First Nations person	1.83 times higher if the offender is First Nations than if the offender is non-Indigenous	1.96 times higher for First Nations young offenders than non-Indigenous young offenders	
Covariates used in the analyses			
	Age group	Gender	Sex
	Sex	Age	Age
	Area	Whether occurred prior to commencement of <i>Young Offenders Act 1997</i>	Number of offences
	Number of concurrent offences		Whether any offence was a serious violent offence
	Offence severity	Number of violent charges at first contact	Number of prior cautions
	Serious violence	Number of charges at first contact	Whether there was a prior conference
	Prior conferences		Number of prior court finalisations
	Prior warnings		Whether there was a prior alleged serious violent offence
	Prior cautions		Whether there was a prior custodial order
	Prior court appearances		

(a) With restrictions imposed to align the data set with the eligibility requirements for a police caution.

(b) Excluding cases in which the age at first criminal incident involving police was below the age of criminal responsibility and cases in which the individual was charged with a first offence that was ineligible for diversion under the *Young Offenders Act 1997*.

(c) Warnings are not included in this study; additional data not routinely included in the NSW Re-Offending Database were also required and were obtained from alternative sources.

11.3.3 Other evidence

The publication *2015 Young People in Custody Health Survey: full report* (JH, FMHN and Juvenile Justice NSW 2017) details findings of a cross-sectional survey of the New South Wales youth justice population that aimed 'to describe the physical and mental health status of young people in NSW custodial facilities' (JH, FMHN and Juvenile Justice NSW 2017:3). It comprehensively describes the health and socioeconomic characteristics of young people, including young First Nations people, in custody in New South Wales. The report notes that:

- young people in custody in New South Wales in 2015 'reported high levels of social disadvantage, with poor literacy skills, low educational attainment, a history of child abuse and neglect, fractured family networks, placement in OOHC, and parental incarceration common findings' (page 93)
- among young people in custody in New South Wales in 2015:
 - First Nations young people left school earlier (at 14 years) than non-Indigenous young people (15.5 years)
 - First Nations young people were more likely to have a parent who had been incarcerated (nearly 68%) than non-Indigenous young people (nearly 37%)
 - nearly 60% of First Nations young people experienced their first entry into custody aged 14 or younger, compared with around 33% of non-Indigenous young people.

Some literature on the pathways of young people already involved with the criminal justice system discusses levels of unsentenced detention. Although no studies were found using multivariate analysis, this work is worth noting because of the impact on rates of detention. As the majority of First Nations young people in detention are in unsentenced detention, these rates, along with the length of time spent in unsentenced detention, have a strong influence on the overall rates of detention.

- Daly (2022) argues that pre-trial detention is overused in the Australian youth justice system and that Australia could adopt other models, such as the 'Ontario Model', which has more community-based options rather than being a custody-focused system.
- The majority of young people in unsentenced detention are on remand; Richards and Renshaw (2013) discuss a number of drivers of remand among young people, including:
 - lack of access to legal representation
 - court delays
 - difficulties locating 'responsible adults' to support young people's bail applications
 - risk aversion
 - inappropriate and/or arbitrary use of bail conditions
 - breaches of bail.

Richards and Renshaw (2013) note that young people with complex needs and welfare issues such as mental health conditions, alcohol and substance use problems and/or a history of experiencing child maltreatment or other violence are more likely to be placed on remand because the services they require are only available in custody.

- Hearing loss is associated with increased contact with the criminal justice system, with poor educational outcomes identified as the factor linking hearing loss and criminal activity (Burns and Thomson 2013).

- One study by He and colleagues (2019b) found a high prevalence of hearing impairment among Aboriginal children with a record of an offence in the Northern Territory. Hearing impairment was not associated with having a record of an offence (after controlling for child maltreatment, school attendance factors, and living in a disadvantaged or remote area), suggesting that it may be associated with contact with the criminal justice system through poor educational outcomes. The authors argue that reducing the high rates of hearing loss in Aboriginal children, and improving the justice system's response to hearing impaired Aboriginal people may be critical to reducing Aboriginal incarceration and recidivism rates.

11.4 Policy implications

Contact with the criminal justice system is symptomatic of the social and economic inequalities faced by many First Nations people, specifically in the areas of housing, health, education, employment, family and community safety and alcohol and drug use, according to a House of Representatives Inquiry that examined factors contributing to the over-representation of young First Nations people in the youth justice system (House of Representatives Standing Committee on Aboriginal and Torres Strait Islander Affairs 2011). Colonisation and dispossession lead to the social, economic and political marginalisation and socioeconomic inequalities among First Nations people; this context is essential in understanding the contemporary over-representation of First Nations people in criminal justice systems (Cunneen and Tauri 2019).

Children under youth justice supervision are a particularly vulnerable group, with many experiencing poor physical or mental health. Many First Nations young people in detention have had contact with the child protection system, including OOHC placements, have experienced substance abuse, or have poor school attendance and attainment. These characteristics are identified in the literature as some of the key factors associated with youth offending and youth detention.

Based on the literature, the drivers of youth detention include:

- child abuse and neglect
- school attendance, attainment and retention
- family circumstances/parenting
- mental health
- FASD.

This highlights the complex range of interrelated factors associated with involvement with the youth justice system and the need for support and initiatives in these areas.

One of the outcomes of the 2020 National Agreement on Closing the Gap is that Aboriginal and Torres Strait Islander young people are not over-represented in the criminal justice system. The aim is to reduce the rate of Aboriginal and Torres Strait Islander young people (aged 10–17) in detention by at least 30% by 2031 (compared with the rate in 2018–19). This translates to a youth detention rate at most of 22.3 per 10,000 by 2031.

In 2022–23, the rate of First Nations young people in detention on an average day was 30 per 10,000, a decrease from 32 per 10,000 in 2018–19. This is above the trajectory to meet the 2031 target (that assumes a constant rate of decrease from 2018–19 to 2031).

It is important to note that the COVID-19 pandemic may have had an impact on some changes in recent years, due to social restrictions and impacts on the operations of youth

justice centres and other places of custody, and courts and tribunals; however, the impacts on the data due to COVID-19 are not yet well understood.

The size of First Nations youth justice populations in states and territories can be affected by:

- the size of the First Nations youth population overall in that state or territory
- the differences in state-based legislation, policies and practices, including the available types of supervised orders and options for diversion.

It is therefore difficult to directly compare results across jurisdictions. In 2022–23, the rate of First Nations young people in detention was lower than the national rate in New South Wales, Victoria, South Australia and Tasmania, and higher than the national rate in Queensland, Western Australia, the Australian Capital Territory and the Northern Territory (above 34 per 10,000 in each case). There have also been marked increases in recent years in the First Nations youth detention rate in Queensland and the Northern Territory. In the case of the Northern Territory, a change in legislation aimed at reducing youth crime by targeting repeat offenders may have had an impact on the number and rate of young people in detention.

There has been little change in the average number of days that First Nations young people spent in detention during a year over the past 4 years (at around 69–72 days).

Successful policy initiatives

Policy initiatives aimed at reducing the over-representation of First Nations youth in the justice system are multifaceted. They focus on preventing young people from having contact with the system, diverting them from further contact following an initial contact, delivering culturally appropriate services that meet the multiple and complex needs of young people in contact with the youth justice system, and mitigating the drivers of contact with the justice system at a local community level.

Strategies for reducing offending

Richards and colleagues (2011) reviewed some promising interventions for reducing offending by First Nations youth that included:

- primary prevention initiatives to reduce initial contact with the youth justice system: an evaluation of the Doomadgee Petrol Project found a 90% reduction in reported crime following the program's initiatives to reduce petrol sniffing among young people. Kowanyama and Palm Island Community Justice Groups were introduced in 1993 and included night patrols and settling family disputes. Evaluation of the program found a decrease in charges among youth
- secondary prevention initiatives to manage existing problem behaviour: an evaluation of the Panyappi Indigenous Youth Mentoring Project found a reduction in offending among the 15 participants included in the evaluation
- tertiary prevention initiatives to reduce re-offending: multisystemic therapy focuses on the homes, families, schools, neighbourhoods and friends of chronic and violent youth offenders. There have been positive international reviews of this program.

Developing prevention measures to reduce First Nations people's engagement in crime and contact with the criminal justice system is critical. Key to successful prevention and early intervention is to build positive long-term relationships with family, communities and service providers. This highlights the important principle of self-determination in prevention program design and delivery. First Nations community ownership, design and control can ensure

services work to meet the unique needs of communities, and to foster community ‘buy-in’ (Stringfellow et al. 2022).

Strategies for reducing re-offending

It is crucial to divert young people from further involvement in the justice system. Forms of diversion include (AIHW 2023b):

- police warnings
- referral to services such as drug and alcohol treatment
- bail supervision for those at risk of remand
- youth justice conferencing.

The Tiwi Islands Youth Development and Diversion Unit in the Northern Territory provides a 12-week diversion program engaging Tiwi youth (typically first-time youth offenders) in prevention activities that aim to benefit the offender, the victim and the community (Higgins and Davis 2014; Stewart et al. 2014).

An independent evaluation of the program found it was effective in reducing adverse contact between Tiwi youth and the criminal justice system (Stewart et al. 2014). Individual re-offence data from the Northern Territory Police for program participants showed that 20% of participants (13 of 65 young people) had contact with the police for alleged offences in the year after starting with the program, which is below what would be expected for this population without the intervention.

Qualitative data found the program was useful in reconnecting young people to cultural norms, was culturally ‘competent’ and directly focused on the factors that contribute to offending behaviour, such as substance misuse, boredom and disengagement from work or education.

Other promising practices of First Nations youth justice programs include the importance of:

- having adequately resourced, culturally appropriate and competent services
- establishing effective collaboration
- considering the multiple and complex needs of offenders
- promoting family engagement and culturally appropriate parental education.

Areas that require further in-depth research and evaluation include how First Nations participants fare in mainstream justice programs; how sustainable are the outcomes; whether collaborative case management in youth crime prevention and reduction programs is effective for First Nations young people; and how effective are the structured, cognitive behavioural programs based on ‘Western’ psychological theories (Higgins and Davis 2014).

The Australian Government, as well as most if not all of the states and territories, has taken steps to explore the potential of Justice Reinvestment strategies (Willis and Kapira 2018). In 2022, the Australian Government committed a landmark investment of \$81.5 million to expand on First Nations-led justice reinvestment initiatives across the country. In many cases, these strategies have focused on the over-representation of First Nations people in the justice system, as well as changes to the youth justice system (Schwartz 2010). As well, proposals to increase the minimum age of criminal responsibility should reduce the over-representation of First Nations children in the criminal justice system (AIHW 2023c).

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Child protection

12

Summary

Target

The target associated with Outcome 12 in the 2020 National Agreement is to reduce the rate of over-representation of Aboriginal and Torres Strait Islander children (aged 0–17) in out-of-home care by 45% by 2031, from a 2019 baseline of 54.2 per 1,000 First Nations children.

Background

- Most Aboriginal and Torres Strait Islander (First Nations) children are raised in safe environments. The over-representation of First Nations children in the child protection system reflects the history of colonisation affecting First Nations people through dispossession of their land, the displacement of families and communities, past policies of assimilation and forcible child removals, and loss of culture. Trauma and structural inequality are among the consequences of colonisation and systemic racism that continue to affect First Nations people (AIHW & NIAA 2024).
- There are concerns that First Nations children being placed in OOHC and consequently removed from their families and communities, particularly through permanent care orders or adoption, has parallels to the Stolen Generations, and will have similar impacts (SNAICC 2023).
- Connection to family, community, culture and Country is considered crucial to the protection, healthy development and identity formation of young First Nations people in out-of-home care (OOHC) and supporting opportunities for their reunification with family. Disconnection from culture is seen as having an adverse impact on young people, both while they are living in OOHC and when they are leaving it.
- Children are most commonly placed in OOHC following a substantiation of a notification by a statutory child protection authority. This means that an initial notification of alleged child maltreatment has been made to a child protection department, following which an investigation of the alleged maltreatment is conducted. A substantiation occurs when there was reasonable cause to believe that a child had been, was being, or was at risk (or significant risk) of being, maltreated. Drivers of child maltreatment include poverty, substance use, and family violence.
- However, there is a lack of quantitative research that examines the processes whereby reports of concerns about child maltreatment are made and those reports are substantiated. While previous research has identified an over-representation of Aboriginal infants in the child protection system in Australia, the literature has been limited in examining the points at which disparities between Aboriginal and non-Aboriginal children occur (O'Donnell et al. 2019).
- There are many authoritative reports of First Nations families experiencing difficulties in interacting with child protection systems as well as discrimination in dealings with child protection organisations. Qualitative studies of these interactions often highlight:
 - a lack of cultural competency within mainstream services
 - the effects of intergenerational trauma
 - First Nations communities' mistrust of statutory child protection authorities
 - inadequate government-funded programs and services.

Current status

- Nationally, the number of First Nations children aged 0–17 in OOHC increased from nearly 18,000 (54 per 1,000 First Nations children) in June 2019 to around 19,800 (57 per 1,000) in June 2023, increasing the gap between First Nations and non-Indigenous children in OOHC.
- In 2023, First Nations children aged 0–17 were 12.1 times as likely as non-Indigenous children aged 0–17 to be in OOHC, compared with 10.6 times as likely in 2019.
- In 2022–23, the primary types of abuse or neglect for children who were the subject of a substantiated notification were:
 - emotional abuse (around 52% of substantiations for First Nations children, 60% for non-Indigenous children)
 - neglect (nearly 29% for First Nations children, nearly 17% for non-Indigenous children)
 - physical abuse (around 12% for First Nations children, 14% for non-Indigenous children)
 - sexual abuse (7.0% for First Nations children, 9.5% for non-Indigenous children)
- In 2023, around 63% of First Nations children aged 0–17 in OOHC were living with First Nations or non-Indigenous relatives or kin or other First Nations caregivers (about 12,500). This proportion has remained relatively unchanged since 2017.
- Reunification with birth parents (or family or a former guardian) is another ATSICPP indicator. In 2020–21, about 16% of children aged 0–17 in OOHC were reunified in the reporting period (about 1,700). There is a lack of data about how long it takes for children to be reunified with their birth parents (or family or a former guardian), where this occurs. Of the approximately 1,500 First Nations children aged 0–16 who exited OOHC to reunification in 2019–20, most (around 84%) did not return to care within 12 months.
- Achieving the 2031 target would require an annual drop of around 1,100 each year from June 2023 to June 2031 in the number of First Nations children in OOHC.
- There is a lack of quantitative research into the factors associated with First Nations and non-Indigenous children leaving OOHC, or with the length of their stay in OOHC. These dynamics, along with the rates at which children enter OOHC, are important drivers of the number of children in care at a particular point in time. One study found that over the period 2000–01 to 2007–08, the number of Australian children entering OOHC each year was relatively stable, but the number of children in OOHC increased due to children remaining in OOHC for longer periods. The study did not present separate results for First Nations and non-Indigenous children (Tilbury 2009).
- At 30 June 2023, of the approximately 19,800 First Nations children in OOHC, nearly 45% (about 8,800 children) had been continuously in care for 5 years or more, after increasing steadily from 40% in June 2019.
- In the Northern Territory (around 31 per 1,000 First Nations children) and Tasmania (just over 33 per 1,000) the rate was only slightly higher than the 2031 target of 29.5 per 1,000. Among the remaining states and territories, the OOHC rate was much higher, ranging from 47 per 1,000 in Queensland to 103 per 1,000 in Victoria.
- From June 2019 to June 2023, the OOHC rate for First Nations children has:

- fallen overall in New South Wales, the Australian Capital Territory and the Northern Territory
- risen overall in Victoria, Queensland and South Australia
- remained relatively stable in Western Australia and Tasmania.
- The OOHC rate for First Nations children aged 0–17 was lowest in *Remote and very remote* areas combined (32 per 1,000 First Nations children) and markedly higher in *Inner and outer regional* areas combined (about 73 per 1,000) and *Major cities* (nearly 67 per 1,000).

Key factors

- Reducing the number of children entering the child protection system requires prevention and early intervention programs to be prioritised. Primary prevention includes universal access to services, and activities and programs with a whole-of-community focus; early intervention includes services to support families that may be having difficulties caring for their children.
- The four priority reforms articulated in the National Agreement on Closing the Gap are seen as central to driving improvements in outcomes, including in the area of child protection, by changing the way governments work with Aboriginal and Torres Strait Islander people. Shared decision making and building the community-controlled sector are considered key drivers of change (SNAICC 2023).
- There is increasing evidence to demonstrate that service providers led by First Nations people are best placed to strengthen the cultural identity of children in OOHC and support their wellbeing.
- The Aboriginal and Torres Strait Islander Child Placement Principle (ATSICPP) aims to keep children connected to their families, communities, cultures and Country, and to ensure the participation of Aboriginal and Torres Strait Islander people in decisions about their children's care and protection. A key element of the ATSICPP is governments working in partnership with First Nations communities, and with the participation of children, parents and their families, to:
 - prevent separation by dealing with the causes that lead to children and families becoming involved with the child protection system
 - place children in OOHC according to a hierarchy that prioritises a child's placement with First Nations family or other non-Indigenous family, then First Nations members of their community, then First Nations family-based carers, then with a non-Indigenous carer or in residential care
 - support First Nations children in OOHC to maintain connections with their family, community, culture and Country.
- The New South Wales government has used a levy to divert some funding from the Department of Communities and Justice into Aboriginal community-controlled organisation-led approaches, with the aim of reducing the number of Aboriginal children in out of home care (Allison 2022). The New South Wales government recently announced measures to improve reform of the child protection system and has committed to setting up a restoration taskforce to support Aboriginal children who can safely go home to do so (DCJ 2024).
- One study '... endorses calls to shift from reactive strategies based in tertiary child protection to proactive, primary prevention that aims to reduce risk factors and enhance protective factors prior to problems emerging' (Conley Wright et al. 2021:5), arguing for

the establishment of multidisciplinary services cross-cutting child welfare, youth justice, mental health and education systems.

- **Safe and Supported: The National Framework for Protecting Australia's Children 2021–2031** is a 10-year strategy to improve the lives of children, young people and families who are experiencing disadvantage, or who are vulnerable to abuse and neglect. The strategy aims to do this by better coordinating programs and supporting families to keep their children safe, while targeting areas with the biggest need – not only for the greatest impact but also to avoid duplication. The framework describes governments' commitments to transforming systems by placing Aboriginal and Torres Strait Islander self-determination at their centre. This includes partnering with Aboriginal and Torres Strait Islander community-controlled organisations in the design and administration of child protection systems, consistent with commitments under the Closing the Gap Priority Reforms (DSS 2021).

12.1 Introduction

Outcome 12 of the 2020 National Agreement on Closing the Gap relates to reducing over-representation of Aboriginal and Torres Strait Islander children in the child protection system.

The target associated with this outcome is to reduce the rate of over-representation of Aboriginal and Torres Strait Islander children (aged 0–17) in out-of-home care by 45% by 2031, from a 2019 baseline of 54.2 per 1,000 children.

Outcome	Aboriginal and Torres Strait Islander children are not over-represented in the child protection system.
Target	By 2031, reduce the rate of over-representation of Aboriginal and Torres Strait Islander children (aged 0–17) in out-of-home care by 45%.
Indicator	The rate (per 1,000) of Aboriginal and Torres Strait Islander children aged 0–17 in out-of-home care.
Measure	<i>Numerator</i> — number of Aboriginal and Torres Strait Islander children aged 0–17 in out-of-home care, as at 30 June. <i>Denominator</i> — number of Aboriginal and Torres Strait Islander children aged 0–17 in the population, as at 30 June.

'Aboriginal and Torres Strait Islander families and communities have successfully provided love and care for their children, growing them up strong and safe in their cultural traditions for thousands of years. The cultural strengths of Aboriginal and Torres Strait Islander child-rearing practices contribute to creating safe and nurturing environments for children. Despite this, Aboriginal and Torres Strait Islander families continue to face adversity and experience a range of structural drivers that lead them to encounter the child protection system.'

The Family Matters Report 2020: Measuring trends to turn the tide on the over-representation of Aboriginal and Torres Strait Islander children in out-of-home care in Australia

Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations have agreed that the over-representation of Aboriginal and Torres Strait Islander (First Nations) children in out-of-home care (OOHC) needs to be reduced, as demonstrated by including Target 12 in the National Agreement on Closing the Gap (DPM&C 2020). *Safe and Supported: The National Framework for Protecting Australia's Children 2021–2031* states that 'children and young people in Australia have the right to grow up safe, connected and supported in their family, community and culture' (DSS 2021). Connection to family, community, culture and Country has been identified as crucial to the development and identity formation of young First Nations people in OOHC to support opportunities for their re-unification with family; disconnection from culture is seen as having an adverse impact on young people, both in OOHC and when leaving it (Mendes et al. 2020).

The rate at which First Nations children continue to be separated from their families, communities and cultures has been described as 'devastatingly high' (Liddle et al. 2022). There are concerns that the large numbers of First Nations children being removed from their families and communities will have similar impacts to those for the Stolen Generations (the

historical forcible removal of First Nations children from their families that occurred as a result of historical government policies) (Campbell 30 May 2017; Krakouer et al. 2018). The over-representation of First Nations children in OOHC has been linked to the trauma and its consequences experienced by those of the Stolen Generations who were forcibly removed (Atkinson et al. 2014; Bromfield and Holzer 2008; Douglas and Walsh 2013; HREOC 1997; Hunter et al. 2021; Krakouer et al. 2018; The Healing Foundation 2021). Reducing First Nations over-representation in OOHC is essential to help break the cycle of intergenerational trauma (O'Donnell et al. 2019).

The indicator for measuring progress towards the outcome that First Nations children are not over-represented in the child protection system is the rate (the number per 1,000 population) of First Nations children aged 0–17 in out-of-home care. The target is to reduce the rate of over-representation of First Nations children (aged 0-17) in out-of-home care by 45% by 2031.

The main data source for assessing progress towards the target is the National Child Protection Data Collection (NCPDC), which is based on administrative data provided by state and territory departments responsible for child protection, according to a set of agreed specifications. Children in scope for this data collection are those aged under 18. For some states and territories this also includes unborn children.

From 2012–13, following the implementation of the Child Protection National Minimum Data Set (CP NMDS), child protection data across jurisdictions and over time have become increasingly comparable, though comparability is still affected by policy and practice differences, including:

- variation across jurisdictions as to who is legally obliged to report suspected child abuse and neglect to the appropriate authority (referred to as mandatory reporting)
- use of agency-defined and caller-defined approaches to recording notifications
- thresholds used for risk assessment practices
- treatment of multiple notifications and overlapping investigations
- treatment of cases for unborn children, abuse in care, non-familial maltreatment and where there is no suitable caregiver
- care and protection orders issued, particularly for interim and temporary orders
- reporting types of OOHC placement (AIHW 2022b, appendices A–C).

Data are available annually and enable detailed disaggregation by geography and other characteristics including the length of time in placements and relationship of carer. Given the administrative nature of the CP NMDS, it contains limited information on various individual-, household- and community-level demographic, socioeconomic and cultural characteristics and child protection processes to support modelling of the determinants of child placement in OOHC.

At the time of analysis, 2022–23 data were the most recent CP NMDS data available for inclusion in this chapter.

To understand the key factors associated with children in OOHC, the current report presents:

- current and historical trend data on target indicators at the national and state and territory level, and disaggregated by other sociodemographic and geographic characteristics
- a review of national and international literature on the determinants of child maltreatment and placement in OOHC among First Nations people.

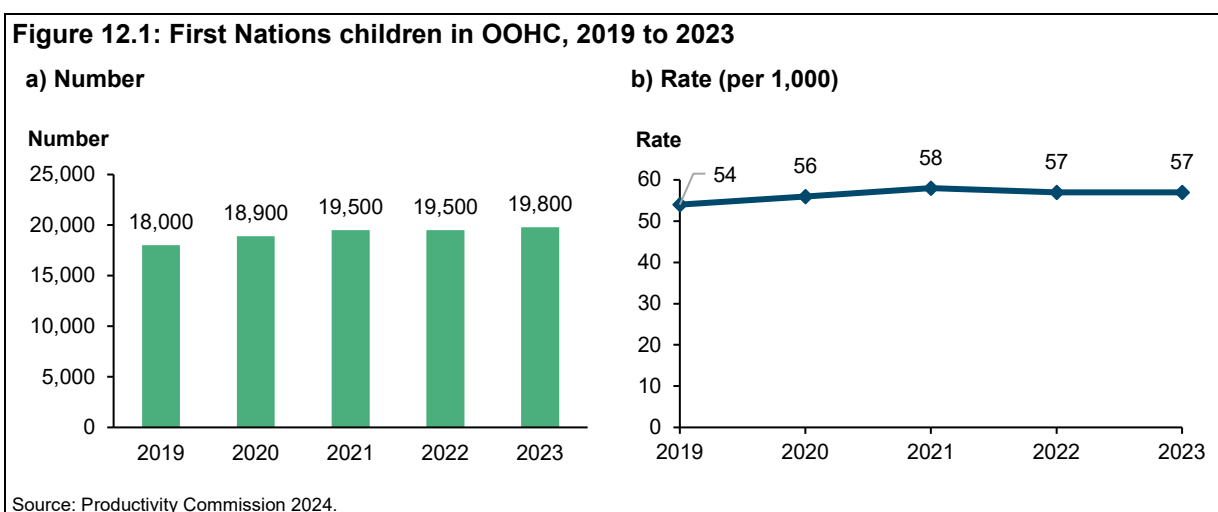
12.2 Child protection target: current picture and time trends

This section presents the data available on the rate of First Nations children aged 0–17 in OOHC, and progress towards the target.

12.2.1 National

Nationally, the number of First Nations children aged 0–17 in OOHC increased from nearly 18,000 in June 2019 to around 19,800 in June 2023 (Figure 12.1).

The rate of First Nations children aged 0–17 who were in OOHC, expressed as the number per 1,000 population of First Nations children, increased from around 54 per 1,000 in June 2019 to nearly 58 per 1,000 in June 2021, then fell slightly to around 57 per 1,000 in June 2023 (Figure 12.1; supplementary Table S12.1).

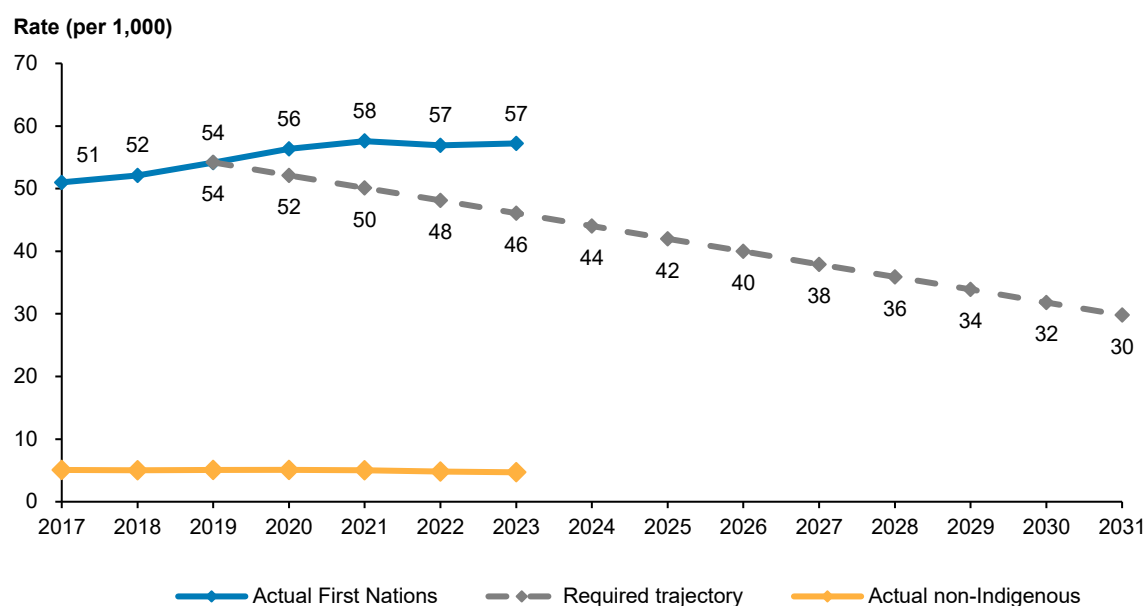


For the rate of over-representation of First Nations children in OOHC to be reduced by 45% by 2031, it would need to decrease from the baseline of 54.2 per 1,000 in 2019 to 29.8 per 1,000 in 2031 (Productivity Commission 2024). The agreed path or trajectory on how the rate of First Nations children in OOHC would need to decline over time to reach this 2031 target rate is presented in Figure 12.2.

The rate of First Nations children in OOHC increased between June 2019 and June 2023, increasing the gap between First Nations and non-Indigenous children in OOHC. In 2023, First Nations children aged 0–17 were 12.1 times as likely as non-Indigenous children aged 0–17 to be in OOHC, compared with 10.6 times as likely in 2019 (Figure 12.2).

Achieving the 2031 target would require an annual decrease of 3.4 per 1,000 in the rate of First Nations children in OOHC between 2023 and 2031. The corresponding number of First Nations children in OOHC would need to decrease on average by around 1,240 each year from June 2023 to June 2031. This number is estimated by applying the required target rate of 29.8 per 1,000 in 2031 to the projected population of the First Nations population aged 0–17 in 2031 (421,438) (ABS 2021a). The difference between this and the number of First Nations children in OOHC in 2023 (9,890) is then divided by the number of years between 2023 and 2031.

Figure 12.2: Rate of children in OOHC, current trajectory and trajectory required to meet the 2031 Closing the Gap target



Sources: AIHW 2022b, Table T2; Productivity Commission 2024.

12.2.2 State and territory

By state and territory, at 30 June 2023, the largest proportions of First Nations children in OOHC were living in:

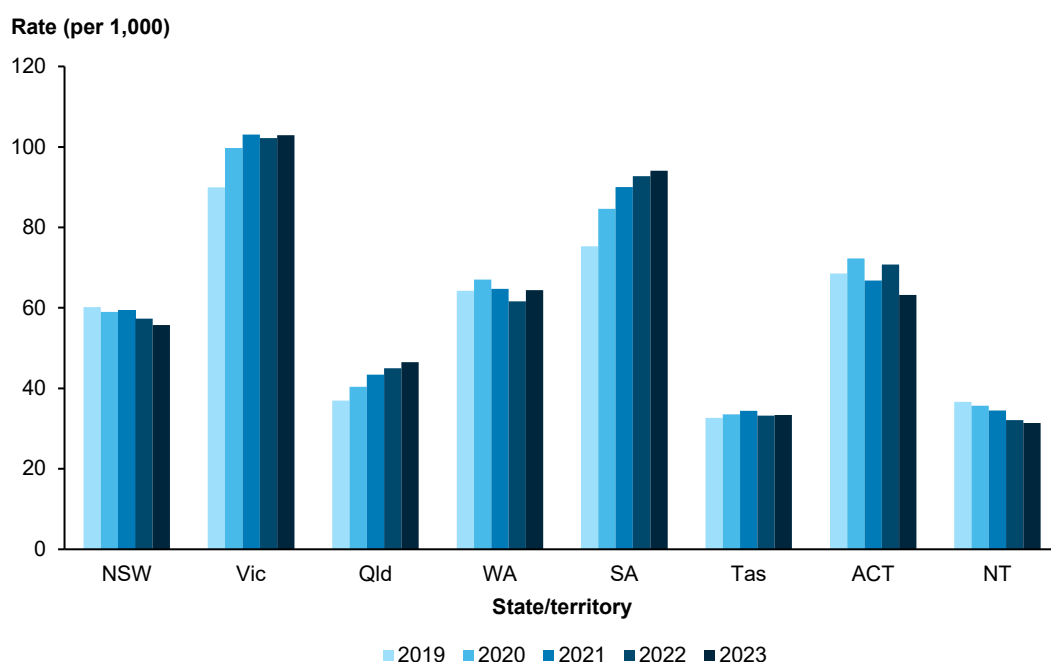
- New South Wales (about 33% or 6,600 children; 34% of First Nations children live in this state)
- Queensland (about 24% or 4,700; 29% of First Nations children live in this state)
- Western Australia (about 14% or 2,700; 12% of First Nations children live in this state)
- Victoria (about 13% or 2,700; 7% of First Nations children live in this state) (Productivity Commission 2024).

The OOHC rate for First Nations children varied considerably by state and territory. In the Northern Territory (around 31 per 1,000) and Tasmania (just over 33 per 1,000), the rate was close to the 2031 national target of 29.5 per 1,000. Among the remaining states and territories, the OOHC rate was much higher, ranging from 47 per 1,000 in Queensland to 103 per 1,000 in Victoria.

From June 2019 to June 2023, the OOHC rate for First Nations children has:

- fallen overall in New South Wales, the Australian Capital Territory and the Northern Territory
- risen overall in Victoria, Queensland and South Australia
- remained relatively stable in Western Australia and Tasmania (Figure 12.3).

Figure 12.3: Rate of First Nations children in OOHC, by state and territory, 2019 to 2023



Source: Productivity Commission 2024.

12.2.3 Remoteness area

This section presents remoteness area information for OOHC rates of First Nations children.

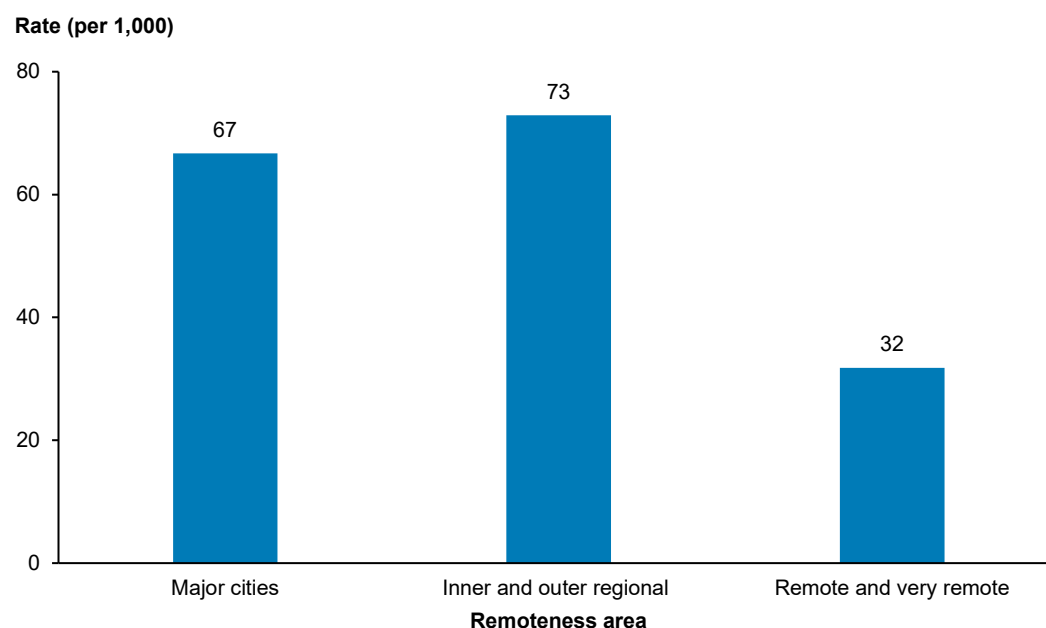
In 2023, the share of First Nations children in OOHC decreased by the remoteness of the area in which they were living:

- *Major cities* (44% or about 8,700 children)
- *Inner regional areas* (28% or about 5,500)
- *Outer regional areas* (19% or about 3,700)
- *Remote areas* (4.4% or about 870)
- *Very remote areas* (3.6% or about 700) (AIHW 2024, Table S5.9a).

The OOHC rate for First Nations children aged 0–17 was lowest in *Remote and very remote* areas (32 per 1,000); it was markedly higher in *Inner and outer regional* areas (about 73 per 1,000) and *Major cities* (nearly 67 per 1,000) (Figure 12.4; Table S12.2).

Children placed a greater distance away from their family, community and Country are likely to find it more difficult to return regularly. Richardson and colleagues (2007) cite 485 studies identifying material disadvantage as a barrier to recruitment of foster carers, and there are higher levels of individual- and community-level disadvantage among First Nations people living in remote areas. The same report points to the existence of informal placements (Richardson et al. 2007), which may be more prevalent in more remote areas. Poorer access to services in more remote areas is another potential factor, although there is a lack of data and research investigating the reasons for OOHC placements.

Figure 12.4: Rate of First Nations children in OOHC on 30 June 2023, by remoteness



Source: AIHW 2024, Table S5.9b.

12.2.4 Children in OOHC by age group

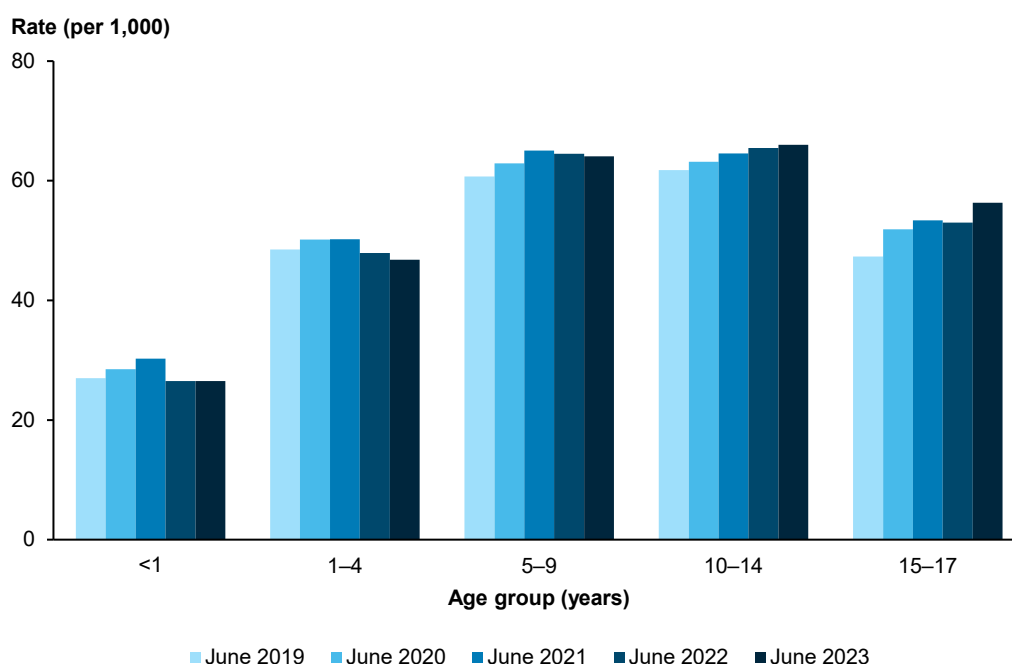
Nationally, of the 19,800 First Nations children living in OOHC at 30 June 2023, the age groups with the largest proportions of children were:

- 10–14 years (about 31% or 6,200 children) – in comparison, around 27% of First Nations children aged 0–17 in the general First Nations population were aged 10–14
- 5–9 years (about 30% or 6,000) – in comparison, around 27% of First Nations children aged 0–17 in the general First Nations population were aged 5–9 (AIHW 2024, Table S5.5; PC 2024).

At 30 June 2023, rates of First Nations children in OOHC were highest in the 5–9 and 10–14 age groups, at about 64–66 per 1,000.

From June 2019 to June 2023, the rate of First Nations children aged 15–17, in OOHC increased markedly. There were smaller increases in the rates of First Nations children aged 5–9 and 10–14, and a small decrease in the rate of those aged under 1 year and 1–4 (Figure 12.5).

Figure 12.5: Rate of First Nations children in OOHC, by age group, 2019 to 2023



Sources: Productivity Commission 2024.

Children who were not yet born at the time of notification

As noted in *Child protection Australia 2021–22* (AIHW 2023a):

‘all jurisdictions, except South Australia and the Northern Territory, have legislation to support the prenatal reporting of children at risk; that is, reports can be made for pregnant women where there are concerns held for their unborn children upon birth. Differences in policy and practice across jurisdictions impact on the data relating to unborn children for notifications, investigations, and substantiations’ (AIHW 2023a, Appendix C).

In most cases where a child was not yet born at the time of notification (94%), a decision on how to respond to the notification was made before the child was born. The level of intervention varied (whether the notification was resolved without investigation, or was investigated) and whether investigations occurred before or after birth. Early intervention and prevention, including working intensively with the mother or family, referring the mother to services, and providing advice and assistance, are used to support vulnerable children and their families (AIHW 2023a, Appendix B).

In 2022–23, about 690 First Nations children who were the subject of a child protection substantiation were not yet born at the time of notification (AIHW 2024, Table S3.6).

In evidence presented to the Yoorrook Justice Commission – established in Victoria to address systemic injustices faced by First Nations people – the Victorian Government recognised that more than half of child protection notifications relating to unborn children were unsubstantiated and that racism was a contributing factor (AIHW & NIAA 2024).

12.2.5 Substantiated reports of child maltreatment

Children are most commonly placed in OOHC following substantiated maltreatment. Substantiated maltreatment means that a report has been made to a child protection department alleging child maltreatment or harm to a child (called a notification), the report has been investigated, and the investigation concluded that the child had been, was being, or was at risk (or significant risk) of being maltreated (AIHW 2023a).

Information about substantiations provides insights into the characteristics of children and where they were living at the time of the reported maltreatment. This information may be relevant for policy and the delivery of early intervention programs and services, particularly in respect to geographical location:

- Geographical location of children where there was a substantiation refers to where the child was usually living at the time of the notification of alleged maltreatment to a child protection department.
- Geographical location of children in OOHC refers to where the child was living in their OOHC placement.

Comparative rates of notifications resolved by means other than an investigation may be an indicator of potential biases, including systemic racism. This information is not readily available at the time of writing of this report. Further analysis is needed to better understand the extent of unsubstantiated notifications by Indigenous status.

However, in 2021–22, there were 170.4 First Nations children aged 0–17 per 1,000 population who were receiving child protection services, which includes:

- investigation of a notification
- being on a care or protection order
- being in out-of-home care.

This is more than 8 times the rate of non-Indigenous children receiving child protection services (21.0 per 1,000).

In comparison, the ratio of the rates of substantiations of notifications of First Nations children aged 0–17 to non-Indigenous children was smaller (7 times).

This implies that there is a higher rate of First Nations children than non-Indigenous children receiving child protection services for whom a notification was not substantiated (noting that in some cases children may be admitted to a care and protection order for reasons other than substantiated maltreatment, for example where the parents are unable to adequately care for the child) (AIHW 2022b).

Substantiation rates by primary type of maltreatment

In 2022–23, the primary types of abuse or neglect for children who were the subject of a substantiated notification were:

- emotional abuse (around 52% of substantiations for First Nations children, 60% for non-Indigenous children)
- neglect (nearly 29% for First Nations children, around 17% for non-Indigenous children)
- physical abuse (around 12% for First Nations children, 14% for non-Indigenous children)

- sexual abuse (7.0% for First Nations children, 9.5% for non-Indigenous children) (AIHW 2024, Table S3.10).

The proportion of First Nations children for whom there was a substantiated notification of emotional abuse was lower than that for non-Indigenous children. In contrast, the proportion of First Nations children for whom there was a substantiated notification of neglect was higher than that for non-Indigenous children.

Substantiation rates by remoteness areas

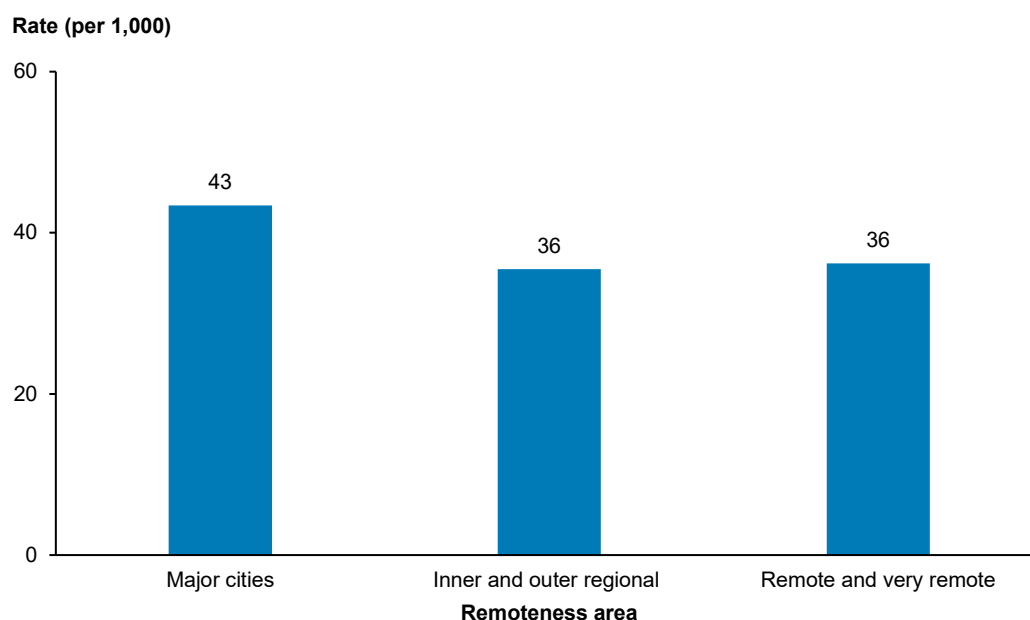
This section presents remoteness area information for substantiation rates of First Nations children.

The proportions of First Nations children for whom there was a substantiation in 2022–23, by the remoteness area in which they were living at the time of the substantiation, were:

- *Major cities* (about 41% or about 5,600 children)
- *Inner regional areas* (about 25% or about 3,400)
- *Outer regional areas* (16% or about 2,200)
- *Remote areas* (6.6% or about 900)
- *Very remote areas* (7.3% or about 1,000) (AIHW 2024, Table S3.7a).

In 2022–23, the substantiation rate for First Nations children aged 0–17 was highest in *Major cities* at 43 per 1,000, compared with rates of around 36 per 1,000 in *Inner and outer regional* areas and around 36 per 1,000 in *Remote and very remote* areas. These rates are based on the child's place of usual residence recorded with the substantiation (Figure 12.6; Table S12.2). Rates were calculated using numbers published in AIHW 2024 and ABS 2019.

Figure 12.6: Rate of First Nations children who were the subject of substantiations 2022–23, by remoteness



Sources: ABS 2019; AIHW 2024, Table S3.7a.

Substantiation rates by Indigenous Regions

The child protection data by Indigenous Regions (IREGs) presented in this chapter were obtained by assigning postcodes to the corresponding IREG, using the 2016 edition of the Australian Statistical Geography Standard (ABS 2016).

As noted earlier, information presented in this chapter on the geographical location of children where there was a substantiation refers to where the child was usually living at the time of the associated notification, while information about the geographical location of children in OOHC refers to where the child was living in their OOHC placement.

Data for 2022–23 by IREG were not available at the time of publication. Numbers and rates of First Nations children aged 0–17 who were the subjects of substantiations of notifications received during 2021–22 in each IREG are presented in Table 12.1 and rates are illustrated in Figure 12.7. Note that data presented for the Australian Capital Territory are for the entire territory.

The rate of First Nations children aged 0–17 who were subjects of substantiations of notifications in 2021–22 varied across IREGs.

- IREGs in Queensland tended to have lower rates of substantiated notifications for First Nations children, ranging from 6.2 per 1,000 in the Torres Strait to around 32 per 1,000 in Mt Isa.
- Rates of substantiated notifications for First Nations children were also lower in Tasmania, at around 11 per 1,000, and in some regions of Western Australia including West Kimberley (around 26 per 1,000) and South Hedland (nearly 28 per 1,000).
- The highest rates of substantiated notifications for First Nations children were in regional Victoria (around 81 per 1,000), Alice Springs (around 91 per 1,000) and Tennant Creek (around 116 per 1,000).

Results for IREGs in New South Wales, Queensland, Western Australia and the Northern Territory – the 4 jurisdictions with the largest First Nations populations – are illustrated in Figure 12.8.

Table 12.1: First Nations children who were the subjects of substantiations of notifications received during 2021–22, IREG at notification^{(a)(b)}, number and rate (per 1,000)

State/territory	IREG at notification ^(b)	Number	Rate (number per 1,000)
NSW	Dubbo	302	43.2
NSW	North-Eastern NSW	393	34.4
NSW	North-Western NSW	184	49.2
NSW	NSW Central and North Coast	1,617	41.6
NSW	Riverina – Orange	600	41.5
NSW	South-Eastern NSW	314	41.3
NSW	Sydney – Wollongong	1,664	50.7
NSW	Indigenous region outside NSW	31	..
NSW	Indigenous region not determined	104	..
NSW	Total	5,209	45.0
Vic.	Melbourne	820	72.7
Vic.	Victoria exc. Melbourne	1,168	84.0
Vic.	Indigenous region outside Vic	20	..
Vic.	Indigenous region not determined	24	..
Vic.	Total	2,032	80.6
Qld	Brisbane	873	23.0
Qld	Cairns – Atherton	263	20.1
Qld	Cape York	77	17.5
Qld	Mount Isa	111	32.3
Qld	Rockhampton	263	20.6
Qld	Toowoomba – Roma	261	26.0
Qld	Torres Strait	18	6.2
Qld	Townsville – Mackay	289	18.8
Qld	Indigenous region outside Qld	114	..
Qld	Indigenous region not determined	5	..
Qld	Total	2,274	22.7
WA	Broome	90	37.4
WA	Geraldton	131	41.4
WA	Kalgoorlie	99	32.0
WA	Kununurra	83	39.7
WA	Perth	705	40.7
WA	South Hedland	112	27.6
WA	South-Western WA	213	29.9
WA	West Kimberley	60	25.7
WA	Indigenous region outside WA	260	..
WA	Indigenous region not determined	6	..
WA	Total	1,759	42.3

(continued)

Table 12.1 (continued): First Nations children who were the subjects of substantiations of notifications received during 2021–22, IREG at notification^{(a)(b)}, number and rate (per 1,000)

State/territory	Indigenous region at notification ^(b)	Number	Rate (number per 1,000)
SA	Adelaide	522	37.7
SA	Port Augusta	144	42.1
SA	Port Lincoln – Ceduna	61	56.6
SA	Indigenous region outside SA	94	..
SA	Indigenous region not determined	1	..
SA	Total	822	44.8
Tas	Tasmania	125	10.6
Tas	Indigenous region outside Tas	0	..
Tas	Indigenous region not determined	8	..
Tas	Total	133	11.3
ACT^(c)	Total	100	33.0
NT	Alice Springs	189	91.2
NT	Apatula	113	36.4
NT	Darwin	351	51.4
NT	Jabiru – Tiwi	105	24.0
NT	Katherine	139	37.2
NT	Nhulunbuy	107	27.8
NT	Tennant Creek	173	116.3
NT	Indigenous region outside NT	40	..
NT	Indigenous region not determined	8	..
NT	Total	1,224	48.1

.. = no data/insufficient data.

(a) Information about IREG at notification was derived from information about postcode at notification. In some cases, the IREG of notification was different from the state/territory in which the case was counted. Where postcode information was missing/not stated/inadequately described, the IREG could not be determined.

(b) The ABS has a separate regional geographical structure that is more relevant to the Indigenous population, updated after each Census. IREGs are the largest geographical units in the ABS Indigenous-specific regional classification. These data were classified using the 2016 edition of the classification, which was the latest edition at the time these data were analysed. For more information, see *Australian Statistical Geography Standard (ASGS): Volume 2 – Indigenous Structure, July 2016* (ABS 2016).

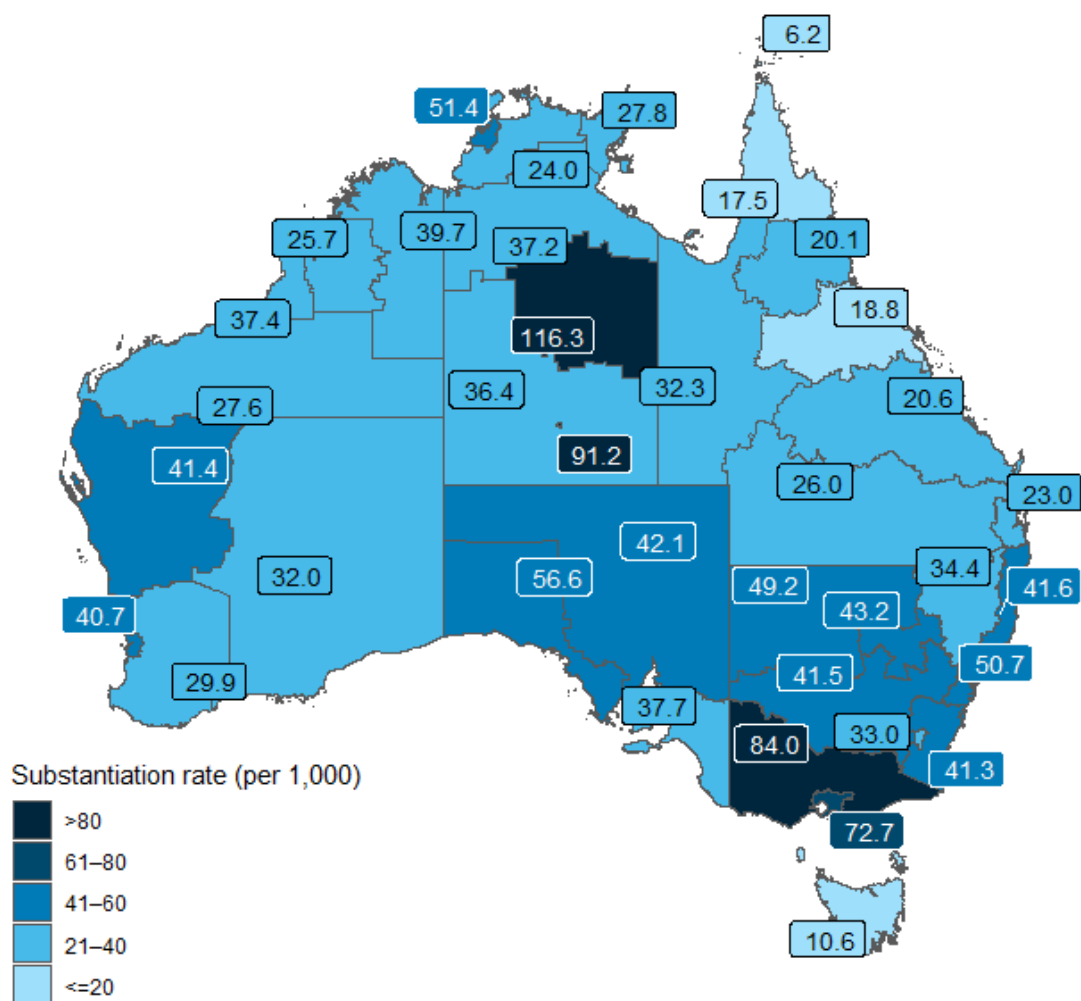
(c) Information is presented for the whole of the ACT.

Notes

1. Data presented in this table are not comparable across jurisdictions, or over time, due to differences in the way jurisdictions collect and report data on notifications, investigations and substantiations and how this has changed over time. See Appendix A of AIHW 2023a for more information.
2. Finalised investigations, and thus substantiations, refer only to cases that were notified during the year, not to the total number of investigations finalised by 31 August 2022.
3. See Technical notes of AIHW 2023a for the method used to calculate rates, and Table P4 for the population data used.

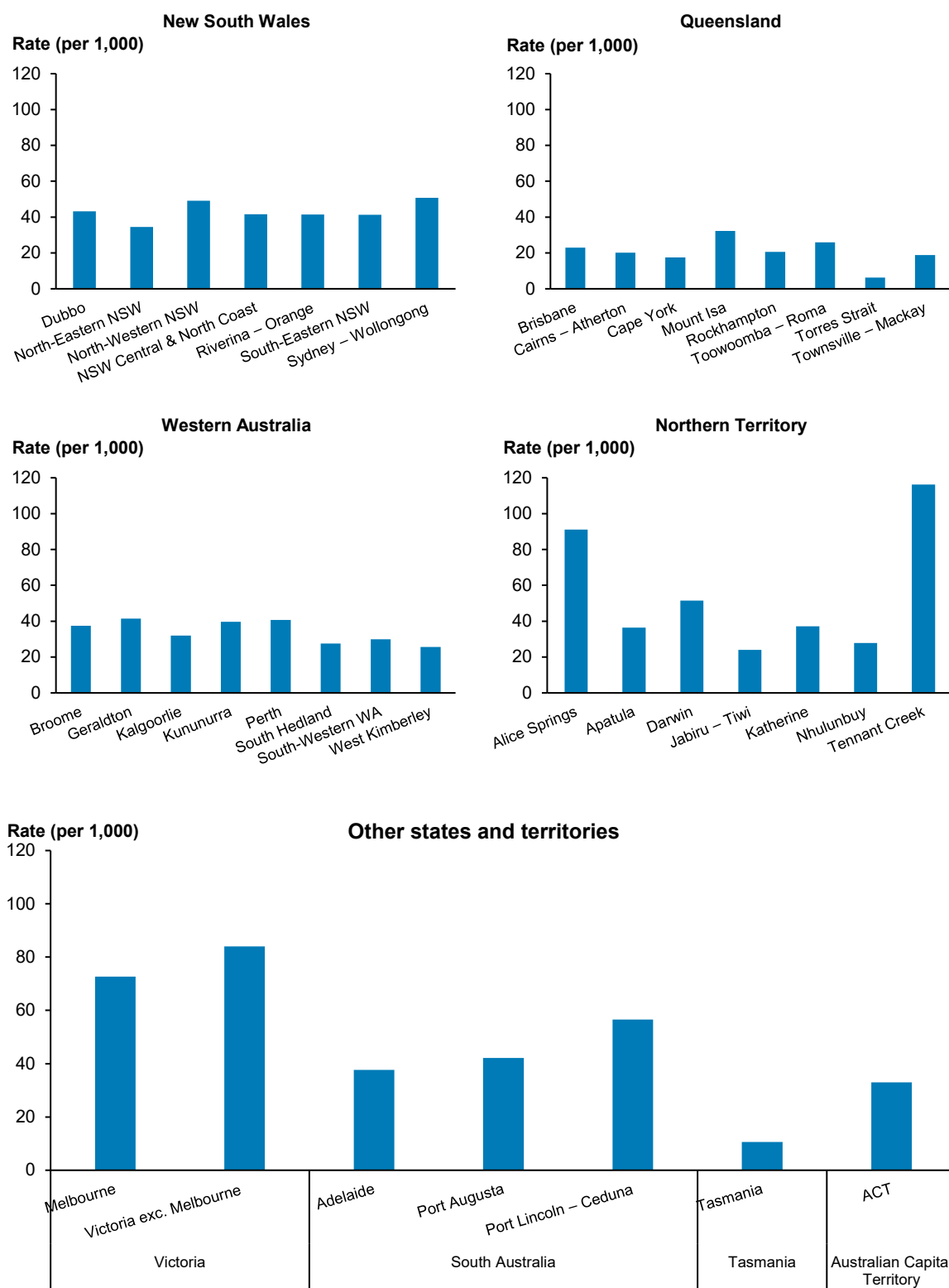
Source: AIHW Child Protection Collection 2021–22.

Figure 12.7: First Nations children who were the subjects of substantiations of notifications received during 2021–22, IREG at notification, rate (per 1,000)^(a)



(a) Information is presented for the whole of the ACT.
Source: Child Protection Collection 2021–22.

Figure 12.8: First Nations children who were the subjects of substantiations of notifications received during 2021–22, IREG at notification, by jurisdictions



Source: Child Protection Collection 2021–22.

Substantiations by socioeconomic areas

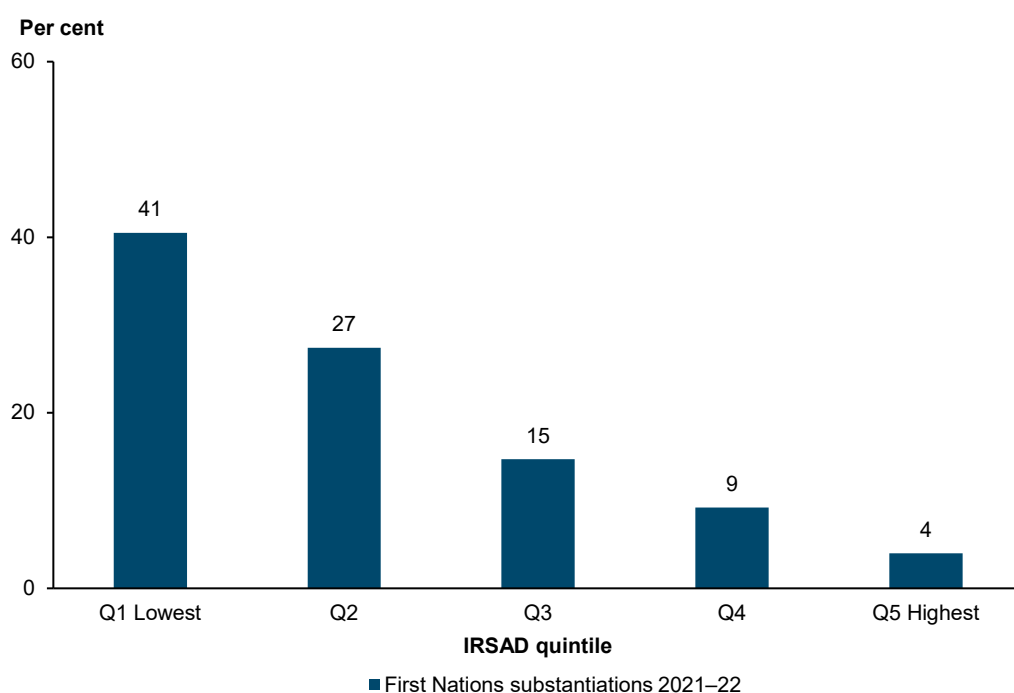
The analysis in this section is based on the Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD) of the area in which a child who was the subject of a substantiation lived, grouped into 5 quintiles (fifths) (ABS 2021).

About 41% (5,500) of First Nations children who were the subjects of substantiations in 2021–22 were living in socioeconomic areas ranked in the 20% that were most disadvantaged (i.e. Q1 or the first quintile of IRSAD) (ABS 2021). Another 27% were living in the second most disadvantaged 20% of areas (i.e. Q2 or the second quintile of IRSAD) (Figure 12.9; Table S12.3).

The NCPDC 2021–22 information on substantiations was classified using the 2016 SEIFA IRSAD classification, as the 2021 SEIFA IRSAD classification was not available at the time that analysis was carried out.

For further understanding of the associations between socioeconomic disadvantage and substantiations more detailed analysis, controlling for other factors, would be required.

Figure 12.9: First Nations substantiations^(a) by IRSAD^(b), 2021–22



(a) Children may be the subject of more than one substantiation. All substantiations are included in these data, so an individual child may be counted more than once.

(b) Index of Relative Socioeconomic Advantage and Disadvantage.

Sources: AIHW 2023a Data Table S3.8; AIHW analysis of ABS 2021 Census.

12.2.6 Admissions to and discharges from OOHC and time in care

National

The number of children in OOHC at a given point in time (for example, at 30 June 2023) is a function of:

- the number of children in OOHC at a previous point in time (for example, at 30 June 2022)
- the number who enter and leave OOHC during the following year (for example, 2022–23)
- the length of time that children spend in OOHC.

Previous research has found that between 2000–01 and 2007–08, the number of Australian children entering OOHC each year was relatively stable; however, the number of children in OOHC increased, due to children remaining in OOHC for longer periods. The results presented in that research were not disaggregated by Indigenous status. The study noted that more empirical research is needed in Australia on the reasons for increased length of time in care (Tilbury 2009).

Another study of children aged 0–3 who entered OOHC for the first time in New South Wales between May 2010 and October 2011 found that leaving OOHC was relatively rare (24%) because children in the sample were selected after a final order had been filed with the Court; they would therefore be expected to stay in care for some time. The study found that among those aged 0–3 who did leave care, the likelihood of leaving was highest 3 to 4 years after the interview conducted at the start of the survey.

Placement type was also associated with whether children left care. Compared with children in foster care, those children in relative/kinship homes were much more likely to leave care, and those who had spent some time in their parent's home were more likely to have left care. More detailed discussion of these findings and some caveats are contained in the study report (Wulczyn and Chen 2019).

In recent years, the COVID-19 pandemic has had an impact on child protection activity. Analysis of activity during the initial stages of the pandemic in Australia – March to August 2020 – found that:

- notifications dropped during COVID-19 shutdowns and increased once restrictions eased
- substantiations were relatively stable
- the number of children in OOHC remained relatively stable (for more information on how the data and risk factors were affected by the pandemic, see AIHW 2021b).

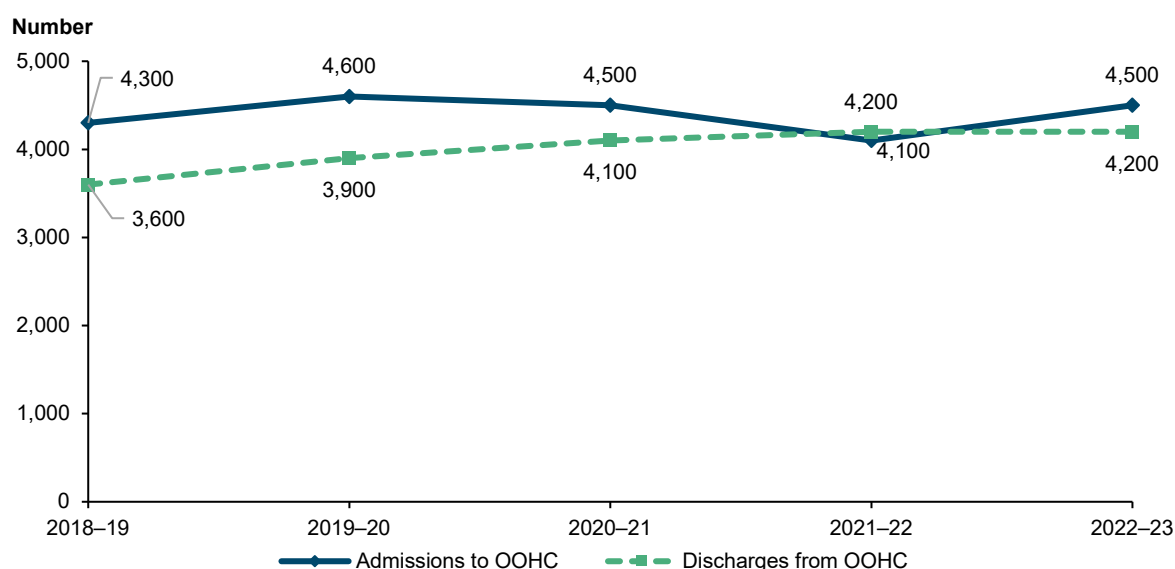
The number of First Nations children admitted to OOHC increased from around 4,300 in 2018–19 to nearly 4,600 in 2019–20, then decreased in the following 2 years to around 4,100 in 2021–22 and increased to around 4,500 in 2022–23.

Over the same period, the number of First Nations children discharged from OOHC increased each year, from just over 3,600 in 2018–19 to around 4,200 in 2022–23. Children discharged from OOHC include those who are reunited with family, placed in a third-party parental care arrangement, adopted or aged out of care.

This means that in each year from 2018–19 to 2022–23, more First Nations children were admitted to OOHC than were discharged, except in 2021–22, this pattern was reversed, with more First Nations children discharged from OOHC than the number admitted (Figure 12.10).

Driven by these dynamics, the number of First Nations children in OOHC as at 30 June each year increased steadily from 2019 to 2023 as shown in Figure 12.10.

Figure 12.10: Number of First Nations children admitted to and discharged from OOHC, 2018–19 to 2022–23



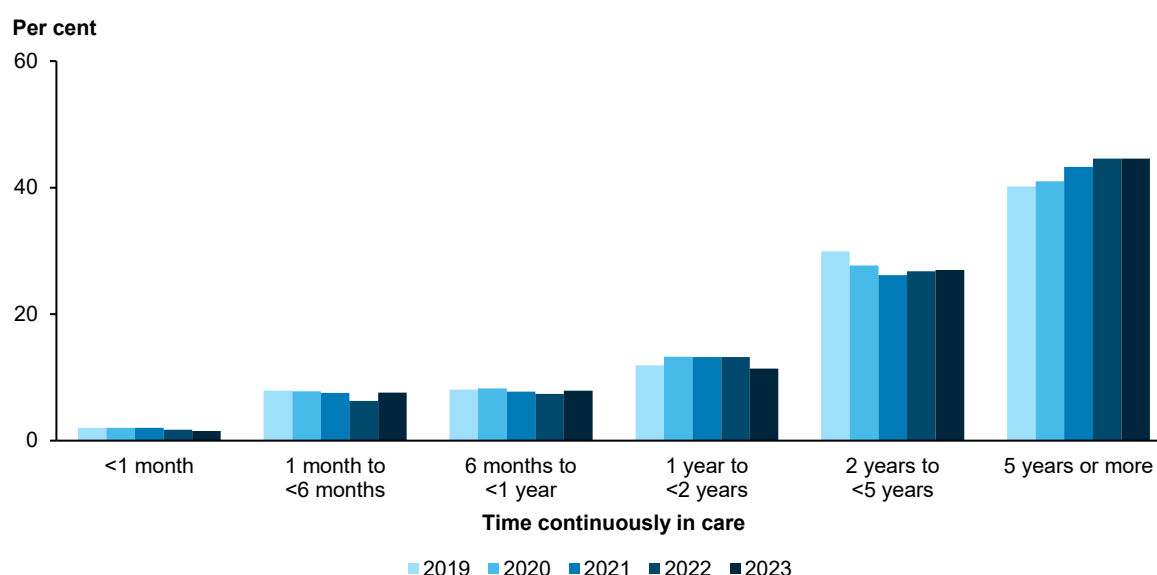
Source: AIHW 2024, tables S5.17 and S5.19.

The length of time that children spend in OOHC also has an impact on the number of children discharged from OOHC in any particular year. The effect of increased time spent in care on the numbers of children in care has been referred to elsewhere as a ‘blocked pipeline’ (Tilbury 2009).

In June 2023, of the approximately 19,800 First Nations children in OOHC, nearly 45% (about 8,800 children) had been continuously in care for 5 years or more and around 27% (about 5,300) for 2 to less than 5 years.

The proportion of First Nations children in OOHC who had been continuously in care for 5 years or more increased steadily from June 2019 to June 2023 while the proportion who had been in care for between 2–5 years decreased between June 2019 and June 2021, then increased only slightly to June 2023. Over the same period, there has been very little change in the proportion of First Nations children spending shorter lengths of time in OOHC (Figure 12.11).

Figure 12.11: First Nations children in OOHC by length of time continuously in care, 2019 to 2023



Sources: AIHW 2020, 2021a, 2022b, 2023, 2024 (Table S5.14).

A recent study noted mixed evidence for an association between duration of OOHC and children's health and social functioning. A longer duration in OOHC was found to be associated with a slightly increased likelihood of mental disorder diagnosis (but not with the other outcome measures examined – educational under-achievement or police contact). The study suggested this might be due to a policy to screen children in OOHC for health problems and may reflect increased likelihood of diagnosis, rather than an increase in mental disorders. The study also notes that characteristics like the duration of OOHC may be influenced by other variables, such as the family environment that led to the child's placement in OOHC (O'Hare et al. 2023). Another study found that early-age entries to care were associated with more time in care (O'Donnell et al. 2016).

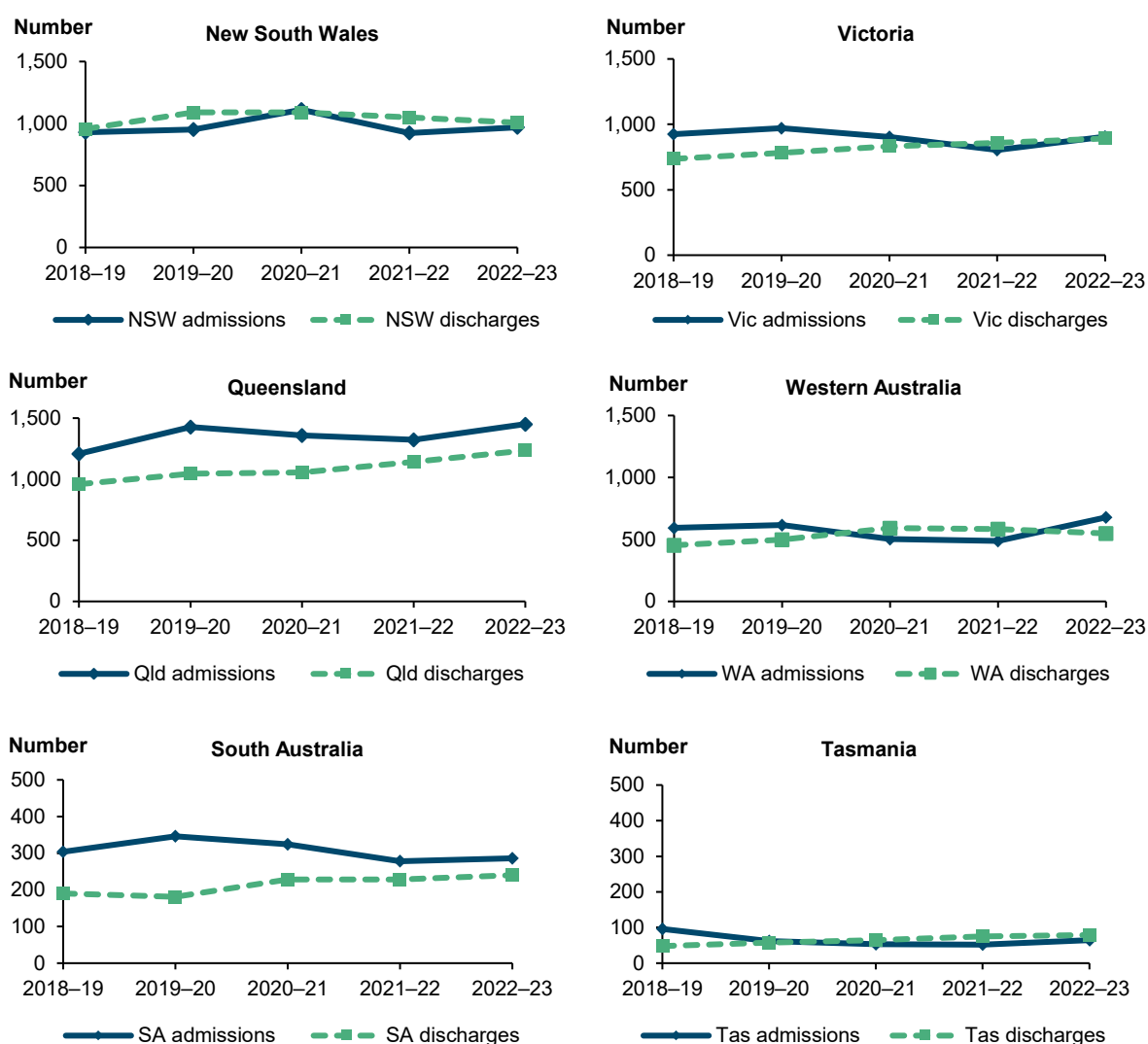
State and territory

The 5 most populous states – New South Wales, Victoria, Queensland, Western Australia and South Australia – accounted for about 93% of all First Nations children in OOHC as at 30 June 2023 (AIHW 2024, Table S5.5).

Across states and territories, the number of First Nations children admitted to OOHC has generally fallen or remained relatively stable between 2018–19 and 2022–23, while the number discharged from OOHC has generally risen or remained relatively stable.

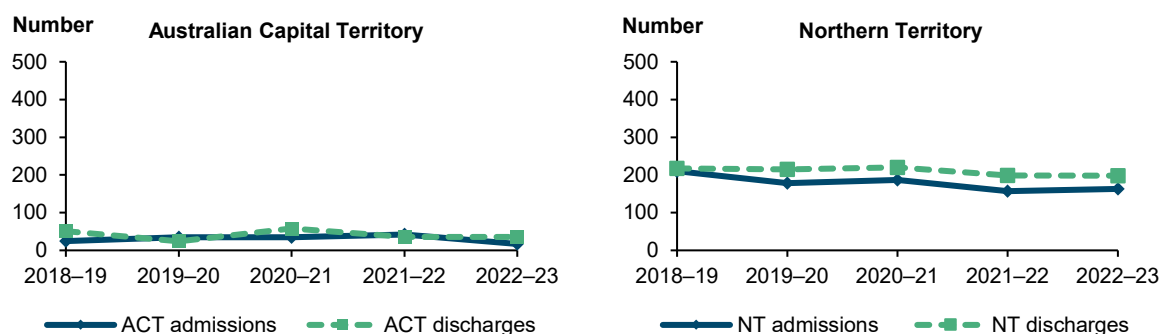
In 2022–23, the number of First Nations children discharged from OOHC was similar to, or higher than, the number admitted to OOHC in most states and territories, except in Queensland, Western Australia and South Australia where the number of First Nations children discharged was lower than the number admitted to OOHC (Figure 12.12).

Figure 12.12: First Nations children admitted to and discharged from OOHC, states and territories, 2018–19 to 2022–23



(continued)

Figure 12.12 (continued): First Nations children admitted to and discharged from OOHC, states and territories, 2018–19 to 2022–23

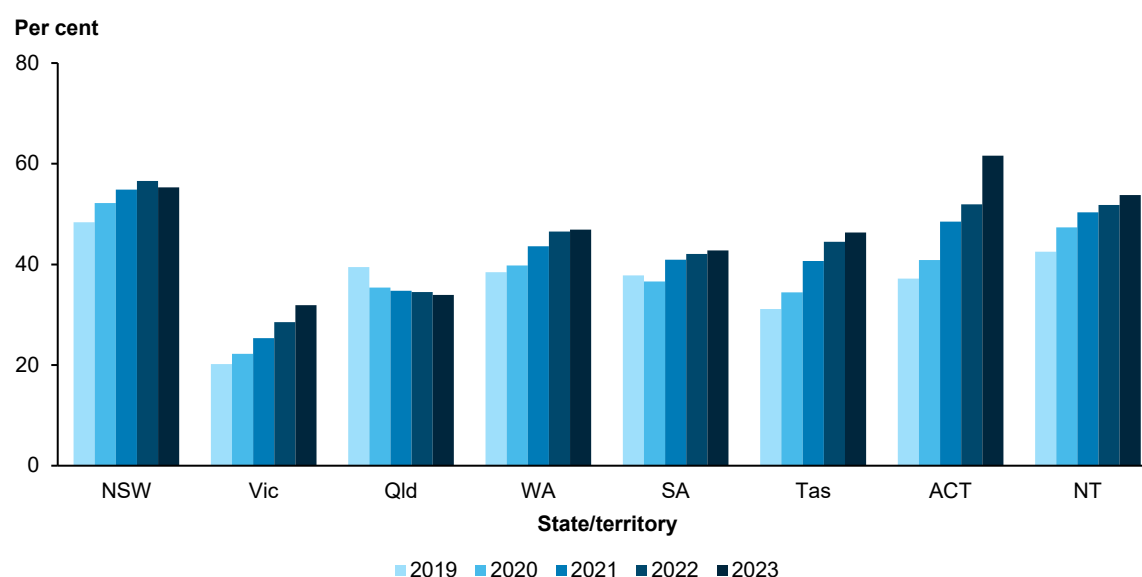


Sources: AIHW 2024, tables S5.17 and S5.19.

Length of time in care by state/territory

At 30 June 2023, the proportion of First Nations children who had been continuously in care for 5 years or more ranged from nearly 32% in Victoria to 62% in the Australian Capital Territory. From 2019 to 2023, the proportion of First Nations children in OOHC for 5 years or more increased in all states and territories except Queensland (Figure 12.13).

Figure 12.13: First Nations children in OOHC, proportion in care for 5 years or more by state and territory, 2019 to 2023



Sources: AIHW 2020, 2021a, 2022b, 2023, 2024 (Table S5.14).

Aboriginal and Torres Strait Islander Child Placement Principle indicators

The ATSICPP aims to protect First Nations children from the adverse effects of separation from family, community, culture and Country. A key element of the ATSICPP is governments working in partnership with First Nations communities, and with the participation of children, parents and their families, to:

- prevent children from being separated from their families by dealing with the causes that led to the involvement of children and families with the child protection system
- place children in OOHC according to a hierarchy that prioritises placement, firstly, with First Nations relatives/extended family, or other (non-Indigenous) relatives/extended family; then with First Nations members of their community; then with First Nations family-based carers; or, if none of these preferred options is available, with a non-Indigenous carer or in residential care
- support First Nations children in OOHC to maintain connections with their family, community, culture and Country (SNAICC 2017).

In 2023, around 63% of First Nations children aged 0–17 in OOHC were living with First Nations or non-Indigenous relatives or kin or other First Nations caregivers (about 12,500) (AIHW 2024, Table S5.12). This proportion has remained relatively unchanged since 2017 (AIHW 2022a, Table S1.1).

Reunification with birth parents (or family or a former guardian) is another ATSICPP indicator. In 2020–21, about 16% of children aged 0–17 in OOHC were reunified in the reporting period (about 1,700) (AIHW 2022a, Table S2.3a). Of the approximately 1,500 First Nations children aged 0–16 who exited OOHC to reunification in 2019–20, most (around 84%) did not return to care within 12 months (AIHW 2022b, Table S2.4a).

12.3 Literature review

There is a substantial body of national and international literature on the factors associated with child maltreatment. As well, there is some research that examines the factors associated with children's involvement in the child protection system in general, and with being in OOHC specifically.

Much of the quantitative literature focuses on characteristics of children and their families as determinants of child maltreatment and OOHC placement. Research that considers the determinants underlying these immediate factors and extends beyond them to systemic issues, attributes the over-representation of First Nations children in care to 'past policies and the legacies of colonisation', including 'poverty, assimilation policies, intergenerational trauma and discrimination and forced child removals' and 'a lack of understanding of the cultural differences in child-rearing practices and family structure' (AIFS 2020a).

However, there is a gap in the quantitative literature on the role of child protection system processes – that is, the processes whereby reports of concerns about child maltreatment are made and substantiated. It has been noted that, while previous research has identified an over-representation of Aboriginal infants in the child protection system in Australia, the literature has been limited in examining the specific points at which disparities between First Nations and non-Indigenous children occur (O'Donnell et al. 2019) and the extent to which child protection systems themselves contribute to over-representation of First Nations children in OOHC.

In contrast, qualitative studies often highlight:

- poor organisational culture and lack of cultural competency in child protection organisations
- the effects of intergenerational trauma and First Nations communities' mistrust of statutory child protection authorities
- inadequate government-funded programs and services (for example, Oates 2020).

Many authoritative reports recount First Nations families experiencing both difficulties interacting with child protection systems, and racial discrimination in their dealings with these systems and organisations (see examples from the 2017 Royal Commission into the Protection and Detention of Children in the Northern Territory, and the NSW Family is Culture review, cited in Hunter et al. 2020). There is evidence to support the argument that service providers led by First Nations people are best placed to strengthen the cultural identity of children in OOHC and support their wellbeing, to respectfully listen to and reassure First Nations families and communities, and manage mistrust and fear of child protection services (Creamer et al. 2022).

There is also a lack of quantitative research on the factors associated with children leaving OOHC, the length of their stay in OOHC, and whether these factors differ for First Nations and non-Indigenous children. These dynamics, along with the rates at which children enter OOHC, are important determinants of the number of children in care at a particular point in time.

The first part of this section describes findings from the broader literature, including a summary of factors associated with child maltreatment, child protection system involvement, or children being in OOHC. This literature includes both international studies and Australian studies, some of which include analysis relating to First Nations children.

The second part of this section focuses on a small number of the most relevant Australian studies from the literature and presents information about the effects of key factors. These studies include some that focus on First Nations children or contain analysis by Indigenous status.

12.3.1 Broad findings from the literature

The reviews and studies described in this section are divided into those that refer to child maltreatment (a key factor of children being placed in OOHC) and those that refer specifically to children's being in OOHC. All of these studies identify similar factors, reflecting that placement in OOHC is a statutory response to substantiated reports of child maltreatment. As noted earlier, there is a gap in the quantitative literature regarding the role of child protection systems and the governance structures and processes that underpin the systems.

Review related to general child maltreatment

Poverty, deprivation, or level of socioeconomic disadvantage

Poverty or low income, and other forms of deprivation, socioeconomic inequality and economic insecurity or material hardship were found to be associated with a higher likelihood of child maltreatment (Austin et al. 2020; Bromfield and Holzer 2008; Bywaters et al. 2022; Conrad-Hiebner and Byram 2020; Doidge et al. 2016; Doidge et al. 2017; Hunter and Flores 2021; Raissian and Bullinger 2017).

While low income, material hardship and poverty are all measures of a lack of sufficient resources, specific definitions differ, as described below:

- One commonly cited potential explanation for the relationship between poverty and child maltreatment is the investment model, which focuses on whether families have adequate resources to provide for their children's basic needs, and is particularly relevant to neglect of children.
- Another potential explanation is the family stress model, which is that a lack of financial resources can cause stress and depression in parents, leading, in turn, to substance abuse, for example (Bywaters et al. 2022; Raissian and Bullinger 2017).

Low income is a well-established risk factor for child maltreatment (Austin et al. 2020; Bromfield and Holzer 2008; Conrad-Hiebner and Byram 2020). One systematic review found that the most reliable predictors of child maltreatment were ‘income losses, cumulative material hardship, and housing hardship’ (Conrad-Hiebner and Byram 2020). Another recent report states of their review that ‘this substantial body of work provides strong evidence that poverty, measured in multiple ways, is associated with increased levels of one or more forms of CAN’ (child abuse and neglect) (Bywaters et al. 2022:58).

One United States study found that a \$1 increase in the minimum hourly wage implied a statistically significant 9.6% decline in neglect reports. The authors noted that the effect was large, but also noted that the \$1 increase in the minimum hourly wage represented a 16% increase (Raissian and Bullinger 2017). Another review cited studies showing associations between measures of material hardship and child maltreatment, describing material hardship as a more direct measure of ‘the tangible ways in which poverty affects everyday life’, such as difficulties in affording basic needs like housing, food, utilities and medical care (Austin et al. 2020).

Poverty was found to be ‘consistently and strongly associated with maltreatment’ in another systematic review. Across the studies included in the review, poverty was defined by geography, family/household income, socioeconomic status, poverty rate, unemployment, families living below the poverty level or children living in poverty, receipt of public assistance, composite poverty scores and self-reported acute financial challenges (Hunter and Flores 2021).

For all First Nations people in the 2018–19 NATSIHS, nearly 1 in 3 (32.2%) were in the lowest 10% of Australian households for equivalised household income, while 3 in 4 (75.8%) were in the lower half. This meant that only 1 in 4 (24.2%) First Nations people were in a household with an equivalised income over the median Australian value (Table S12.4).

Co-occurring domestic violence, substance use and mental health issues

The role of co-occurring domestic and family violence, alcohol and other drug issues and mental health issues in bringing children to the notice of child protection services is well documented in the general literature. An Australian review noted a greater focus in recent years on the relationship between family experience of multiple interrelated problems and child maltreatment (Bromfield and Holzer 2008; Conley Wright et al. 2021; Humphreys et al. 2020; Isobe et al. 2020).

According to one study, the risk of child maltreatment increased markedly with the number of risk factors, which included economic disadvantage, poor parental mental health and substance use, and social instability (for example, the number of house moves, changes of high school and parental separation/divorce), with the prevalence of maltreatment in the highest risk groups being greater than 80% (Doidge et al. 2017).

A critical interpretative synthesis of literature in the Australian context observed that there was little robust empirical research undertaken in an Australian context that examined the occurrence, overlap or interrelationships of economic disadvantage, poor parental mental health and substance use, and social instability with involvement in the child protection system. The study noted an absence of, or inconsistencies in, definitions used in the research, and a lack of information about specific aspects that may have an impact on children. Further, it found that there was a lack of exploration and analysis of the interactions among domestic and family violence, alcohol and other drug issues and mental health issues, and broader socioeconomic, demographic and contextual factors – for example, low social support and unemployment often coinciding with mental health issues. According to the study, the available body of research highlights a deficit in the way the child protection

system responds in working with families (including adult victims/survivors), engaging with men and working effectively across organisations serving clients with complex needs. It also notes that demand for treatment often exceeds supply (Conley Wright et al. 2021).

Parental alcohol or substance use

Parental alcohol or substance use was found to be associated with a higher likelihood of child maltreatment (Austin et al. 2020; Bromfield and Holzer 2008; Doidge et al. 2017). Parental alcohol and drug use was one of 10 factors most commonly associated with child maltreatment, according to an Australian review of large meta-analyses (Bromfield and Holzer 2008).

Substance abuse was associated with child maltreatment behaviours self-reported by parents in a study that also found child maltreatment was 64% lower among parents with a recent but not current substance use disorder than among those reporting a current substance use disorder (Kepple 2017, cited in Austin et al. 2020).

According to data from the 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS), in the 12 months prior, over half (57.2%) of First Nations adults living in a household with dependent children exceeded the single occasion risk for alcohol at some point. Fewer than 1 in 5 drank but did not exceed the single occasion risk level (17.5%), while 1 in 4 (25.2%) did not drink alcohol at all. About 1 in 4 (23.8%) First Nations adults living in households with dependent children reported using a substance in the last 12 months for a non-medical purpose. Substances surveyed include marijuana, amphetamines, LSD, and sniffing petrol, among others, but did not include alcohol, tobacco or vapes (Table S12.4).

Parental mental health

Parental mental health is one of 10 factors most commonly associated with child maltreatment, according to an Australian review of large meta-analyses (Bromfield and Holzer 2008). Parental mental health was found to be associated with a higher likelihood of child maltreatment (Austin et al. 2020; Bromfield and Holzer 2008; Doidge et al. 2017; Marcal 2022).

Maternal depression was a statistically significant predictor of neglect, according to a study mainly focused on associations between housing insecurity and child maltreatment. There were 3 outcome measures: psychological aggression, physical aggression, and neglect. The main explanatory variables of interest were housing quality, stability and affordability, along with covariates including mother's age and ethnicity, child's gender, mother's age at the child's birth, mother's highest level of education, marital status, total household income, maternal depression and maternal substance use. This study was conducted in large cities in the United States and these results may not generally apply to First Nations people in Australia, especially those living outside major cities (Marcal 2022).

In the 2018–19 NATSIHS, the Kessler-5 measure of psychological distress was used to determine the mental health status of participants. The results indicated that the majority (71.3%) of First Nations Australian adults living in households with dependent children had low/moderate psychological distress, while roughly 3 in 10 (28.7%) were experiencing high/very high levels of distress (Table S12.4).

Domestic violence

Family violence is one of 10 factors most commonly associated with child maltreatment, according to an Australian review (Bromfield and Holzer 2008) that cites large meta-analyses (Black et al. 2001a, 2001b; Black, Slep et al. 2001; Schumacher et al. 2001).

Other factors

A recent review of risk and protective factors for child maltreatment in the United States (Austin et al. 2020) identified some additional factors, including that:

- rates of maltreatment were highest among the youngest children – this may be attributable to younger children being more dependent on, and spending more time with, their caregivers as well as being more vulnerable
- rates of maltreatment were higher among children with special health-care needs or disability – this may be partly due to more frequent interactions with health services and higher levels of dependence
- protective factors were found to be:
 - children’s resilience and self-regulation skills
 - social support available to a caregiver from family and friends
 - greater availability of health, social and educational services
 - greater social cohesion
 - social policies related to government benefits and leave entitlements
- risk factors were found to be:
 - neighbourhood crime or community violence
 - wider social trends or policies, ranging from economic policy to gender inequality.

Review related to children’s involvement with child protection systems including OOHC placement

Co-occurring domestic violence, substance use, and mental health issues

A 2015 report of an inquiry by an Australian Senate committee identified ‘socioeconomic factors linked to disadvantage, particularly family violence, drug and alcohol abuse and mental health issues’ as the most important factors for children entering and remaining longer in OOHC (Senate Standing Committees on Community Affairs 2015).

Parental alcohol or substance use

Around half of all children in South Australia who had first entered care between 0–2 years came from families affected by substance abuse (Delfabbro et al. 2009). The association between substance abuse and greater chances of OOHC placement was statistically significant in a study that included American Indian/Alaskan Native families (Carter 2010).

Parental alcohol abuse was found to be associated with child placement in a study of First Nations populations in Canada (Trocme et al. 2004).

Parental mental health

Over one-third of all children in South Australia who had first entered care between 0–2 years old came from families affected by parental mental health issues (Delfabbro et al. 2009). In a study including American Indian/Alaskan Native families, the chances of OOHC placement were statistically significantly greater if the caregiver had mental health problems (Carter 2010).

Domestic violence

About one-half of all children in South Australia who had first entered care between 0–2 years old came from families affected by domestic violence (Delfabbro et al. 2009). A study

of children in Western Australia found that those with mothers who had an assault-related hospital admission were 4 times as likely to be taken into care (O'Donnell et al. 2016).

Poverty, deprivation or socioeconomic disadvantage

A United States study found that an increase in income was associated with reductions in child neglect and child protection system involvement, particularly among low-income single-mother families (Berger et al. 2017).

12.3.2 Findings on key factors from Australian studies

In general, there is a lack of accessible data that include information about both child and family characteristics and child protection system involvement, processes and outcomes, although some linked data sets are available to certain researchers. These include:

- the New South Wales Human Services Dataset:
<https://www.facs.nsw.gov.au/resources/research/human-services-dataset-hsds>
- the South Australian Early Childhood Data Project:
<https://health.adelaide.edu.au/betterstart/publications-presentations-reports/reports>.

The AIHW developed a linked data collection to report on the relationships between child protection and youth justice supervision (AIHW 2022e).

A small number of empirical studies focus on factors associated with child maltreatment or child protection system involvement for Australian children. In general, the factors are similar for First Nations and non-Indigenous children, but, as previously noted, there is a gap in the empirical literature regarding the child protection system processes, and whether there are differences in these processes for First Nations children and non-Indigenous children.

The following studies include one specific to First Nations people (Segal et al. 2019), 2 that include analysis by Indigenous status (O'Donnell et al. 2016; O'Donnell et al. 2019) and 2 of Australian children in general (Doidge et al. 2016; Doidge et al. 2017). These studies examine the factors associated with outcomes, including child maltreatment, lifetime child protection system involvement, first entry to OOHC during childhood, and infant entry to OOHC. All of these studies appear to capture factors associated with child maltreatment, reflected in child protection system involvement or placement in OOHC, but do not examine the effects of factors related to child protection system processes.

Each of these studies draws on relatively large samples and uses robust statistical methods – in most cases, multivariate modelling controlling for a range of relevant variables. Each uses data from a single Australian jurisdiction (Western Australia, South Australia, Victoria), so there may be limited applicability to the First Nations population across jurisdictions.

- The study by O'Donnell and colleagues (2019) included 2,334 infants born in Western Australia from 1990 to 2010 who entered OOHC aged under 1 year.
- The 2019 study by Segal and colleagues included all children liveborn in South Australia between 1 January 1986 and 30 June 2017, a total of 608,547 children, with between 108,208 and 151,137 children in each of 5 birth cohorts.
- The total study population in the analysis by O'Donnell and colleagues (2016) included 303,057 births in Western Australia.
- The 2019 Western Australian study by O'Donnell and colleagues used measures of hospital admissions related to maternal substance use, maternal mental health or assault. In Western Australia, child sexual abuse is subject to mandatory reporting (including by health-care professionals), but other types of risks to children can become

more apparent when a parent is admitted to hospital for these reasons, and may be reported even if mandatory reporting is not required.

- The 2 studies by Doidge and colleagues (2016, 2017) were based on samples of 2,443 young adults from the Australian Temperament Project, a longitudinal study conducted in Victoria.
- Another study by Delfabbro and colleagues (2009) was a smaller scale study of infants (498) entering OOHC in South Australian between 2000 and 2004.

Five of the studies mentioned above – by Segal and colleagues (2019), O'Donnell and colleagues (2016 and 2019) and Doidge and colleagues (2016 and 2017) – used multivariate modelling to examine the effects of multiple explanatory variables on the outcome studied. These explanatory variables include some that are often related or co-occurring, including:

- maternal substance use and mental health issues (O'Donnell et al. 2019)
- socioeconomic disadvantage, maternal substance use or mental health issues and maternal hospitalisation for assault (O'Donnell et al. 2016)
- unemployment, poverty, parental substance use and parental mental Health (Doidge et al. 2017).

The findings about key factors associated with OOHC and related outcomes are discussed below.

Placement in OOHC or child protection system involvement

Socioeconomic area

- The likelihood of ever being placed in OOHC was 3 times as high among First Nations children living in the most disadvantaged quintile as among those living in the least disadvantaged quintile (Segal et al. 2019).
- The risk of entering OOHC for the first time was 5 times as high among Western Australian children from the most socially disadvantaged areas as among those from the least disadvantaged areas (O'Donnell et al. 2016).
- The likelihood of ever being the subject of a child protection investigation was 2 times as high among First Nations children living in the most disadvantaged quintile as among those living in the least disadvantaged quintile (Segal et al. 2019).
- The likelihood of ever being the subject of a child protection substantiation was 3 times as high among First Nations children living in the most disadvantaged quintile as among those living in the least disadvantaged quintile (Segal et al. 2019).

Maternal mental health

- The likelihood of being placed in OOHC was 1.4 times as high among First Nations infants (aged under 1 year) whose mother had a hospital admission related to mental health as among those whose mother did not (O'Donnell et al. 2019).

Domestic violence

- The risk of entering OOHC for the first time was 4 times as high among Western Australian children whose mother had an assault-related hospital admission as among those whose mother had not (O'Donnell et al. 2016).

Parental substance use

- The risk of entering OOHC for the first time was 6 times as high among children whose mother had a mental health or substance-related hospital admission as among those

whose mother did not, based on a study of Western Australian children (O'Donnell et al. 2016).

- Placement in OOHC was statistically significantly higher (up to 7 times as likely) among First Nations infants in Western Australia whose mother had a hospital admission related to substance use as among those whose mother did not (O'Donnell et al. 2019).

General child maltreatment

Socioeconomic circumstances

- The risk of child maltreatment was 1.5 times as high for those who had experienced parental unemployment as for those who had not (based on father or mother being unemployed at specific points when the child was growing up; however, there was no specific information on the total duration of unemployment) (Doidge et al. 2017).
- The risk of child maltreatment was 2 times as high for those who had experienced poverty as a child (as an adult, retrospectively answered as 'somewhat true' or 'very true' to the statement '*Your family was poor and struggled to make ends meet*') as for those who had not (Doidge et al. 2017).
- It was estimated around 27% of child maltreatment in the population was explained by a combination of factors indicating the child was from a lower socioeconomic background, including:
 - occupation and highest level of education for mothers and fathers at baseline
 - the highest quality of housing reported by the time the child was aged 7–8
 - unemployment of mothers or fathers at 5 points in time while the child was growing up
 - participant's retrospective perception of poverty while growing up (recorded at age 23–24) (Doidge et al. 2016).

Parental mental health and substance-use

- According to a prospective study of young Victorian adults born in 1983:
 - the risk of child maltreatment was 1.9 times as high among those who reported that their father or mother had mental illness or a substance use problem when the respondent was a child as those who did not
 - the risk of child maltreatment was 2.3 times as high among those who reported parental substance use as those who did not.

12.4 Policy implications

One of the aims of the 2020 National Agreement on Closing the Gap is to reduce the rate of over-representation of Aboriginal and Torres Strait Islander children (aged 0–17) in OOHC by 45%, by 2031.

The rate at which First Nations children continue to be separated from their families, communities and cultures has been described as 'devastatingly high' (Liddle et al. 2022). There are concerns that the large numbers of First Nations children being removed from their families and communities has parallels with, and will have similar impacts to, the Stolen Generations – the forcible removal of First Nations children from their families that occurred as a result of historical government policies (Campbell 30 May 2017; Krakouer et al. 2018). The over-representation of First Nations children in OOHC has been linked to the trauma and its consequences experienced by those among the Stolen Generations who were forcibly

removed (Atkinson et al. 2014; Bromfield and Holzer 2008; Douglas and Walsh 2013; HREOC 1997; Hunter et al. 2021; Krakouer et al. 2018; The Healing Foundation 2021). Reducing First Nations over-representation in OOHC is essential to help break the cycle of intergenerational trauma (O'Donnell et al. 2019).

Nationally, the number of First Nations children aged 0–17 in OOHC increased from nearly 18,000 at 30 June 2019 to around 19,800 at 30 June 2023. The rate of First Nations children in OOHC increased from around 54 per 1,000 at 30 June 2019 to nearly 58 per 1,000 at 30 June 2021, then fell slightly to around 57 per 1,000 at 30 June 2023.

Despite this small decrease in the rate of First Nations children aged 0–17 in OOHC in the most recently available data, the over-representation of First Nations children in OOHC increased between June 2019 to June 2023. In 2023, First Nations children aged 0–17 were 12.1 times as likely as non-Indigenous children aged 0–17 to be in OOHC, compared with 10.6 times as likely in 2019.

Determinants of the number of children in OOHC include factors associated with child maltreatment, as placement in OOHC is one potential outcome following substantiation of a notification of child maltreatment. Socioeconomic disadvantage, family and domestic violence, parental mental health and substance use have been identified in the literature as some of the key factors of child maltreatment (potentially leading to involvement with the child protection system). However, it has been observed that focusing on individual parenting risk factors has a stigmatising effect that potentially leads to under-reporting of domestic and family violence and a reluctance to seek help for alcohol and other drug use and mental health issues, especially where families associate identification of these risk factors with child welfare involvement (Conley Wright et al. 2021).

International frameworks prioritise the best interests of the child, including their right to culture and family contact, in child protection systems (Krakouer et al. 2018). In Australia, the ATSICPP aims to protect First Nations children from the adverse effects of separation from family, community, culture and Country by working in partnership with First Nations communities – and with the participation of children, parents and their families – to prevent separation. It aims to manage the placement of children in OOHC according to a hierarchy that prioritises, firstly, placement with Indigenous relatives/extended family, or other (non-Indigenous) relatives/extended family, and to support First Nations children in OOHC in maintaining connections to their family, community, culture and Country (SNAICC 2017). However, only around 63% of first Nations children aged 0–17 in OOHC were living with First Nations or non-Indigenous relatives or kin or other First Nations caregivers, with this proportion remaining relatively unchanged since 2017.

There is a lack of quantitative research that examines the processes whereby reports of concerns about child maltreatment are made and those reports are substantiated. It has been noted that while previous research has identified an over-representation of First Nations infants in the child protection system in Australia, the literature has been limited in examining the points at which disparities between First Nations and non-Indigenous children occur (O'Donnell et al. 2019).

However, there are many authoritative reports of First Nations families experiencing both difficulties in interacting with child protection systems and racial discrimination in their dealings with them (see examples from the 2017 Royal Commission into the Protection and Detention of Children in the Northern Territory, and the NSW Family is Culture review, cited in Hunter et al. 2020). Many First Nations families lack access to culturally safe early intervention and prevention services and either have difficulties engaging with mainstream services, and/or experience racially discriminatory treatment from them. These issues are well documented (see, for example, O'Donnell et al. 2019).

Challenges facing child protection systems, some of which have implications for policy and services, are identified in Higgins and Katz (2008). They include:

- increasing numbers of notifications, placing strain on the system's capacity to assess them
- few substantiations compared with the number of notifications, indicating an inefficient use of resources and many families being drawn into the child protection system unnecessarily
- a focus on investigation, with a lack of resources for prevention or early intervention services
- more children in OOHC with greater levels of behavioural and emotional difficulties and a lack of resources to meet their needs
- difficulties recruiting and training foster carers
- lack of trust in statutory child protection services (Higgins and Katz 2008).

Qualitative studies highlight:

- issues related to poor organisational culture and a lack of cultural competency in child protection organisations
- the effects of intergenerational trauma and First Nations communities' mistrust of statutory child protection authorities
- inadequate government-funded programs and services (Oates 2020).

Service providers led by First Nations people are best placed to strengthen the cultural identity of First Nations children in OOHC and support their wellbeing, and to respectfully listen to and work with First Nations families and communities (Creamer et al. 2022).

Access to culturally appropriate services is also raised in the context of the link between children in child protection systems and youth justice. First Nations young people under youth justice supervision were more likely than non-Indigenous young people to have had an interaction with the child protection system. Around 64% of First Nations young people under youth justice supervision during 2020–21 had also received child protection services in the previous 5 years, compared with 46% of non-Indigenous young people (AIHW 2022e).

The New South Wales Government 'has used a levy to divert a percentage of Department of Communities and Justice (DCJ) funding into ACCO [Aboriginal community-controlled organisation]-led approaches, with the aim of reducing the number of Aboriginal children in out of home care' (Allison 2022:26). One study 'endorses calls to shift from reactive strategies based in tertiary child protection to proactive, primary prevention that aims to reduce risk factors and enhance protective factors prior to problems emerging' (Conley Wright et al. 2021:5), arguing for the establishment of multidisciplinary services cross-cutting child welfare, youth justice, mental health and education systems.

To reduce the number of children entering the child protection system, prevention and early intervention programs should be prioritised. Primary prevention includes universal access to services, and activities and programs with a whole-of-community focus, while early intervention includes services to support families that may be having difficulties caring for their children (AHRC 2019; Lewis et al. 2019).

A recent AIHW report (AIHW 2023b) using linked data shows very high rates of income support receipt and use of homelessness services for young people who have left out of home care. This suggests that young people who leave out of home care need support. Policy should also focus on supporting young people after they leave OOHC. This report also

highlights the value of data linkage for better understanding transitions into and out of OOHC.

Safe and Supported: The National Framework for Protecting Australia's children 2021–2031 is a 10-year strategy to improve the lives of children, young people and families experiencing disadvantage or who are vulnerable to abuse and neglect. The Australian Government, state and territory governments, First Nations representatives and the non-government sector are working to reduce child maltreatment through better coordinating programs and supporting families to keep their children safe, while targeting areas with the biggest need for the greatest impact, and to avoid duplication (AIHW and NIAA 2024). (See [https://www.dss.gov.au/our-responsibilities/families-and-children/programs-services/protecting-australias-children#:~:text=Triple%20Zero%20\(000\)-,Safe%20and%20Supported%3A%20the%20National%20Framework%20for%20Protecting%20Australia%27s%20Children,free%20from%20harm%20and%20neglect.](https://www.dss.gov.au/our-responsibilities/families-and-children/programs-services/protecting-australias-children#:~:text=Triple%20Zero%20(000)-,Safe%20and%20Supported%3A%20the%20National%20Framework%20for%20Protecting%20Australia%27s%20Children,free%20from%20harm%20and%20neglect.))

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Appendix 12A: Broad overview of the child protection process in Australia and the National Child Protection Data Collection

Broad overview of the child protection process in Australia

In Australia, governments provide a range of services aimed at helping families and supporting child safety. The Australian Government provides income and family support payments, the child support scheme (which aims to ensure that children receive financial support from parents who are separated), support for child care, access to health-care services, family support services, legal assistance and the family law system.

State and territory governments deliver many services that aim to help families and keep children safe, including family support, health, housing and education, and mental health and therapy services (DSS 2021).

State and territory governments are also responsible for statutory child protection. Child protection is ‘the prevention of, and response to, exploitation, abuse, neglect, harmful practices and violence against children’ (UNICEF 2021). Child protection agencies investigate reports of child abuse or neglect and assist children and families with a range of family support services, generally delivered by non-government organisations. The child protection process may lead to referral to a variety of support services or may lead to legal intervention to remove a child (AIHW 2022b). Increasingly, there is a greater focus on early intervention and targeted support, to prevent families and children becoming involved with the child protection system (DSS 2021).

Families and children come into contact with the child protection system when concerns about a child’s welfare (that is, potential child maltreatment) are reported to a state or territory child protection authority. Such a report may proceed to a formal child protection *notification*, which in turn may proceed to an *investigation*. If a notification of child maltreatment is *substantiated*, and the child protection authority determines that the child is not safe, the child is placed on a *care and protection order* – a legal arrangement that gives child protection departments partial or full responsibility for a child’s welfare. Children may then be placed in *out-of-home care* or another type of placement, temporarily or permanently.

Child protection concepts and definitions

Definitions of some key terms in the child protection process are provided below, as described in (DSS 2021). More information is also available from:

- the AIHW Glossary of child protection terms at the following link: <https://www.aihw.gov.au/reports-data/health-welfare-services/child-protection/glossary>
- *Child protection Australia 2020–21* (AIHW 2022b), in particular *Notifications, investigations and substantiations* at the following link: <https://www.aihw.gov.au/reports/child-protection/child-protection-australia-2020-21/contents/notifications-investigations-and-substantiations>
- the Australian Institute of Family Studies Child Family Community Australia Resource Sheet (AIFS 2020a).

Child maltreatment

Child maltreatment (child abuse and neglect) is defined by the World Health Organization as 'abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power' (WHO 2020).

Notification

A notification is a report made to a child protection department alleging child abuse or neglect, child maltreatment, or harm to a child. These reports can be made by individuals or organisations (DSS 2021).

The legal obligation to report suspected child maltreatment ('mandatory reporting') is governed by commonwealth and jurisdiction-specific legislation (AIHW 2022b). Mandatory reporting legislation generally lists particular occupations, usually those who deal with children in the course of their work such as teachers, early childhood education and care workers, doctors, nurses and police; however, there is variation across jurisdictions regarding the specific types of maltreatment covered by mandatory reporting and who is legally obliged to report suspected child maltreatment to the appropriate authority. The list of those mandated to report child maltreatment varies from people in a limited number of occupations, to more extensive lists, through to every adult (AIFS 2020b).

See AIHW (2022d) for links to legislation governing mandatory reporting and the definition of 'in need of care and protection'.

Once a child concern report has been classified as a notification, the case is further assessed to determine the next action to be taken. Where there are marked concerns regarding harm or risk of harm an investigation is required. However, where there is a low risk of harm, there is a non-investigatory response, which may include referral to support services or providing advice. In cases where the child is deemed to be safe, no further action is taken (AIHW 2020).

Investigation

Investigation is the process by which departments gather more information about a child involved in a *notification*. As noted above under *Notification*, not all reports of concerns about a child's welfare proceed to an investigation. Staff assess the harm or degree of harm to the child and their protective needs. Investigations may include sighting or interviewing the child where practical (DSS 2021).

Substantiation

A substantiation is the result of a finalised investigation which concludes that there is reasonable cause to believe that a child has been, is being or is likely to be, abused, neglected or otherwise harmed. This may include cases where children have no suitable caregiver (DSS 2021).

Care and protection order

These are legal orders or arrangements that give child protection departments some responsibility for a child's welfare (AIHW 2022c).

Out-of-home care

Generally, out-of-home care (OOHC) is overnight care for children aged under 18 who are unable to live with their families due to child safety concerns. It is a medium- or long-term arrangement when there is a high level of risk determined by child protection authorities or when parents cannot care for their children for a time.

This includes placements approved by the department responsible for child protection for which there is ongoing case management and financial payment (including where a financial payment has been offered but has been declined by the carer) (DSS 2021).

Where a 'permanency outcome' occurs – a long-term guardianship or custody order, reunification with family, placement in a third-party parental care arrangement, or adoption – children are considered to have exited OOHC and so are not counted as being in OOHC.

Hunter and colleagues (2020) argue that First Nations children who are permanently placed away from their families should be included in OOHC statistics.

Child Protection National Minimum Data Set

The source of the data presented in this chapter is the Child Protection National Minimum Data Set (CP NMDS), which is based on administrative data provided by state and territory departments responsible for child protection, according to a set of agreed specifications.

Children in scope for this data set are those aged under 18. For some states and territories, this also includes unborn children.

Since the implementation of the CP NMDS, reporting from 2012–13 has increased comparability across jurisdictions and over time.

Comparability of child protection data across states and territories and over time is still affected by policy and practice differences – specifically, by differences in the:

- variation across jurisdictions regarding mandatory reporting; that is, who is legally obliged to report suspected child abuse and neglect to the appropriate authority
- use of agency-defined and caller-defined approaches to recording notifications
- thresholds used for risk assessment practices
- treatment of multiple notifications and overlapping investigations
- treatment of cases for unborn children, abuse in care, non-familial maltreatment and where there is no suitable caregiver
- care and protection orders issued, particularly for interim and temporary orders
- reporting types of OOHC placement (AIHW 2022b, appendixes A–B).

Box 12A.1: National definition of out-of-home care

A nationally consistent definition of OOHC was implemented in the CP NMDS in 2018–19 (AIHW 2022b).

Out-of-home care is overnight care for children aged under 18 who are unable to live with their families due to child safety concerns. This includes placements approved by the department responsible for child protection for which there is ongoing case management and financial payment (including where a financial payment has been offered but has been declined by the carer).

Out-of-home care includes legal (court-ordered) and voluntary placements, as well as placements made to provide respite for parents and/or carers.

Out-of-home care excludes:

- placements for children on third-party parental responsibility orders (see AIHW 2023, Appendix A, Table 1.3 for more information on order types)
- placements for children on immigration orders
- supported placements for children aged 18 or over
- pre-adoptive placements and placements for children whose adoptive parents receive ongoing funding due to the support needs of the child
- placements to which a child enters and exits on the same day
- placements solely funded by disability services, psychiatric services, specialist homelessness services, juvenile justice facilities, or overnight child-care services
- cases in which a child self-places without approval by the department (AIHW 2022b).

Limitations of child protection data to measure child maltreatment

There are limitations in using data about contact with child protection systems to measure or research child maltreatment. Data on the number of children who come into contact with the child protection system do not measure the prevalence of child maltreatment in the general population and in any specific population subgroup. Previous research has identified issues with child protection statistics that result in some children who have been maltreated not being included in the statistics, and other children who have not been maltreated being included. There are also issues contributing to the under-reporting and over-reporting of child maltreatment specific to First Nations communities (see discussion in AIFS 2020a).

The first Australian study of the prevalence and outcomes of child maltreatment, the Australian Child Maltreatment Survey (ACMS), has been conducted (QUT 2020) and results were published in early 2023. Data from First Nations participants were not separately analysed or presented as it was determined that this would not be 'ethically or methodologically appropriate' (Haslam et al. 2023).

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Family safety

13

Summary

Target

The target associated with Outcome 13 of the 2020 National Agreement is to reduce by at least 50% the rate of all forms of family violence and abuse against Aboriginal and Torres Strait Islander women and children, as progress towards zero by 2031 from a baseline of 8% in 2018–19.

Background

- The societal consequences of family violence are far reaching and substantially affect not only the victim and offender but also other family members and the broader community.
- Family violence can lead to family dysfunction and parenting challenges, with children being removed from households, which can further perpetuate the cycle of violence. It can also lead to higher rates of imprisonment, particularly for men.
- Family violence is a substantial contributor to morbidity and mortality in Australia's Aboriginal and Torres Strait Islander (First Nations) population, particularly for First Nations women.
- The high rates of family violence among First Nations people have been linked with colonisation, dispossession and cultural dislocation, dislocation of families through removal, marginalisation, unemployment, welfare dependency, past history of abuse, addictions, health and mental health issues, and low self-esteem and a sense of powerlessness.
- Poverty has been shown to be associated with violence in a number of ways:
 - Those who live in poverty more frequently engage in acts of violence as a consequence of living in poor housing conditions, distressed neighbourhoods and disrupted families.
 - However, violence can cause poverty at the aggregate level by creating an environment which is not favourable for economic development or growth.
- Poor housing conditions and overcrowding exacerbate violence and make First Nations women and children vulnerable to abuse from a broad range of potential abusers.
- Previous research has found an association between low educational attainment and unemployment with an increased risk of experiencing family violence.
- Determinants of family violence can also be attributable to inadequate criminal justice responses and/or health and community services. Coroners have identified several problems in risk assessment, patient discharge, follow-up and support – with a distinct lack of service integration in identifying and treating men involved in physical violence.

Current status

- Based on the 2018–19 NATSIHS, 8.4% (21,700) of the estimated 259,000 First Nations women aged 15 and over reported that they have experienced physical or face-to-face threatened physical harm from a family member in the past 12 months. An estimated 12,400 (57%) reported experiencing harm from a spouse or partner, and an estimated 8,000 (37%) from other family members.
- There are no new data since the baseline year of 2018–19 for this target, and progress towards it is not possible to track at this stage.

- The proportion of First Nations women aged 15 and over who reported experiencing family violence varied only slightly between jurisdictions, ranging from 6.4% in Queensland to 10% in New South Wales.
- The lowest proportion First Nations women aged 15 and over who experienced family violence were among those living in *Major cities* (6.6%), the highest proportion were among those living in *Inner regional* areas (12%), followed by those living in *Remote* areas (10%).
- Over the past decade, the number and crude rate of hospitalisations for family violence for First Nations women aged 15 and over has increased overall, from around 1,900 hospitalisations (780 per 100,000 population) in 2012–13 to around 2,800 hospitalisations (940 per 100,000) in 2020–21; however, in 2021–22, the number and rate fell to around 2,400 (780 per 100,000).
- Between 2019–20 and 2021–22, First Nations women aged 15 and over and First Nations children aged 0–14 living in the Northern Territory had the highest rate of hospitalisations for family violence. The rate was more than 2 times that of other states and territories.
- Between 2019–20 and 2021–22, First Nations women aged 15 and over and First Nations children 0–14 living in *Remote and very remote* areas had the highest rate of hospitalisations for family violence. The rate was more than 5 times that of other remoteness areas for First Nations women and around 2 and 3 times for First Nations boys and girls.

Key findings

- A literature review indicates that there are a number of interrelated factors that contribute to the higher risk of family violence:
 - Past policies and practices of colonisation continue to have an impact on First Nations communities and have caused considerable social, economic, physical, psychological and emotional trauma.
 - Social and economic disadvantage, health and mental wellbeing, and alcohol and drug use are exacerbated by factors mentioned in the previous dash point in First Nations communities, and have been shown in the broader literature to be associated with family violence.
- Statistically significant factors associated with family violence among First Nations women aged 15 and over identified through the primary data analysis included:
 - socioeconomic factors (as measured through household income and not being able to afford to buy more food)
 - having disability or a mental health condition
 - factors specific to First Nations people related to unfair treatment and removal from natural family.

Key factors

- The evidence on what works in reducing family violence among First Nations people remains inconclusive. However, based on the few evaluations of family violence programs, some aspects of successful programs include:
 - involving the community in service planning
 - adopting family-focused case management

- encouraging engagement and relationship building
 - considering cultural factors
 - delivering integrated services
 - planning for long-term sustainability
 - having a holistic focus, and adopting flexible, trauma-aware and healing-informed approaches.
- Programs that simultaneously target victims, perpetrators and communities have been argued to be more effective, considering the complexity of family violence within First Nations communities.
- Victim support services are an important element in healing when it is appropriate to deliver services to the victim separately from those delivered to the perpetrator.

13.1 Introduction

Outcome 13 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander families and households being safe.

The target associated with this outcome is to reduce by at least 50% the rate of all forms of family violence and abuse against Aboriginal and Torres Strait Islander women and children, as progress towards zero by 2031 from a baseline of 8% in 2018–19.

Outcome	Aboriginal and Torres Strait Islander families and households are safe.
Target	By 2031, the rate of all forms of family violence and abuse against Aboriginal and Torres Strait Islander women and children is reduced by at least 50%, as progress towards zero.
Indicator	The proportion of Aboriginal and Torres Strait Islander females aged 15 and over who experience domestic physical or threatened physical harm in the last 12 months.
Measure	Numerator – number of Aboriginal and Torres Strait Islander females aged 15 and over who experienced physical harm and/or threatened face-to-face physical harm in the last 12 months where the perpetrator was a family member. Denominator – total number of Aboriginal and Torres Strait Islander females aged 15 and over.

In the Aboriginal and Torres Strait Islander (First Nations) context, the term ‘family violence’ is preferred to domestic violence as it covers the broad range of kinship relationships in which violence may occur: within extended families, kinship networks and the wider community, as well as between intimate partners (Aboriginal and Torres Strait Islander Social Justice Commissioner 2006; CoAG 2011).

Family violence, often a ‘hidden’ problem due to the lack of accurate and appropriate data, is an issue of national importance in Australia and is acknowledged as a serious problem in First Nations communities (AIHW 2006; Cripps and Adams 2014; Marchetti and Daly 2017; Willis 2011; Wundersitz 2010). Although the statistics are imperfect, considerable evidence suggests that the rates of violence in First Nations communities are disproportionately higher than for the same types of violence in the Australian population as a whole and that First Nations women are much more likely to be victims of family violence than non-Indigenous women. Furthermore, First Nations children, like First Nations women, are more likely to be victims of family violence than non-Indigenous children (Berry et al. 2009; Cripps and Adams 2014; Memmott et al. 2001; Olsen and Lovett 2016; Snowball and Weatherburn 2008).

The societal consequences of family violence are far reaching and substantially affect not only the victim and offender but also other family members as well as the broader community. Family violence can lead to family dysfunction and parenting challenges, with children being removed from households (AIHW and AIFS 2016). Being removed causes trauma that can perpetuate the cycle of violence. It can also lead to higher rates of imprisonment, particularly for men (Australian Law Reform Commission and New South Wales Law Reform Commission 2010; Cripps and Adams 2014). Furthermore, family violence is a substantial contributor to morbidity and mortality in Australia’s First Nations population, particularly for First Nations women (AIHW 2006; Olsen and Lovett 2016).

The agreed target for measuring progress towards the outcome that First Nations families and households are safe (Target 13 in the 2020 National Agreement on Closing the Gap) is to reduce by at least 50% the rate of all forms of family violence and abuse against First Nations women and children by 2031. This targeted reduction by 2031 is seen as 'progress towards zero'. To make progress towards achieving the target, it is key to understand the current situation of First Nations family violence as well as to identify key factors associated with family violence among First Nations people.

This chapter presents a detailed discussion of family violence among First Nations people, including:

- data on the target indicator at the national and state and territory level
- a literature review of the main factors associated with family violence among First Nations people
- the results of primary data analyses identifying key factors associated with family violence.

13.2 Family safety target: current picture

This chapter draws on available survey data and administrative data to present information on family violence in relation to First Nations women and children. The true extent of family violence is difficult to assess in both these data sources due to under-reporting by victims and incomplete identification of First Nations people (Bagshaw et al. 2000; Bryant and Willis 2008; Cripps and Adams 2014; Stanley et al. 2002). The data in this chapter reflect what is reported and should be interpreted with caution as some of the changes seen over time or in different subgroups may reflect changing or different propensities to report.

The 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) was the main national First Nations-specific survey providing estimates of prevalence of family violence at the time of writing of this report. It collects data on First Nations people's self-reported experiences of physical or threatened violence perpetrated by a family member in the last 12 months. However, as data on physical and/or threatened violence are collected only for people aged 15 and above in the survey, prevalence of family violence among children aged under 15 are not available to report.

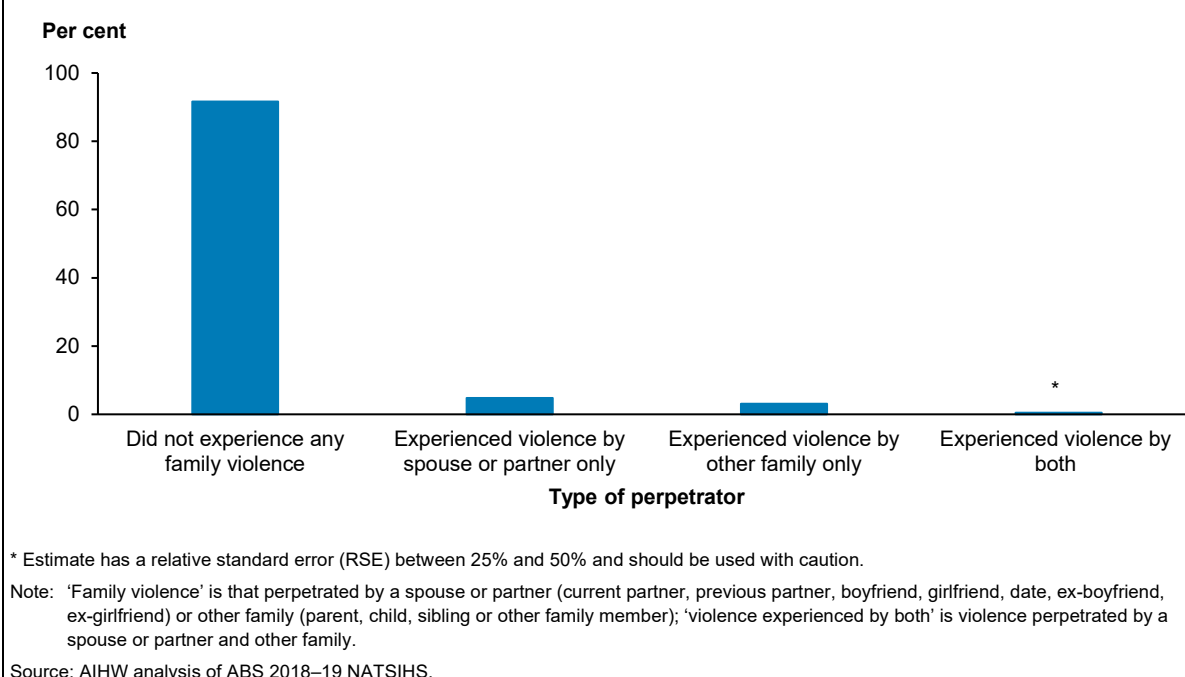
NATSIHS data for 2018–19 are not directly comparable with data from previous years and thus time trend data on prevalence are not available. While data on experiences of physical and threatened violence were collected in previous National Aboriginal and Torres Strait Islander Social Surveys (NATSISSs), information on the relationship of the victim to the perpetrator was asked only in regard to the most recent experience of physical violence. Therefore, information on whether or not the perpetrator for threatened violence was a family member is not available in the previous social surveys.

13.2.1 National

Based on the 2018–19 NATSIHS, 8.4% (21,700) of the estimated 259,000 First Nations women aged 15 and over reported that they had experienced physical or face-to-face threatened physical harm from a family member in the past 12 months (Productivity Commission 2023):

- 4.8% (an estimated 12,400) reported experiencing harm from a spouse or partner
- 3.1% (an estimated 8,000) reported experiencing harm from other family members
- 0.4% reported experiencing harm from both a spouse or partner and another family member (Figure 13.1; supplementary Table S13.1).

Figure 13.1: Experience of family violence by type of perpetrator, First Nations women aged 15 and over, 2018–19



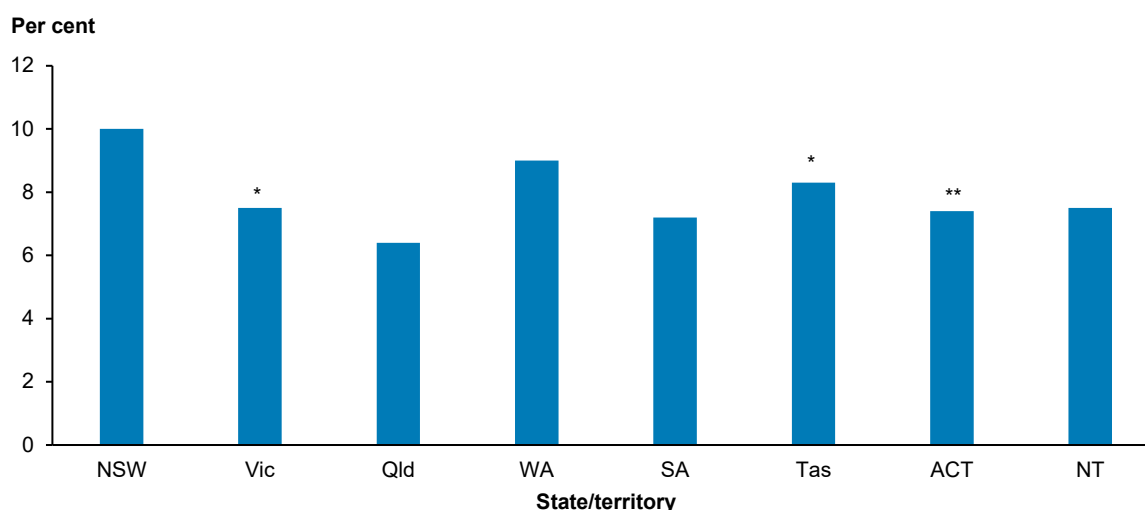
At the time of writing of this report, there were no new data since the baseline year of 2018–19 for this target, and progress towards it was not possible to track. Achieving the 2031 target from the baseline year of 2018–19 would require a decrease of, on average, 0.7 percentage points (pp) in the proportion (or 1,670 in the number) of First Nations females aged 15 and over experiencing family violence per year between 2018 and 2031.

In the next section, experiences of family violence for First Nations women aged 15 and over are shown disaggregated by state and territory, remoteness area and age.

13.2.2 State and territory

The proportion of First Nations women aged 15 and over who reported experiencing family violence varied only slightly between jurisdictions, ranging from 6.4% in Queensland (an estimated 4,500 out of 70,100) to 10% in New South Wales (an estimated 8,900 out of 88,600) (Figure 13.2; Table S13.2).

Figure 13.2: Experience of family violence by state and territory, First Nations women aged 15 and over, 2018–19



* Estimate has an RSE between 25% and 50% and should be used with caution.

** Estimate has an RSE of 50% or more and is considered too unreliable for general use.

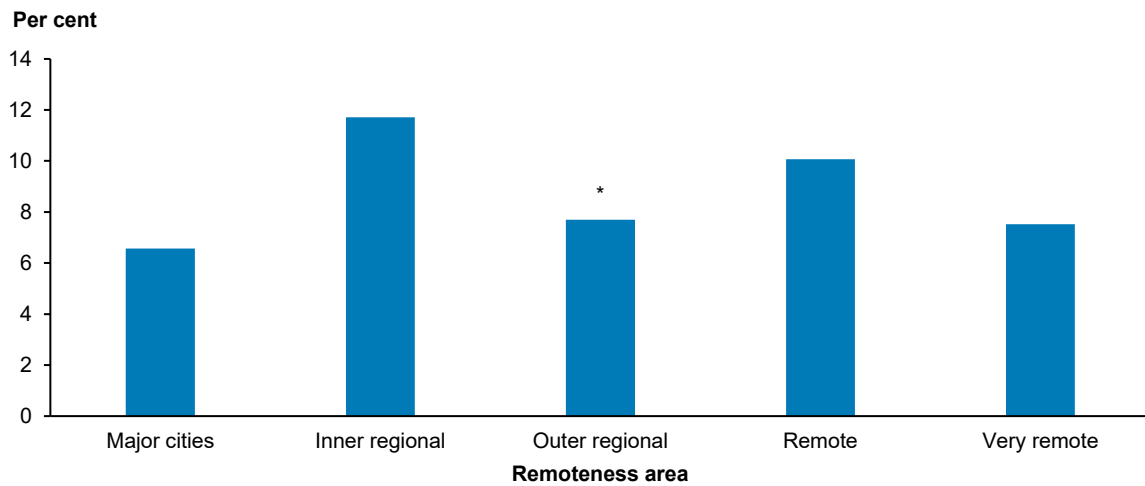
Source: Productivity Commission 2023.

13.2.3 Remoteness area

First Nations women aged 15 and over living in:

- *Major cities* had the lowest proportion experiencing family violence (6.6%, an estimated 6,400 out of 97,000)
- *Inner regional* areas had the highest proportion (12%, an estimated 7,000 out of 59,400)
- *Remote* areas had the next highest proportion (10%, an estimated 1,700 out of 17,200) (Figure 13.3; Table S13.3).

Figure 13.3: Experience of family violence by remoteness area, First Nations women aged 15 and over, 2018–19



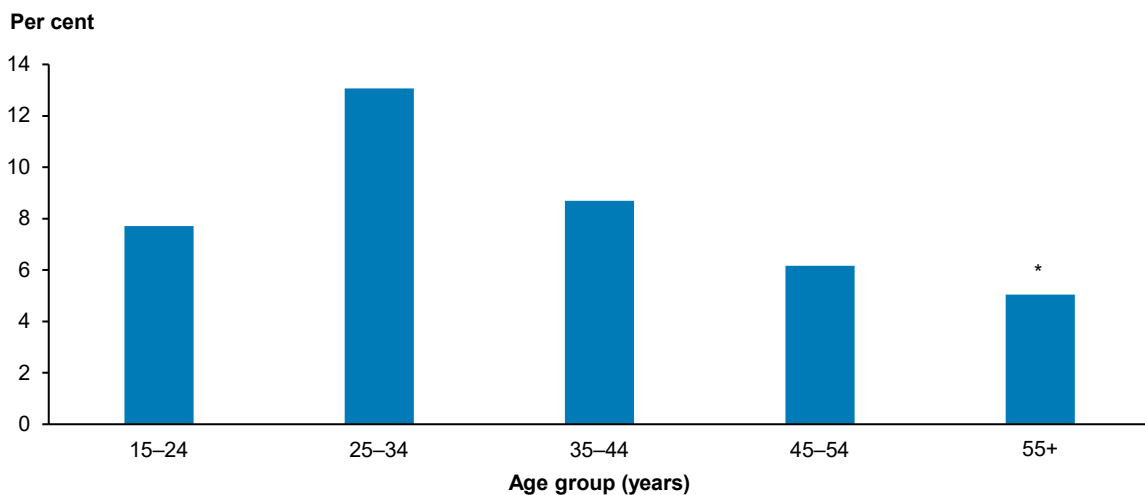
* Estimate has an RSE between 25% and 50% and should be used with caution.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

13.2.4 Age

First Nations women aged 25–34 had the highest proportion experiencing family violence (13% or an estimated 7,800 out of 60,100) compared with other age groups (Figure 13.4; Table S13.4).

Figure 13.4: Experience of family violence by age group, First Nations women aged 15 and over, 2018–19



* Estimate has an RSE between 25% and 50% and should be used with caution.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

13.2.5 Associated harm from family violence

One way to assess physical harm that results from incidents of family violence is through hospital data. National data on hospitalisations are available from the National Hospital Morbidity Database, compiled by the AIHW. Cases of hospitalisations where the principal diagnosis is an injury with an external cause indicating 'assault' – and where the perpetrator is recorded as a spouse/domestic partner, parent or other family member – can be taken as a proxy for someone experiencing family violence that required hospitalisation. The AIHW regularly reports on hospitalisations for family and domestic violence at the national level using a similar definition (AIHW 2019, 2021, 2022).

Hospitalisation data are episode based, not person based. Therefore, patients who were admitted more than once in a given year will have more than one record in the database. As not all instances of family violence will result in hospitalisation and not all hospitalisations resulting from family violence will be recorded as such, data on hospital admissions are likely to underestimate the actual number of people affected by family violence. This is particularly so for First Nations people as the identification of First Nations people in administrative data is incomplete. These hospitalisation data do not include presentations to emergency departments and are likely to reflect more severe experiences of family violence that required hospitalisation (AIHW 2022).

In future research, these issues would be possible to overcome by using linked data such as National Health Data Hub (<https://www.aihw.gov.au/reports-data/nhdh/data>) (formerly known as National Integrated Health Service Information Analysis Asset (NIHSI AA)), which includes longitudinal data from a number of sources, such as:

- Medicare Benefits Schedule (MBS)
- Pharmaceutical Benefits Scheme (PBS)
- Repatriation Pharmaceutical Benefits Scheme (RPBS)
- National Aged Care Data Clearinghouse (NACDC)
- Hospitals data drawn from the National Hospital Morbidity Database (NHMD); Admitted Patient Care Database (APCD); and the National Non-Admitted Patient Emergency Department Care Database: emergency department presentations (NNAPEDCD)
- National Death Index (NDI)
- Australian Immunisation Register (AIR)
- Patient Demography dataset created by AIHW using information available from the commonwealth, and state and territory data sources. It includes confidentialised age, sex, and Indigenous status information for all linked individuals across all datasets in the NHDH.

A study using NIHSI AA examined family and domestic violence hospital stays, injuries, diagnosis and the relationship of perpetrator to victim (AIHW 2021). This work showcases how linked data can be used to examine service use and outcomes for people experiencing family and domestic violence, as well as in informing potential service intervention opportunities.

Data on hospitalisations for family violence are shown for First Nations women aged 15 and over to be consistent with the target indicator. As data on hospitalisations for family violence are collected for all ages and both sexes, hospitalisations for First Nations children (boys and girls) aged 0–14 are also shown.

National

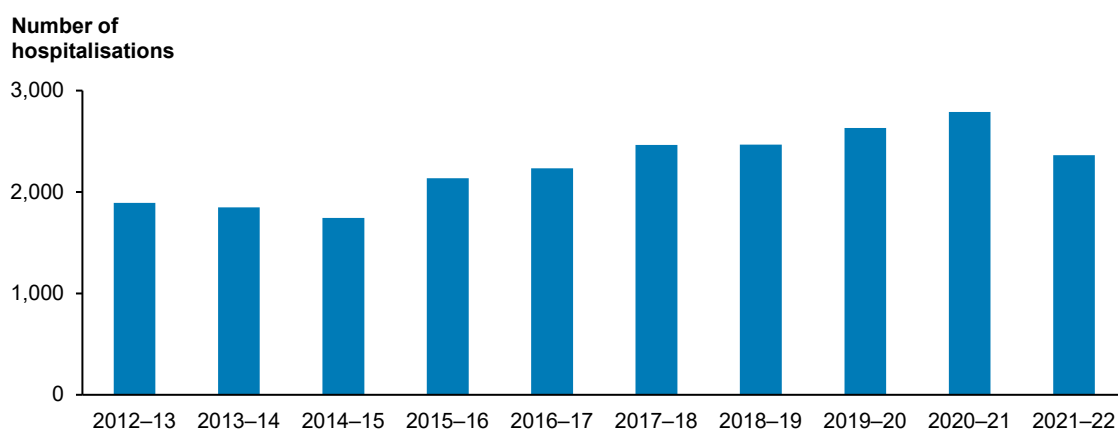
Overall, the number and rate of hospitalisations for family violence for First Nations women aged 15 and over in the past decade has increased, from around 1,900 hospitalisations (crude rate of 780 per 100,000 population) in 2012–13 to around 2,800 hospitalisations (940 per 100,000) in 2020–21; however, in 2021–22, the number fell to around 2,400 (780 per 100,000) (Figure 13.5; Table S13.5).

For children aged 0–14, the number and rate of hospitalisations for family violence have fluctuated over time with no clear trend. In 2021–22, there were 50 hospitalisations (crude rate of 34 per 100,000) for First Nations boys and 40 hospitalisations (29 per 100,000) for First Nations girls (Figure 13.6; Table S13.6).

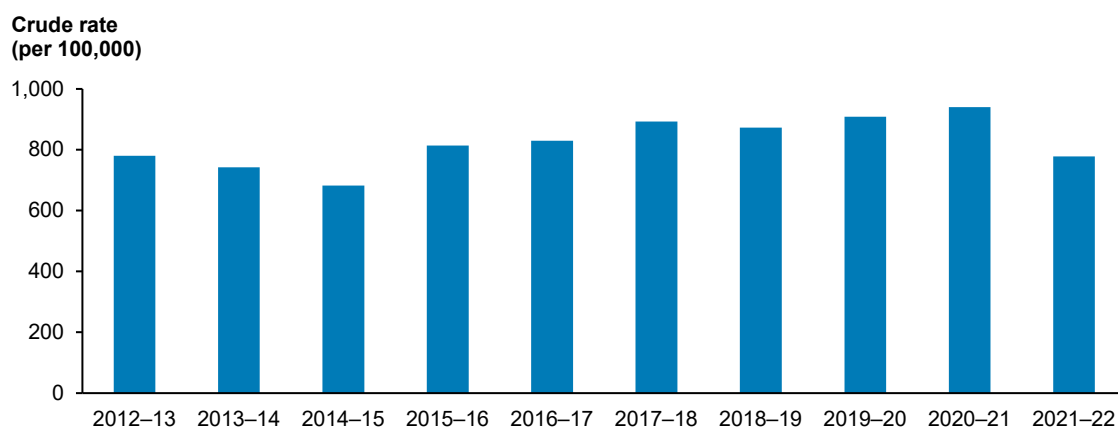
While changes in hospitalisation rates may indicate increased family violence events requiring hospitalisation, the changes could also reflect increases in reporting of family violence by victims, increases in identification of family violence by health professionals and/or changes in disclosure.

Figure 13.5: Number and crude rate of hospitalisations (per 100,000) due to family violence, First Nations women aged 15 and over, 2012–13 to 2021–22

a)



b)



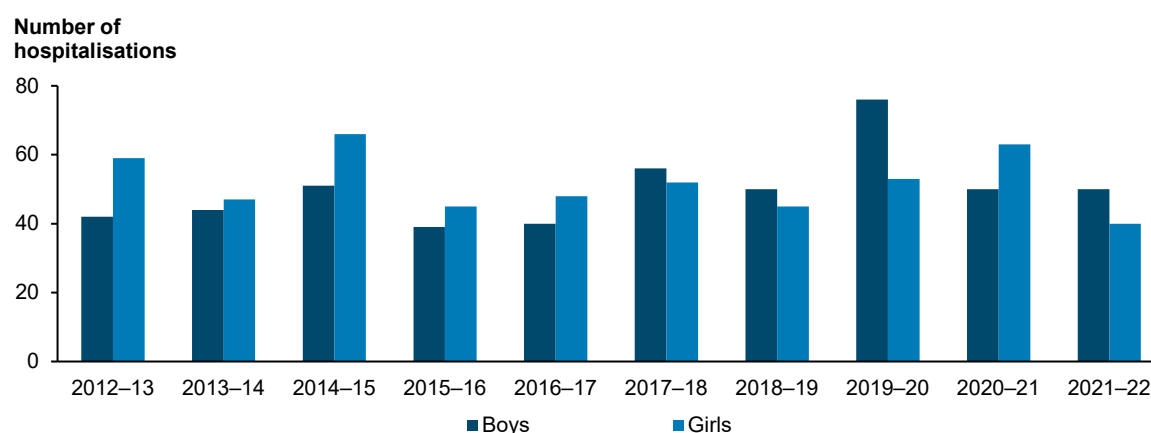
Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
 - (i) The first reported external cause is taken to be the nominal external cause.
 - (ii) If this nominal external cause, as determined by step (i), is U90.0 (*Staphylococcus aureus*) or a supplementary factor (Y90–Y98), the second reported code is taken to be the nominal external cause.
3. Excludes hospitalisations where the mode of admission is reported as 'transfer from another hospital'.
4. Excludes hospitalisations where the mode of admission is statistical admission – episode type change (2) and the care type is not listed as acute (1, 7.1, 7.2), as they are likely to have been preceded by an acute episode of care that already met the case selection criteria.
5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

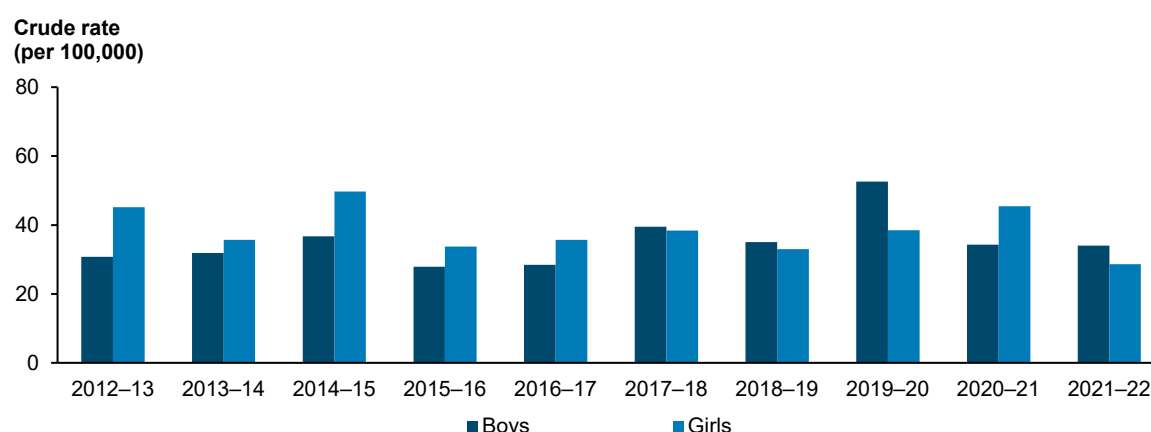
Source: National Hospital Morbidity Database.

Figure 13.6: Number and crude rate of hospitalisation (per 100,000) due to family violence, by sex, First Nations children aged 0–14, 2012–13 to 2021–22

a)



b)



Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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 - (ii) If this nominal external cause, as determined by step (i), is U90.0 (Staphylococcus aureus) or a supplementary factor (Y90–Y98), the second reported code is taken to be the nominal external cause.
3. Excludes hospitalisations where the mode of admission is reported as 'transfer from another hospital'.
4. Excludes hospitalisations where the mode of admission is statistical admission – episode type change (2) and the care type is not listed as acute (1, 7.1, 7.2), as they are likely to have been preceded by an acute episode of care that already met the case selection criteria.
5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

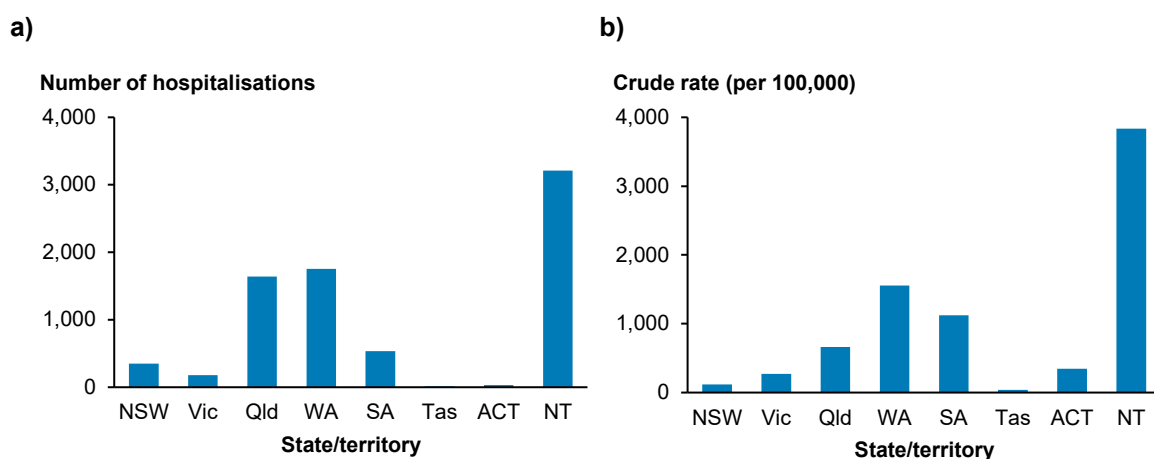
Source: National Hospital Morbidity Database.

In the following sections, hospitalisations for family violence for First Nations women aged 15 and over and First Nations children aged 0–14 are shown disaggregated by age, sex, state and territory, and remoteness areas. Data for 3 financial years (2019–20, 2020–21 and 2021–22) are combined due to the small number of hospitalisations in particular age and sex, state and territory, and remoteness categories in single year's data.

State and territory

In 2019–20 to 2021–22 combined, First Nations women aged 15 and over and First Nations children aged 0–14 living in the Northern Territory had the highest rate of hospitalisations for family violence. The rate was more than 2 times the rate of other states and territories (figures 13.7 and 13.8; tables S13.7 and S13.8). The variation by state and territory in the National Hospital Morbidity Database differs from the prevalence figures from the survey data. This may be due to under-reporting of family violence in survey data, or to the hospitalisation data's capturing the more severe cases as well as repeated episodes of hospitalisations.

Figure 13.7: Number and crude rate of hospitalisations (per 100,000) due to family violence, by state and territory, First Nations women aged 15 and over, 2019–20 to 2021–22 combined

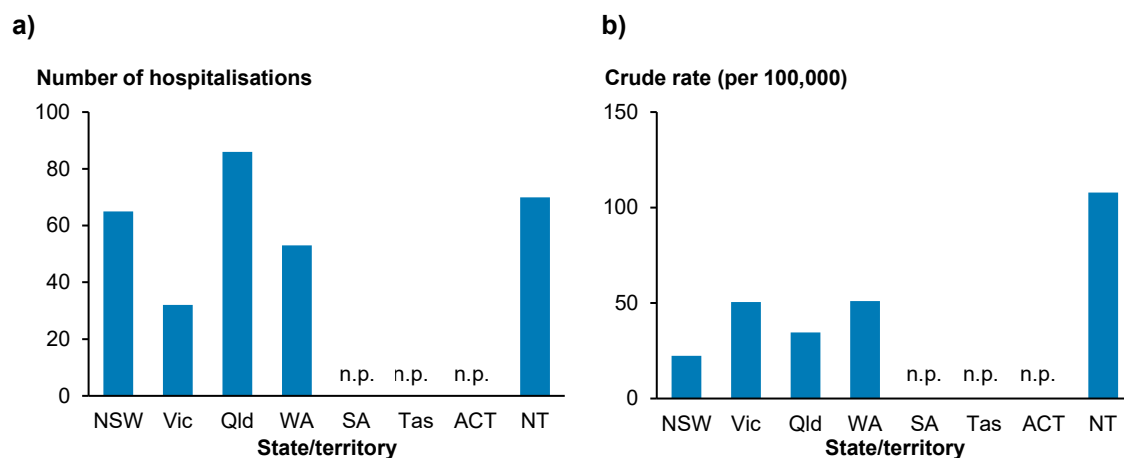


Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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3. Excludes hospitalisations where the mode of admission is reported as 'transfer from another hospital'.
4. Excludes hospitalisations where the mode of admission is statistical admission – episode type change (2) and the care type is not listed as acute (1, 7.1, 7.2), as they are likely to have been preceded by an acute episode of care that already met the case selection criteria.
5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

Source: National Hospital Morbidity Database.

Figure 13.8: Number and crude rate of hospitalisations (per 100,000) due to family violence, by state and territory, First Nations children aged 0–14, 2018–19 to 2020–21 combined



n.p. = not published due to disclosure of small numbers.

Notes

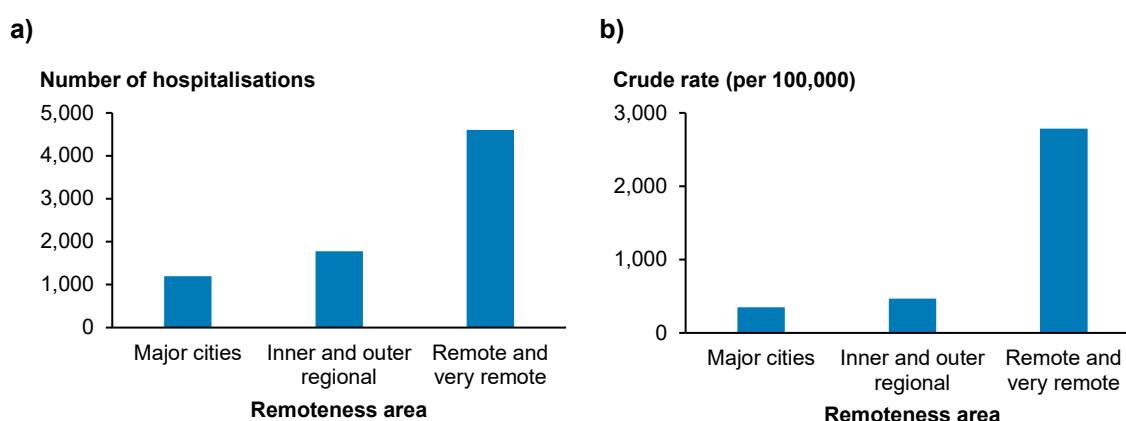
1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

Source: National Hospital Morbidity Database.

Remoteness area

In 2019–20 to 2021–22 combined, First Nations women aged 15 and over and First Nations children aged 0–14 living in *Remote and very remote* areas had the highest rate of hospitalisations for family violence. The rate was more than 5 times the rate of other remoteness areas for First Nations women and around 2 and 3 times the rate of other remoteness areas for First Nations boys and girls (figures 13.9 and 13.10; tables S13.9 and S13.10). The disparity between non-remote and remote areas is greater compared with prevalence from survey data. This may be due to under-reporting of family violence in survey data, or to the hospitalisation data's capturing the more severe cases as well as repeated episodes of hospitalisations.

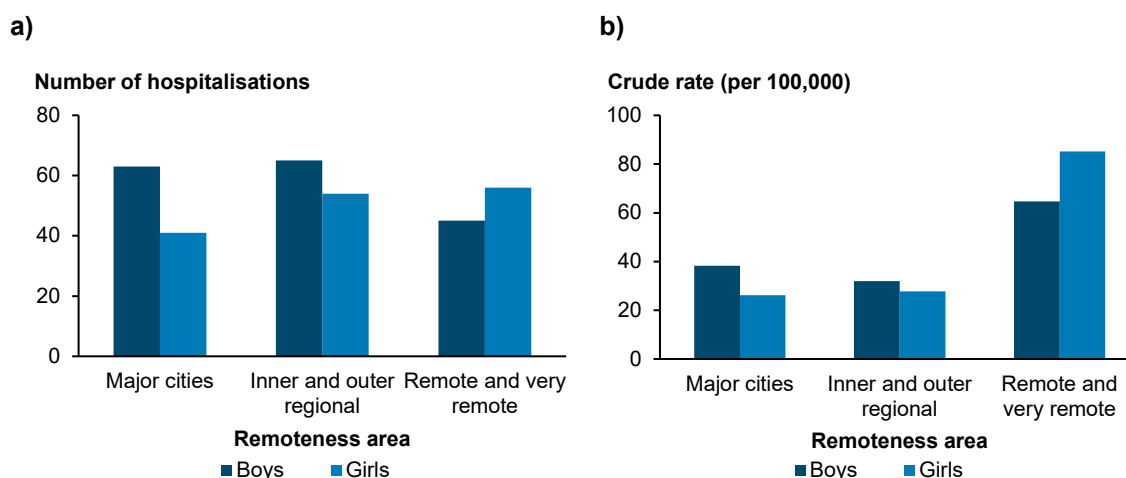
Figure 13.9: Number and crude rate of hospitalisations (per 100,000) due to family violence, by remoteness area, First Nations women aged 15 and over, 2019–20 to 2021–22 combined



Notes

1. Data include those for public and private hospitals in all jurisdictions.
 2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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 5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
 6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.
- Source: National Hospital Morbidity Database.

Figure 13.10: Number and crude rate of hospitalisations (per 100,000) due to family violence, by remoteness and sex, First Nations children aged 0–14, 2018–19 to 2020–21 combined



Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

Source: National Hospital Morbidity Database.

Indigenous Regions

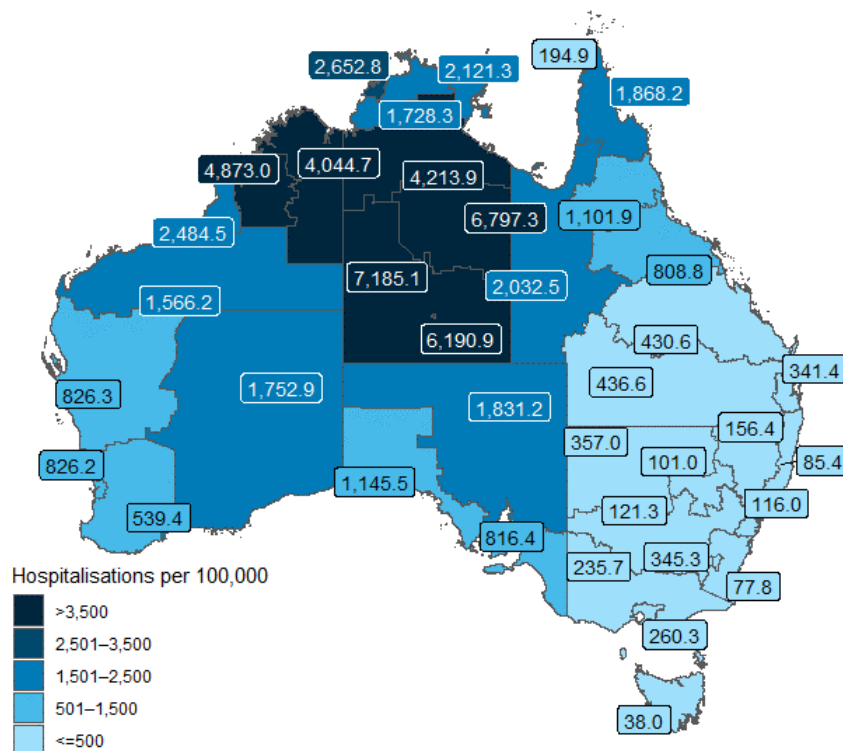
Combined over the period from 2019–20 to 2021–22, crude rates of hospitalisation for family violence among First Nations women aged 15 and over were highest in:

- Apatula (around 7,200 hospitalisations per 100,000)
- Tennant Creek (around 6,800 hospitalisations per 100,000)
- Alice Springs (around 6,200 hospitalisations per 100,000) (Figure 13.11; Table S13.11).

The lowest rates were in:

- Tasmania (around 38 hospitalisations per 100,000)
- South-Eastern NSW (around 78 hospitalisations per 100,000)
- NSW Central and North Coast (around 85 hospitalisations per 100,000).

Figure 13.11: Crude rate of hospitalisations (per 100,000) due to family violence, by IREG, First Nations women aged 15 and over, 2019–20 to 2021–22 combined



Notes

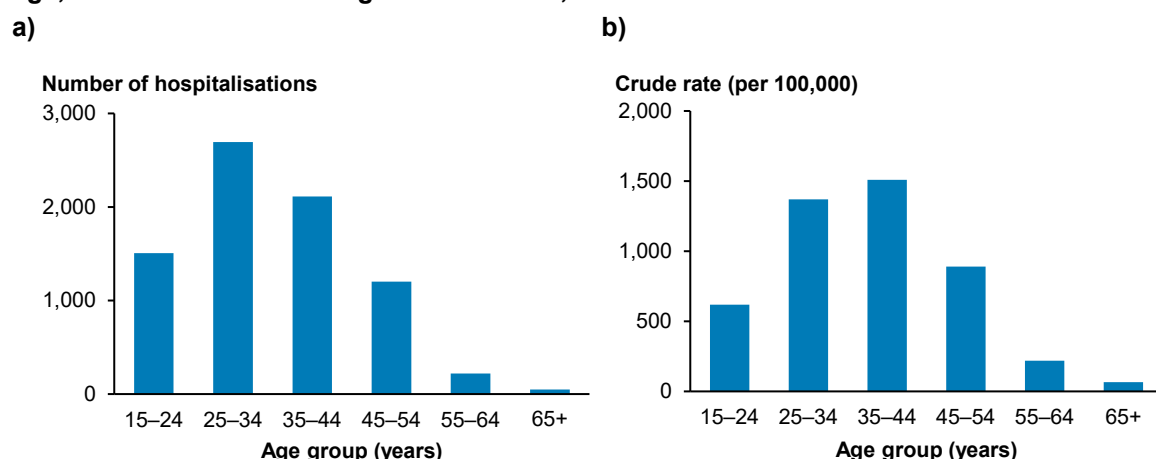
1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.
7. Hospitalisations were concorded from Statistical Area, Level 2 of usual residence to IREG (ASGS 2016 edition), based on correspondence files. Hospitalisations that could not be concorded to IREGs were not included in this figure.

Source: National Hospital Morbidity Database.

Age and sex

In 2019–20 to 2021–22 combined, First Nations women aged 35–44 had the highest rate of hospitalisation for family violence, followed by First Nations women aged 25–34 (Figure 13.12; Table S13.12). Spouse or partner was the main perpetrator for First Nations women in age groups 15–24 years through to 45–54 years, while for women aged 65 and over, the main perpetrator was another family member (figure not shown).

Figure 13.12: Number and crude rate of hospitalisations (per 100,000) due to family violence, by age, First Nations women aged 15 and over, 2019–20 to 2021–22 combined



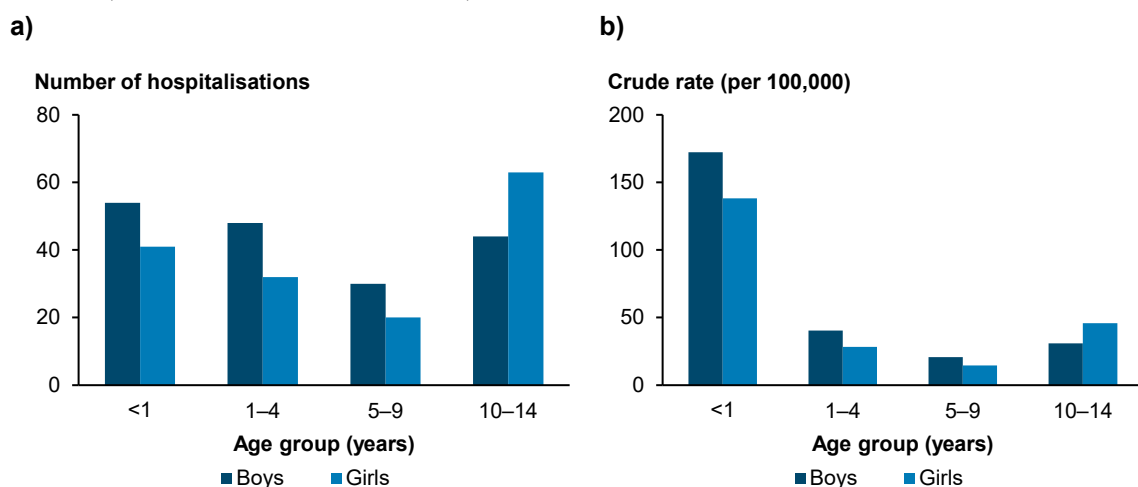
Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
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6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

Source: National Hospital Morbidity Database.

First Nations infants aged under 1 (both boys and girls) had the highest rate of hospitalisation for family violence, followed by First Nations girls aged 10–14 (Figure 13.13; Table S13.13). For hospitalisations related to family violence of First Nations children, a parent was the main perpetrator for children younger than 10. For children aged 10–14, a parent was the main perpetrator for 42% of hospitalisations and another family member for 44% (figure not shown).

Figure 13.13: Number and rate of hospitalisations (per 100,000) due to family violence, by age and sex, First Nations children 0–14, 2019–20 to 2021–22 combined



Notes

1. Data include those for public and private hospitals in all jurisdictions.
2. Includes hospitalisations where the principal diagnosis is in the ICD-10-AM code range S00–T75, or is T79. The nominal external causes of morbidity and mortality ICD-10-AM code is in the range X85–Y09 (Assault), and a perpetrator is coded as Spouse or domestic partner, Parent, or Other family member (5th character codes of 0, 1, 2, respectively). An 'external cause' is the term used in disease classification to refer to an event or circumstance in a person's external environment that is regarded as a cause of injury or poisoning. The steps below are followed to determine the nominal external cause for each injury hospitalisation:
 - (i) The first reported external cause is taken to be the nominal external cause.
 - (ii) If this nominal external cause, as determined by step (i), is U90.0 (*Staphylococcus aureus*) or a supplementary factor (Y90–Y98), the second reported code is taken to be the nominal external cause.
3. Excludes hospitalisations where the mode of admission is reported as 'transfer from another hospital'.
4. Excludes hospitalisations where the mode of admission is statistical admission – episode type change (2) and the care type is not listed as acute (1, 7.1, 7.2), as they are likely to have been preceded by an acute episode of care that already met the case selection criteria.
5. Excludes hospitalisations where care involving the use of rehabilitation procedures (Z50) is an additional diagnosis, except if the care type for the separation was acute.
6. Excludes hospitalisations for newborn care (without qualified days), hospital boarders, and posthumous organ procurement.

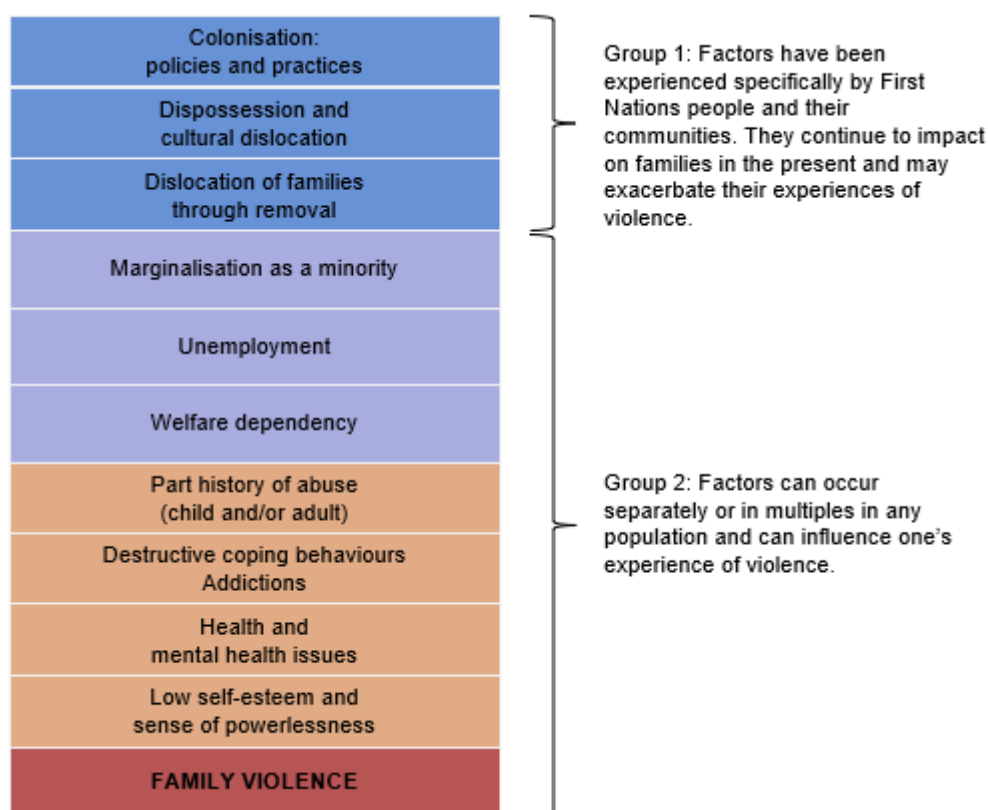
Source: National Hospital Morbidity Database.

13.3 Literature review

Family violence, particularly in First Nations communities, is a complex issue. It is widely accepted in most Australian states and territories that First Nations family violence encompasses a broad array of actions and relationships (not merely limited to intimate partner violence). These include 'physical, emotional, sexual, social, spiritual, cultural, psychological and economic abuses that occur within families, intimate relationships, extended families, kinship networks and communities. It extends to one-on-one fighting, abuse of First Nations community workers, as well as self-harm, injury and suicide' (Family Safety Victoria 2018:54).

Evidence from existing literature shows that there are a number of interrelated and intersecting contributing factors associated with the risk of First Nations people's (including children) experiencing higher levels of violence (Blagg et al. 2018; Memmott et al. 2001). Cripps and Adams (2014) developed a conceptual framework of the factors contributing to family violence in First Nations communities in Australia. Their framework identified 10 main factors – applicable to both the victims and the perpetrators of family violence – categorised into 2 broader groups (Figure 13.14).

Figure 13.14: Factors contributing to family violence in First Nations communities



Source: Adapted from Cripps and Adams (2014).

The first group of factors (Group 1) are specific to the experiences of First Nations people in Australia; they result from past and continuing policies and practices of colonisation that still affect First Nations families and their current experiences of violence. These factors have caused considerable social, economic, physical, psychological and emotional trauma that has resulted in high prevalence of violence, especially in some remote areas (AIHW 2006; Atkinson et al. 2014; Cripps and Adams 2014; Peeters et al. 2014; Snowball and Weatherburn 2008).

While not focusing on family violence specifically, previous analyses of the NATSISS in both 2002 and 2008 (Snowball and Weatherburn 2008; Weatherburn and Snowball 2012) demonstrated a statistically significant relationship between reported victimisation in general and being removed from one's natural family. Forcible removal of family between 1910 and 1970 has led to a loss of cultural connection and pride among First Nations people and is one of the key causes of violence among First Nations communities, including abuse against First Nations children (Duthie et al. 2019; Peeters et al. 2014; Snowball and Weatherburn 2008; Stanley et al. 2002).

The second group of factors (Group 2) shown in Figure 13.14 are broader and are noted as contributing factors to experiences of violence in any population. Cripps and Adams (2014) emphasise the interrelatedness of Group 1 and Group 2 factors in First Nations communities in that Group 1 factors can clearly cause or exacerbate the factors in Group 2.

It is important to note that these factors are intersectional in that a multitude of factors can operate collectively to produce violent events (Cripps 2023). In particular, the relationship between family violence and mental illness, alcohol and drug use is complex (Fitzpatrick

et al. 2022; O'Donnell et al. 2015; Varshney et al. 2016). Factors compounding this complexity are criminal justice issues, socioeconomic issues and family disruption (Fitzpatrick et al. 2022). It is critical to appreciate the context, interplay and cumulative effects of these factors with mental illness, alcohol and drug use and violence to understand how violent situations happen and how they could have been prevented (Cripps 2023).

Some of these Group 2 factors – in relation to demographic characteristics, social and economic disadvantages, alcohol and drug use, and health and mental health issues – are discussed in the broader literature, as outlined below.

Demographic characteristics

- Younger ages (mid-teens to mid-twenties) have the highest risk of family violence as this is the age when most first experience intimate relationships and, through social activities, consume alcohol and use drugs. More serious results of hospitalisations and deaths due to family violence have been found among women aged 25–44 (Berry et al. 2009; Bryant and Willis 2008; Guthridge et al. 2014; Morgan and Chadwick 2009; Stanley et al. 2002; UNICEF 2020).
- Family composition – particularly when women are in a cohabiting relationship or are a single parent – has been shown to increase the likelihood of women's experiencing family violence (Brownridge 2010; Bryant and Willis 2009; Haobijam and Singh 2022; Heyman and Slep 2002; Knoester and Haynie 2005; Olsen and Lovett 2016; Snowball and Weatherburn 2008).
- Remoteness is a contributing factor to family violence among First Nations people: higher rates of intimate partner violence occur in the Northern Territory (AIHW 2019; Cripps and Habibis 2019) and children in rural and remote communities experience higher levels of abuse (Duthie et al. 2019). Bryant and Willis (2008) argue that remoteness is not a straightforward risk factor of family violence but is driven by limited access to services and opportunities, and by social and economic isolation. Access to child health or welfare professionals in rural or remote areas is also limited (Stanley et al. 2002).

Racism, social and economic disadvantages

- Experience of unfair treatment, including racism and discrimination, affects the self-esteem and sense of powerlessness of First Nations people, which becomes a contributing factor to family violence (Stanley et al. 2002). While not specific to First Nations people, poverty is believed to be the most common risk factor linked to all forms of violence (Berry et al. 2009).
- Poverty has been shown to be associated with violence in a number of ways (Crutchfield and Wadsworth 2003):
 - On one hand, it is believed that those who live in poverty more frequently engage in acts of violence as a consequence of living in poor housing conditions, distressed neighbourhoods and disrupted families.
 - On the other hand, it is believed that violence can cause poverty at the aggregate level by creating an environment which is not favourable for economic development or growth.
- Among First Nations communities, poor housing conditions and overcrowding have been reported to exacerbate violence and make women and children vulnerable to abuse from a broad range of potential abusers (Blagg et al. 2018).

- Low educational attainment and unemployment have been associated with an increased risk of family violence (Adjah and Agbemaflle 2016; Abdi et al. 2021; AIHW 2006; Brownridge 2010; Bryant and Willis 2008; Haobijim and Singh 2022).

Alcohol and substance use

- Studies (including in non-Indigenous Australian communities and internationally) have shown a statistically significant association between high levels of alcohol and substance use and domestic and family violence (Adjah and Agbemaflle 2016; Abdi et al. 2021; Brownridge 2010; Haobijam and Singh 2022; Morgan and Chadwick 2009; Nouri et al. 2012).
- Much of the literature on risk factors for family violence in First Nations communities alludes to alcohol and drug use (mainly in relation to the perpetrator, but also to the victim) (Berry et al. 2009). Alcohol and drug use has also been implicated in instances of physical abuse, lack of care and neglect of children by parents (Memmott 2010).

Health and mental health issues

- Disability or poor mental health increase the risk of experiencing violence for First Nations women (Aboriginal and Torres Strait Islander Social Justice Commissioner 2006; Memmott 2010; Meuleners et al. 2010; Titov et al. 2019). First Nations women with disability experience severe or long-term violence mostly from their intimate partners; they are less likely to seek support and have limited access to appropriate services (AIHW 2006; Morgan and Chadwick 2009; Snowball and Weatherburn 2008).
- Mental health issues of the perpetrator increase the risk of women's experiencing family violence (Nouri 2012). Mental health conditions that have been specifically linked to domestic and family violence include depression, post-traumatic stress disorder, suicidality, alcohol abuse, drug abuse, anxiety, self-harm, and suicidal feelings and thoughts (Moulding et al. 2021; WHO 2013).

Criminal justice responses and/or health or community services

Determinants of family violence can also be attributable to inadequate criminal justice responses and/or health and community services. Coroners have identified several problems in risk assessment, patient discharge, follow-up and support, with a distinct lack of service integration in identifying and treating men involved in physical violence (Fitzpatrick et al. 2022). A coronial study of the suicides of men involved in interpersonal violence before their death explored their service use 6 weeks before death. Over half had visited a health service and been in contact with the police at least once in the 6 weeks before their death but did not receive specific treatment or programs to curb their violent behaviour (Fitzpatrick et al. 2022).

13.4 Modelling factors affecting family violence

This section presents the outcomes of the primary data analyses of factors associated with family violence, using unit record data from the 2018–19 NATSIHS. Two modelling approaches were used in this chapter to identify and quantify the role of specific factors associated with family violence from primary data analyses:

- a logistic regression model, which estimates the level of associations of each factor with the odds of experiencing family violence, after controlling for a range of other variables and factors
- a random forest model, which estimates the relative importance of each factor.

For more information about logistic regression and random forest analyses see Appendix A.

13.4.1 Multivariate logistic regression results

This section presents the results of the multivariate modelling undertaken to identify and quantify the role of specific factors associated with family violence for First Nations women aged 15 and over.

There were 3,783 First Nations women aged 15 and over in the NATSIHS 2018–19 survey sample. The main predictors included the factors identified in the literature review. However, not all factors so identified could be included in the analyses due to the limited types of variables available in the data source. Furthermore, due to the limitation of the survey data – namely, collecting only the experiences of physical and/or threatened violence for people aged 15 and over – factors driving change for children could not be identified from this analysis. See Table S13.14 for the full list of variables and their distribution.

The logistic regression model predicting the odds of experiencing family violence was estimated for First Nations women aged 15 and over. The modelled outcome was a binary variable, coded as one if a First Nations woman aged 15 and over experienced physical and/or threatened face-to-face violence from a family member, and otherwise as zero.

The results of the logistic regression model for First Nations women aged 15 and over are shown in Table 13.1. Both odds ratios and marginal effects are presented in the table. In this chapter, discussion of the key factors is, however, limited to odds ratios for statistically significant variables only. See the Glossary for the definitions of ‘odds ratio’ and ‘marginal effects’.

Table 13.1: Logistic regression results predicting experience of family violence, women aged 15 and over, 2018–19 NATSIHS, odds ratio estimates and marginal effects

Variable type	Explanatory variable (reference category in brackets)	Comparison category	Odds ratio	Marginal effects (%)
Demographic variables	Age group (years) (55+)	15–24	1.73	3.01
		25–34	3.28**	8.24**
		35–44	1.74	3.02
		45–54	1.24	1.04
	Marital status (registered or de-facto marriage)	Not married	0.93	–0.47
	Family composition (couple only or couple with dependants)	Single parent	1.95*	4.37*
		Lone person	1.86	3.98
		Other family type	1.56	2.68
	Remoteness (Major cities)	Inner regional	2.17**	5.67*
		Outer regional	1.11	0.59
		Remote	1.75	3.83
		Very remote	1.15	0.80
	State/territory (NSW)	Vic	0.72	–2.17
		Qld	0.70	–2.40
		WA	0.67	–2.60
		SA	1.03	0.19
		Tas	0.64	–2.88
		ACT	1.21	1.52
		NT	0.87	–1.03
Socioeconomic variables	Education (year 12, Cert III/IV)	Diploma, Bachelor or above	1.01	0.07
		Year 10/11 or Cert I/II	0.99	–0.07
		Year 9 or below	0.63	–2.81
	Employment status (employed full time or part time)	Not in the labour force	0.65	–2.98
		Unemployed or looking for full- or part-time work	0.80	–1.65
	Equivalent household income (top 3 deciles)	Middle 4 deciles	1.80	2.69
		Bottom 3 deciles	3.09*	6.40*
		Unknown	1.59	2.01
	Lives in crowded household (no)	Yes	1.52	3.07
	Ran out of food in last 12 months (no)	Yes	1.89**	4.56**
Disability and mental health variables	SEIFA IRSD SA1 decile (top 6 deciles)	Middle 3 deciles	1.09	0.14
		Bottom decile	1.84	4.16
	Has disability (no)	Yes	1.59*	3.24*
	Ever been diagnosed with mental health condition (no)	Yes	2.26**	5.51**

(continued)

Table 13.1 (continued): Logistic regression results predicting experience of family violence, women aged 15 and over, 2018–19 NATSIHS, odds ratio estimates and marginal effects

Variable type	Explanatory variable (reference category in parenthesis)	Comparison category	Odds ratio	Marginal effects (%)
Cultural and historical variables	Unfair treatment because Indigenous in last 12 months (no)	Yes	1.59*	3.35*
	Removal from natural family (neither self or relatives removed)	Self and/or relatives removed	1.69*	3.37*
		Unknown	1.50	2.50
	Cultural identification (yes, tribal/ language group or clan)	No	1.10	0.67

SEIFA = Socioeconomic Indexes for Areas; IRSD = Index of Relative Socioeconomic Disadvantage; SA1 = ABS Statistical Area 1 geography level.

Statistical significance levels: *** : $p \leq 0.001$; ** : $0.001 < p \leq 0.01$; * : $0.01 < p \leq 0.05$.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

Among the demographic factors, these variables were found to be statistically significant:

- First Nations women aged 25–34 had almost 3 times the odds of having experienced family violence as First Nations women aged 55 and over.
- First Nations women who were single parents had twice the odds of having experienced family violence compared with First Nations women who were in a couple only, or a couple with dependants, family composition. Women in lone person households had 1.9 times the odds of having experienced family violence, though the relationship was not statistically significant. Being unmarried, however, lowered the odds slightly (though not statistically significantly), which may be because there was not an ex-spouse living elsewhere compared with women in lone person households.
- First Nations women living in *Inner regional* areas had 2 times the odds of having experienced family violence as First Nations women living in *Major cities*.

Among the socioeconomic variables, measures of household economic disadvantage were statistically significant factors associated with family violence:

- First Nations women who lived in households that had equivalised household income in the bottom 3 deciles had 3 times the odds of having experienced family violence as First Nations women who lived in households with income in the top 3 deciles.
- First Nations women who lived in households that ran out of food in the last 12 months and could not afford to buy more had almost twice the odds of having experienced family violence compared with First Nations women who lived in households that did not run out of food.

Having any type of physical disability or mental health condition were statistically significant factors associated with family violence:

- First Nations women with some form of disability had 1.6 times the odds of having experienced family violence as First Nations women without any disability.
- First Nations women who had ever been diagnosed with a mental health condition had twice the odds of having experienced family violence as First Nations women without any mental health condition.

Among the cultural and historical variables, experiencing unfair treatment and removal from natural family were statistically significant in predicting higher odds of First Nations women's experiencing family violence:

- First Nations women who experienced unfair treatment in the last 12 months because they were First Nations people had 1.6 times the odds of experiencing family violence as First Nations women who did not experience unfair treatment.
- First Nations women who were either removed themselves or had relatives removed from natural family had 1.7 times the odds of having experienced family violence as First Nations women who had neither self nor relatives removed.

13.4.2 Random forest analysis

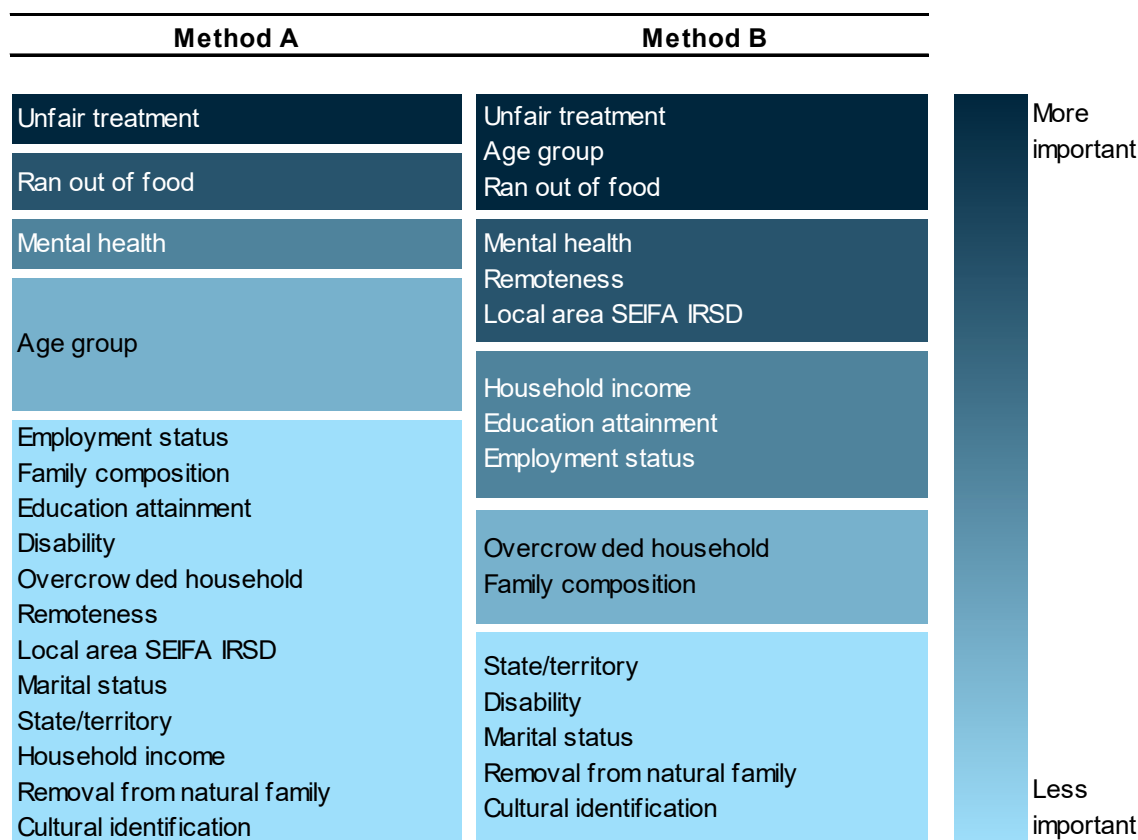
The variable importance rankings obtained from 2 alternative methods (Method A and Method B) for women aged 15 and over are presented in Figure 13.15. For this study, all independent variables in the logistic regression model predicting family violence for First Nations women aged 15 and over have been included in the random forest analysis.

The variable importance rankings of determinants of family violence for First Nations women aged 15 and over shown in Figure 13.15 suggests that:

- a cultural and historical factor (unfair treatment because Indigenous), and a socioeconomic factor (ran out of food and could not afford to buy more) were in the highest 2 groups of relative importance in both Method A and Method B
- among other factors in the highest 2 groups in Method B were age, mental health, remoteness area, and local area SEIFA IRSD
- the factors ranked in the highest 2 groups in both Method A and Method B were also statistically significant or had high odds ratios in the logistic regression models.

The importance rankings of the rest of the variables were less consistent across the 2 measures. Other variables of medium importance were household income, education and employment status based on Method B. Removal from natural family and cultural identification were less important in the variable importance groupings.

Figure 13.15: Relative importance groupings of variables predicting family violence, First Nations women aged 15 and over, 2018-19 NATSIHS



SEIFA = Socioeconomic Indexes for Areas.

IRSD = Index of Relative Socioeconomic Disadvantage

Notes

1. Method A was based on the bias-corrected Gini method of determining variable importance. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright et al. 2017).
2. Numerical variable importance is obtained using a random forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values, but with clear distinctions between the groups.
3. The number of importance groups was determined for each regression and method to determine variable importance, depending on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a pp difference threshold between ordered variable importance values.

Source: AIHW analysis of ABS 2018–19 NATSIHS.

13.5 Policy implications

Outcome 13 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander families and households being safe. The target associated with this outcome is to reduce all forms of family violence and abuse against Aboriginal and Torres Strait Islander women and children by at least 50% as progress towards zero by 2031. The baseline for Aboriginal and Torres Strait Islander females aged 15 and over who experienced domestic physical or threatened physical harm was 8% in 2018–2019. No baseline data specific to the experiences of family violence among children are available.

The current report presents an analysis of data – at the national, state and territory level – on family violence among First Nations people using 2 data sources. The 2018–19 NATSIHS was the main national First Nations-specific survey that provided best estimates of prevalence of family violence for women aged 15 and over at the time of writing of this report. The results showed that 13% of First Nations women aged 25–34 experienced family violence – the highest proportion compared with other age groups. Due to the limited sample in the survey data and possible under-reporting by victims in survey data, minimal differences by state and territory and remoteness area were observed.

An analysis of hospitalisation records showed that the crude rate of hospitalisations for women and children due to family violence in the period from 2019–20 to 2021–22 (combined) was highest in the Northern Territory and in *Remote and very remote* areas compared with other jurisdictions and remoteness areas. These results vary from prevalences based on survey data; this could be because hospitalisation data are episode-based (not person-based) and reflect more severe cases that required hospitalisation. There is also an under-identification of First Nations people in hospital data.

Evidence from existing literature shows that there are a number of interrelated contributing factors associated with the higher risk of family violence. Past policies and practices of colonisation continue to have an impact on First Nations communities and have caused considerable social, economic, physical, psychological and emotional trauma. Social and economic disadvantage, health and mental wellbeing and alcohol and drug use are exacerbated by these factors in First Nations communities and have been shown in the broader literature to be associated with family violence.

The primary data analysis using the 2018–19 NATSIHS identified socioeconomic factors (as measured through household income and not being able to afford to buy more food), having disability or a mental health condition, and First Nations-specific factors related to unfair treatment and removal from natural family as being significant factors associated with family violence among First Nations women aged 15 and over. However, some limitation of the analysis must be acknowledged. The data did not include measures of all the factors identified in the literature as likely drivers of family violence, including systemic issues. Meanwhile, measures of other factors were available in the data, but they may not be the best measures of cultural factors and discrimination due to likely under-reporting of such issues in survey data. Further, as the questions on family violence were not asked of people under the age of 15, factors associated with family violence involving children could not be assessed in the current report. It is essential that future data collections include information on children so that the factors driving change for both women and children can be better understood.

Strategies for reducing family violence

Policy responses that appreciate and plan for complexity in these environments will be more successful in reducing family violence for First Nations people (Cripps 2023). Similarly,

service responses must cater to the diversity and uniqueness of given situations so that those affected by domestic and family violence at all its intersections are supported (Cripps 2023).

The evidence on what works in reducing family violence among First Nations people remains inconclusive. However, from the few evaluations made of family violence programs, some aspects of successful programs include:

- involving the community in service planning
- adopting family-focused case management
- encouraging engagement and relationship building
- considering cultural factors
- delivering integrated services
- planning for long-term sustainability
- having a holistic focus and flexible, trauma-aware and healing-informed approaches (Closing the Gap Clearinghouse 2016).

On the other hand, barriers to effective family violence programs include:

- a lack of integrated and coordinated service delivery practices
- unrealistic expectations and timelines set by governments and the community
- a simplistic approach to policy development to deal with entrenched issues
- a lack of cultural awareness
- unsustainable responses that rely solely on short-term government funding (Closing the Gap Clearinghouse 2016).

Programs that simultaneously target victims, perpetrators and communities have been argued to be more effective, considering the complexity of family violence within First Nations communities. One example of a simultaneous approach is the Aboriginal Family and Community Program that offers camps and counselling through either a men's group or an 8-week family wellbeing course for women. An evaluation of the program found it supported families in crisis, built community capacity to support safe families and improved participants' communication and conflict resolution skills (Cripps and Davis 2012).

Victim support services are an important element in healing when it is appropriate to deliver services to the victim separately from the perpetrator. Australia's National Research Organisation for Women's Safety identifies a number of characteristics as being effective in healing and family violence programs for First Nations people.

Carlson and colleagues (2021) posit that such programs are:

- self-determined – developed, owned and managed by the community, and driven by local leadership
- locally specific – developed to meet issues and needs in the local community
- sustainable – by providing adequate resources
- are strengths-based and build on individual, family and community capacity
- collaborative partnerships between First Nations and non-Indigenous organisations that are based on respect and cultural competence
- transparent and accountable
- holistic in their approach, combining both mainstream and traditional methodologies

- are respectful and culturally competent
- innovative and multifaceted
- focused on the community as a whole
- evidence and theory-based.

Furthermore, the authors also maintain that family violence programs should:

- incorporate culturally appropriate evaluation methodologies
- focus on rebuilding connections to culture, family, community and Country (Carlson et al. 2021).

The *Ampe akelyernemane meke mekarle* (*Little children are sacred*) report was released in 2007 in response to an inquiry into the protection of First Nations children from sexual abuse in the Northern Territory (Wild and Anderson 2007). It listed 97 recommendations related to several areas, including leadership and consultation, government responses, health, offender rehabilitation, family support services, education, community awareness, levels of alcohol use, community justice, employment, housing, pornography and gambling.

In response, the Australian Government initiated the Northern Territory Emergency Response (NTER) which involved emergency measures, including compulsory income management for people receiving welfare payments, alcohol restrictions and child health checks (Howard and Brough 2007). A review of the NTER by the Australian Indigenous Doctors' Association and the Centre for Health Equity Training, Research and Evaluation (AIDA and CHETRE 2010:55) concluded:

'It is likely that new investments in education, housing, and health care, for example, will make a contribution to improved physical health for some people. However, the ways in which the NTER was introduced and is being implemented are likely to contribute to the continuation of the high burden of trauma and disease already carried by Aboriginal people across generations – a cumulative burden to which the NTER is likely to add.'

The authors also stated that it may be possible to minimise these negative effects if the Australian and Northern Territory governments work in respectful partnership with First Nations leaders and organisations.

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Social and emotional wellbeing

14

Content warning: This chapter contains information some readers may find distressing as it refers to information about suicide and/or self-harm.

If the information presented raises any issues for you, help is available. Contact **13YARN** (<https://www.13yarn.org.au/>) on **13 92 76** or Lifeline (<https://www.lifeline.org.au/>) on **13 11 14**. You can also go to Crisis support – [aihw.gov.au](https://www.aihw.gov.au) (<https://www.aihw.gov.au/suicide-self-harm-monitoring/research-information/crisis-support>) for a list of support services.

The AIHW supports the use of the Mindframe guidelines (<https://mindframe.org.au/suicide/communicating-about-suicide/mindframe-guidelines>) on responsible, accurate and safe suicide and self-harm reporting.

Disclaimer

The results of these studies are based, in part, on tax data supplied by the ATO to the ABS under the Taxation Administration Act 1953, which requires that such data is only used for the purpose of administering the Census and Statistics Act 1905. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and is not related to the ability of the data to support the ATO's core operational requirements.

Legislative requirements to ensure privacy and secrecy of these data have been followed. For access to MADIP data under Section 16A of the ABS Act 1975 or enabled by section 15 of the Census and Statistics (Information Release and Access) Determination 2018, source data are de-identified and so data about specific individuals has not been viewed in conducting this analysis. In accordance with the Census and Statistics Act 1905, results have been treated where necessary to ensure that they are not likely to enable identification of a particular person or organisation.

The results of these studies are based, in part, on data supplied by the Department of Social Services to the ABS under the Social Security (Administration) Act 1999, A New Tax System (Family Assistance) (Administration) Act 1999, Paid Parental Leave Act 2010 and the Student Assistance Act 1973. Such data may only used for the purposes of the Census and Statistics Act 1905 or performance of functions of the ABS as set out in section 6 of the Australian Bureau of Statistics Act 1975. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and not related to the ability of the data to support the Department 1 of Social Services' core operational requirements.

Legislative requirements ensure privacy and secrecy of these data are followed. For access to MADIP data under Section 16A of the ABS Act 1975 or enabled by section 15 of the Census and Statistics (Information Release and Access) Determination 2018, source data are de-identified and so data about specific individuals has not been viewed in conducting this analysis. In accordance with the Census and Statistics Act 1905, results have been treated where necessary to ensure that they are not likely to enable identification of a particular person or organisation.

The results of these studies are based, in part, on migration data supplied by Home Affairs to the ABS under the Australian Border Force Act 2015, which requires that such data is only used for the purposes of the Census and Statistics Act 1905 or performance of functions of the ABS as set out in section 6 of the Australian Bureau of Statistics Act 1975. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and not related to the ability of the data to support Home Affairs' core operational requirements.

Legislative requirements ensure privacy and secrecy of these data are followed. For access to MADIP data under Section 16A of the ABS Act 1975 or enabled by section 15 of the Census and Statistics (Information Release and Access) Determination 2018, source data are de-identified and so data about specific individuals has not been viewed in conducting this analysis. In accordance with the Census and Statistics Act 1905, results have been treated where necessary to ensure that they are not likely to enable identification of a particular person or organisation.

Summary

Target

The target associated with Outcome 14 of the 2020 National Agreement is a significant and sustained reduction in suicide of Aboriginal and Torres Strait Islander people towards zero.

Background

- The reasons behind suicide are complex, involving individual circumstances and interaction between several protective and risk factors. The key protective/risk factors associated with suicide among Aboriginal and Torres Strait Islander (First Nations) people can be clustered into 3 main groups; namely, factors that affect connection to:
 - body, mind and emotions
 - family, kinship and community
 - culture and Country.
- Poor mental health outcomes and suicide in First Nations communities are also related to collective trauma, disempowerment, the enduring effects of colonisation and being a survivor of the Stolen Generations.
- In 2017–2021, 71% of all First Nations deaths by suicide had one or more psychosocial risk factors identified, the most frequently occurring being:
 - a personal history of self-harm (25% of suicide deaths)
 - problems in relationship with spouse or partner (20%)
 - disruption of family by separation and divorce (14%).
- The most frequently occurring types of psychosocial risk factors associated with deaths by suicide differed by sex, with just over one-third (34%) of First Nations females having a personal history of self-harm as a risk factor, compared with 21% of First Nations males. First Nations males (13%) were more likely to have problems related to other legal circumstances than First Nations females (4.3%).

Current status

- In 2022, there were around 210 deaths by suicide among First Nations people in the 5 jurisdictions for which Indigenous identification in the National Mortality Database is considered adequate – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.
- Since the baseline year of 2018, this target is worsening. In these 5 jurisdictions, the number of suicide deaths among First Nations people increased from 120 in 2012 to around 210 in 2022.
- Over the same period, the age-standardised rate of suicide deaths in the 5 jurisdictions increased from 19 to 30 per 100,000 (using populations based on the Australian Bureau of Statistics' (ABS's) 2016 Census of Population and Housing [Census]).
- In 2018–2022, the rate of suicide among First Nations males was higher than that for First Nations females in all age groups, except ages 5–17.
- The rate of suicide among First Nations people in 2018–2022 ranged from 7 per 100,000 for those aged 5–17 to 52 per 100,000 for those aged 35–44, and 20 per 100,000 for those aged 45 and over.

Key findings

- Multivariate analyses showed that, controlling for other factors, the risk of dying by suicide for First Nations people were statistically significantly:
 - higher for males than females
 - higher for those aged 25–34 than for those aged 15–24
 - higher for those in need of assistance than for those with no need
 - lower for those in the highest income quintile than for those in the middle quintile.
- Analysis modelling psychological distress as a measure of social and emotional wellbeing showed that the odds of having high or very high psychological distress for First Nations people were statistically significantly higher for people:
 - with a long-term non-mental health condition
 - with severe or profound disability
 - using substances
 - who went days without money for necessities
 - not in the labour force
 - who experienced domestic/family violence
 - who were removed from family
 - who experienced threatened non-domestic/family face-to-face violence
 - who experienced unfair treatment because they are Indigenous
 - who avoided events because of unfair treatment because they are Indigenous
 - who were not proud to be Indigenous
 - who were female.

Key factors

- While some factors identified in our analysis are non-modifiable, such as sex, age and living in remote areas, they can help determine who may be at increased risk and so improve responses and support services for those who need them.
- Other factors, such as economic wellbeing, labour force participation, alcohol and substance use, and the experience of unfair treatment and violence are modifiable and can be countered through social policy and programs. These can include:
 - dealing with community challenges, poverty, and social determinants of health
 - building identity, social and emotional wellbeing, and healing
 - reducing alcohol /drug use
 - continuing care/assertive outreach post emergency department after a suicide attempt/mental health support.
- The policy responses to social and emotional wellbeing and suicide prevention need to be multidimensional and involve a wide range of stakeholders, including services outside the health sector, such as housing, education, employment, recreation, child protection and family services, crime prevention and justice.
- Approaches to suicide prevention should be led by First Nations people and include healing activities.
- For suicide prevention, it is also important to improve access to mental health services, increase community awareness and provide culturally appropriate training.

- The barriers to First Nations people's accessing mental health services may be that services are inaccessible for financial or geographical reasons, or there may be a reluctance to use services because they are not perceived as culturally safe environments.
- Developing general population services that are trauma informed and culturally safe, and expanding Aboriginal Community Controlled Health Services to provide mental health services to First Nations people are critical to improving access to mental health services.
- It is also important that crisis support services are available 24 hours a day, 7 days a week for people who are at risk of suicide.
- As well as support within prisons aimed at reducing suicide/self-harm risk, there should be post-release mentoring and justice reinvestment where the money that would have been spent on imprisonment is reinvested into services that counter the underlying causes of crime, including mental health, and alcohol and other drug services.
- Another important part of suicide prevention is cultural continuity or community control. The evidence suggests that there are no suicides among young First Nations people in communities with all the 'cultural continuity factors', while those communities with none of these factors had the highest suicide rates.
- Some examples of success factors and related programs are:
 - the National Empowerment Project: a First Nations-led community empowerment responding to community challenges, poverty, social determinants of health
 - appropriate and continuing care once people leave an emergency department, and for those at risk in the community at any one time: this is one of the strategies in the 'systems approach' to suicide prevention that underpins the Primary Health Network guidelines for the planning and commissioning of suicide prevention activity across Australia.

14.1 Introduction

Outcome 14 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander people enjoying high levels of social and emotional wellbeing.

The target associated with this outcome is a significant and sustained reduction in suicide of Aboriginal and Torres Strait Islander people towards zero.

Outcome	Aboriginal and Torres Strait Islander people enjoy high levels of social and emotional wellbeing.
Target	A significant and sustained reduction in suicide of Aboriginal and Torres Strait Islander people towards zero.
Indicator	Suicide death rate of Aboriginal and Torres Strait Islander people.
Measure	<i>Numerator</i> – number of Aboriginal and Torres Strait Islander suicide deaths <i>Denominator</i> – number of Aboriginal and Torres Strait Islander people in the population (age-standardised rate [number per 100,000 people])

Every life lost to suicide is a tragedy for family, friends, kin and communities. The AIHW respectfully acknowledges those who have died or have been affected by suicide or intentional self-harm. Suicide and intentional self-harm are complex issues, but they can be prevented.

This chapter analyses progress on changes in the social and emotional wellbeing target, and identifies key factors associated with suicide from primary statistical analyses specific to Aboriginal and Torres Strait Islander (First Nations) people aged 15 and over. The official target is based on the age-standardised suicide rate (number per 100,000 population); however, data on the number of deaths and crude suicide rate (number per 100,000 population) are also presented. Numbers and rates are reported for 5 jurisdictions separately and combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. Numbers of deaths are also reported for Victoria, Tasmania and the Australian Capital Territory, as well as nationally. However, the data for these 3 jurisdictions should be interpreted with caution due to concerns around the quality of their Indigenous identification.

This chapter uses data from the:

- National Mortality Database (NMD)
- Person Level Integrated Data Asset (PLIDA)
- 2014–15 National Aboriginal and Torres Strait Islander Social Survey (NATSISS)
- 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS).

Details of these data sources are provided in the sections where they are used for the analysis.

One major drawback with the analysis presented in this chapter is that the variables that proxy for each of the key factors are not all available in a single data set – in fact, in some cases, the association had to be estimated with psychological distress rather than suicide as

the outcome. This makes comparison of both associations and variable importance a more uncertain exercise – consequently, caution needs to be taken when drawing conclusions.

The structure of the rest of this chapter is as follows:

- Section 14.2 provides national, state and territory data – and some specific trends on various aspects of the target indicator based on the NMD – for various years.
- Broad findings of the literature review are presented in Section 14.3.
- Section 14.4 presents the results of statistical analyses modelling the factors associated with suicide and psychological distress of First Nations people aged 15 and above using PLIDA, the 2014–15 NATSISS and the 2018–19 NATSIHS. Significant factors are identified through Cox proportional hazard and logistic regression analyses and key factors are ranked based on their relative importance using random forest methods. These results are presented and discussed in Section 4.
- Section 14.5 summarises the findings of the report.

14.2 Social and emotional wellbeing target: current picture and time trends

This section uses data from the NMD for various years. Cause of Death Unit Record File data are provided to the AIHW by the Registrars of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice), and include cause of death coded by the ABS. The data are maintained by the AIHW in the NMD.

Since 2006, the cause of death information for coroner-certified deaths are subject to a revisions process. These revisions do not increase the overall number of deaths in any processing year but do improve accuracy, and therefore can change the cause of death distribution particularly for causes such as injury and intentional self-harm. Since 1997, cause of death data in the NMD have been classified using the International Statistical Classification of Disease and Related Health Problems, tenth revision (ICD-10).

The count of deaths for First Nations people can be influenced by the accuracy of Indigenous identification and changes to death forms and/or processing systems. Due to the small size of the First Nations population, these factors can markedly impact on trends over time and between jurisdictions. In the case of small numbers, data for several years may be combined.

Numbers and rates are reported for 5 jurisdictions separately and combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data. Numbers of deaths are also reported for Victoria, Tasmania and the Australian Capital Territory, as well as nationally. However, the data for these 3 jurisdictions should be interpreted with caution due to concerns around the quality of their Indigenous identification. When reporting mortality data by remoteness for First Nations people, the usual approach, and the one used in this chapter, is to include data for all 8 jurisdictions.

Improvements in data quality and changes in identification of First Nations deaths in deaths registrations, as well as the Census-based population estimates (used as denominators for calculating mortality rates), have a major bearing on the interpretation of the findings.

ABS population estimates and projections (series B), based on the 2016 Census, have been used as the denominator when calculating mortality rates, despite the estimates of the First Nations population as at 30 June 2016 (based on the 2016 Census) being 19% larger than

those as at 30 June 2011 (based on the 2011 Census). Using this 2016 Estimated Resident Population (ERP) base for back-casting introduces uncertainty to the historical population estimates, with that uncertainty increasing with time from 2016. The ABS advises that the back-cast population estimates before 2016 should be used with caution, especially for years before 2006.

The data quality statements underpinning the AIHW NMD can be found in the following ABS publications:

- ABS quality declaration summary for Deaths, Australia methodology (<https://www.abs.gov.au/methodologies/deaths-australia-methodology/2022>) (ABS 2023b)
- ABS quality declaration summary for Causes of death, Australia (<https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2022>) (ABS 2023a).

For more information on the AIHW National Mortality Database, see Deaths data at AIHW, <https://www.aihw.gov.au/about-our-data/our-data-collections/national-mortality-database/deaths-data> (AIHW 2023).

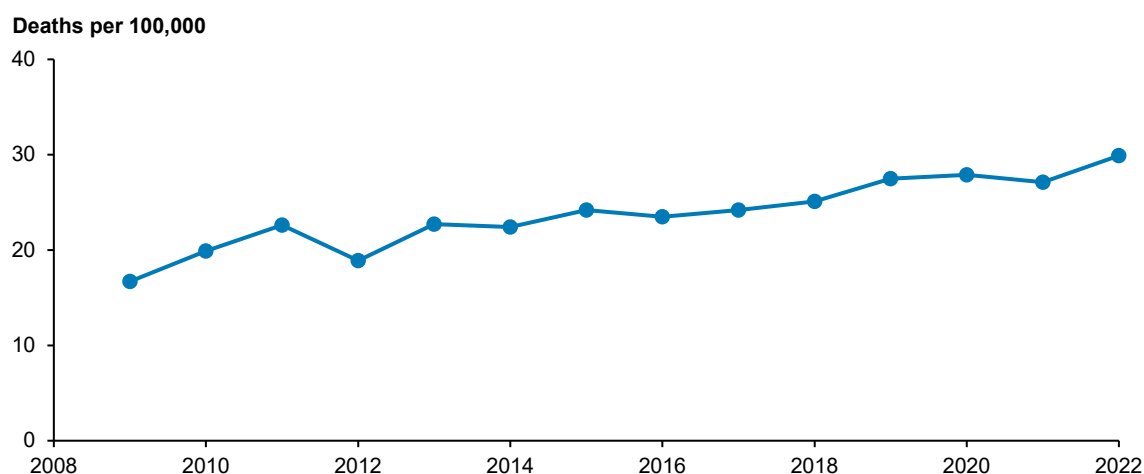
14.2.1 National

In 2022, there were around 210 deaths by suicide among First Nations people in the 5 jurisdictions for which Indigenous identification in the NMD is considered adequate – increasing from 120 in 2012 (Table S14.1). Over the same period, the age-standardised rate increased from 19 to 30 per 100,000 population (Figure 14.1).

Since the baseline year of 2018, this target is worsening: the age-standardised rate of suicide deaths increased from 25 in 2018 to 30 per 100,000 population in 2022. Caution should be taken when interpreting these trends as rates fluctuate over time.

The target is a significant and sustained reduction in suicide of First Nations people towards zero. There is no specified trajectory or expected timeline for achieving zero suicide. One of the trajectories developed through National Agreement on Closing the Gap processes as the most ambitious is a 75% reduction by 2031. This would require an average decrease of 2.6 per 100,000 in the age-standardised suicide rate per year between 2022 and 2031 in New South Wales, Queensland, Western Australia and the Northern Territory combined.

Figure 14.1: Suicide deaths among First Nations people, NSW, Qld, WA, SA and NT combined, 2009 to 2022



Notes

1. Deaths are counted according to year of registration of death, not necessarily the year in which the death occurred.
2. Deaths registered between 2009 and 2022. Death registrations were 'Final' for 2019 and years prior, 'Revised' for 2020, and 'Preliminary' for 2021 and 2022. Revised and preliminary versions are subject to further revision by the ABS.
3. Age-standardised rates (ASR) are directly age-standardised, using the 2001 Australian standard population, by 5-year age group up to age 75+ – that is, the ERP as at 30 June 2001.
4. Rates are reported for 5 jurisdictions combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data.
5. Suicide deaths are coded to ICD-10 codes X60–X84, Y87.0.
6. Data for 2010 have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more details, see Technical note 3 in *Causes of death, Australia, 2010* (ABS cat. no. 3303.0).

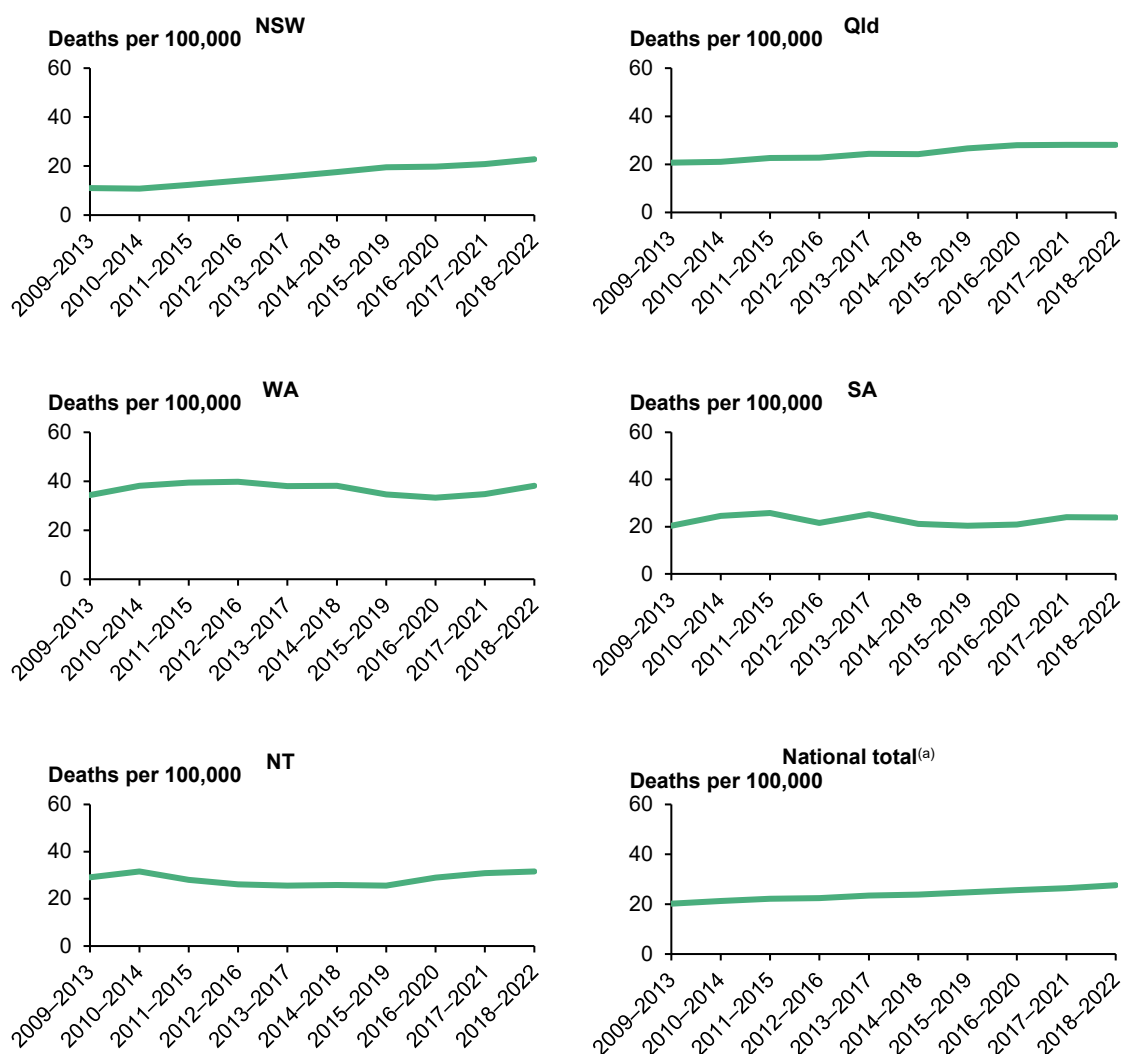
Source: Productivity Commission 2024.

14.2.2 State and territory

In 2018–2022, Queensland had the highest number of suicide deaths (around 320), followed by New South Wales (around 275) and Western Australia (around 200) (tables S14.2 and S14.3). During the same period, age-standardised suicide rates among First Nations people were highest in Western Australia (38 per 100,000), followed by the Northern Territory (32 per 100,000) and Queensland (28 per 100,000) (Figure 14.2).

Between 2012–2016 and 2018–2022, the age-standardised suicide rate for First Nations people increased in New South Wales and Queensland. Suicide rates in Western Australia, South Australia and the Northern Territory fluctuated over the same period.

Figure 14.2: Suicide deaths among First Nations people, by state and territory, 2009–2013 to 2018–2022



(a) National total includes New South Wales, Queensland, Western Australia, South Australia and the Northern Territory.

Notes

1. Deaths are counted according to year of registration of death, not necessarily the year in which the death occurred.
2. Deaths registered between 2009 and 2022. Death registrations were 'Final' for 2019 and years prior, 'Revised' for 2020 and 'Preliminary' for 2021 and 2022. Revised and preliminary versions are subject to further revision by the ABS.
3. ASRs are directly age-standardised using the 2001 Australian standard population, by 5-year age group up to age 75+ – that is, the Australian ERP as at 30 June 2001.
4. Rates are reported for 5 jurisdictions separately and combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data.
5. Suicide deaths are coded to ICD-10 codes X60–X84, Y87.0.
6. Data for 2010 have been adjusted for the additional deaths arising from outstanding registrations of deaths in Queensland in 2010. For more details, see Technical note 3 in *Causes of death, Australia, 2010* (ABS cat. no. 3303.0).

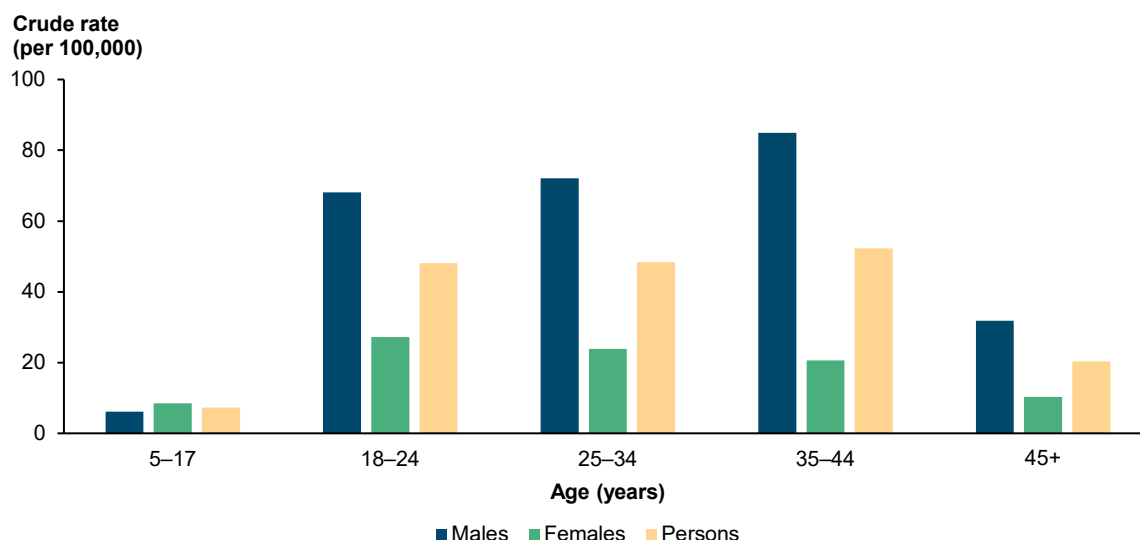
Source: Productivity Commission 2024.

14.2.3 Age and sex

In 2018–2022, the rate of suicide among First Nations males was higher than among First Nations females in all age groups, except for ages 5–17 (Figure 14.3; Table S14.4).

The rate of suicide among First Nations people in 2018–2022 ranged from 7 per 100,000 for those aged 5–17 to 52 per 100,000 among those aged 35–44, and 20 per 100,000 among those aged 45 and over.

Figure 14.3: Suicide deaths among First Nations people, by age group and sex, NSW, Qld, WA, SA and NT combined, 2018–2022



Notes

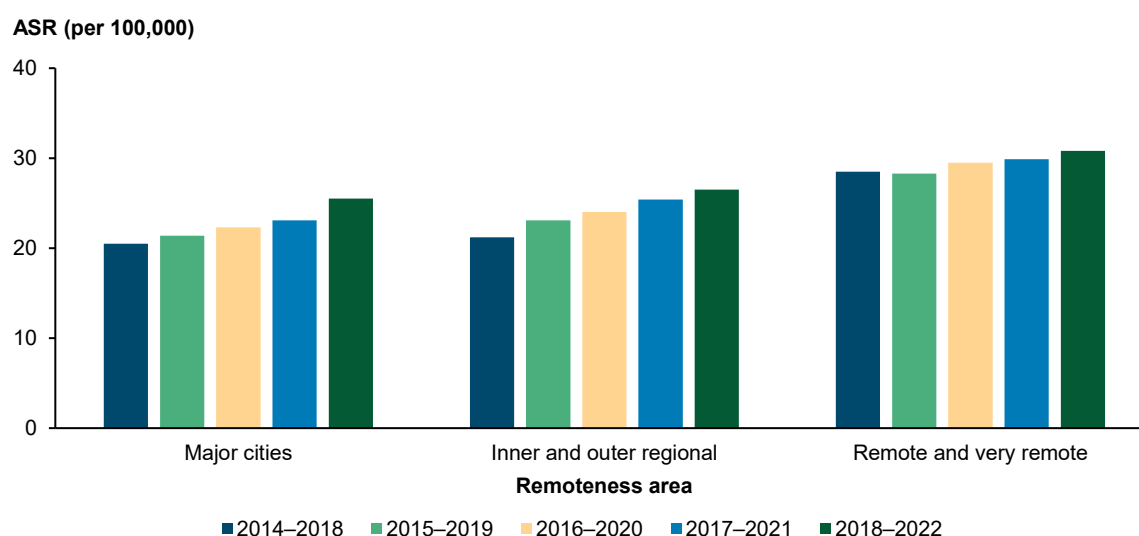
1. Deaths are counted according to year of registration of death, not necessarily the year in which the death occurred.
2. Rates are reported for 5 jurisdictions combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data.
3. Suicide deaths are coded to ICD-10 codes X60–X84, Y87.0.
4. Deaths registered between 2018 and 2022. Death registrations were 'Final' for 2019 and earlier years, 'Revised' for 2020, and 'Preliminary' for 2021 and 2022. Revised and preliminary versions are subject to further revision by the ABS.

Source: Productivity Commission 2024.

14.2.4 Remoteness area

Figure 14.4 demonstrates variations in the age-standardised suicide rates among First Nations people by remoteness areas. In 2018–2022, the age-standardised suicide rate among First Nations people was highest in *Remote and very remote* areas combined (31 per 100,000), followed by *Inner and outer regional* areas combined (27 per 100,000) and *Major cities* (26 per 100,000) (Figure 14.4; Table S14.5). Forty-two per cent of suicides among First Nations people were in *Inner and outer regional* areas combined (Table S14.6). Between 2014–2018 and 2018–2022, the age-standardised suicide rate among First Nations people increased in all remoteness categories (Table S14.5).

Figure 14.4: Suicide deaths among First Nations people, by remoteness area, 2014–2018 to 2018–2022



Notes

- Deaths are counted according to year of registration of death, not necessarily the year in which the death occurred.
- Deaths registered between 2014 and 2022. Death registrations were 'Final' for 2019 and years prior, 'Revised' for 2020, and 'Preliminary' for 2021 and 2022. Revised and preliminary versions are subject to further revision by the ABS.
- ASRs are directly age-standardised using the 2001 Australian standard population, by 5-year age group up to age 65+ – that is, the Australian ERP as at 30 June 2001.
- Rates are reported for all 8 jurisdictions combined.
- Data have been adjusted for Victorian additional death registrations in 2019. For more detail, see Technical note: Victorian additional registrations and time series adjustments in *Causes of death, Australia, 2019* (ABS cat. no. 3303.0).
- Suicide deaths are coded to ICD-10 codes X60–X84, Y87.0.
- Data are based on Australian Statistical Geography Standard (ASGS) 2016 remoteness boundaries, using Statistical Area, Level 1 (SA1) as the building block. Death records with a missing remoteness geography code have been excluded from analysis.

Source: Productivity Commission 2024.

14.2.5 Psychosocial factors

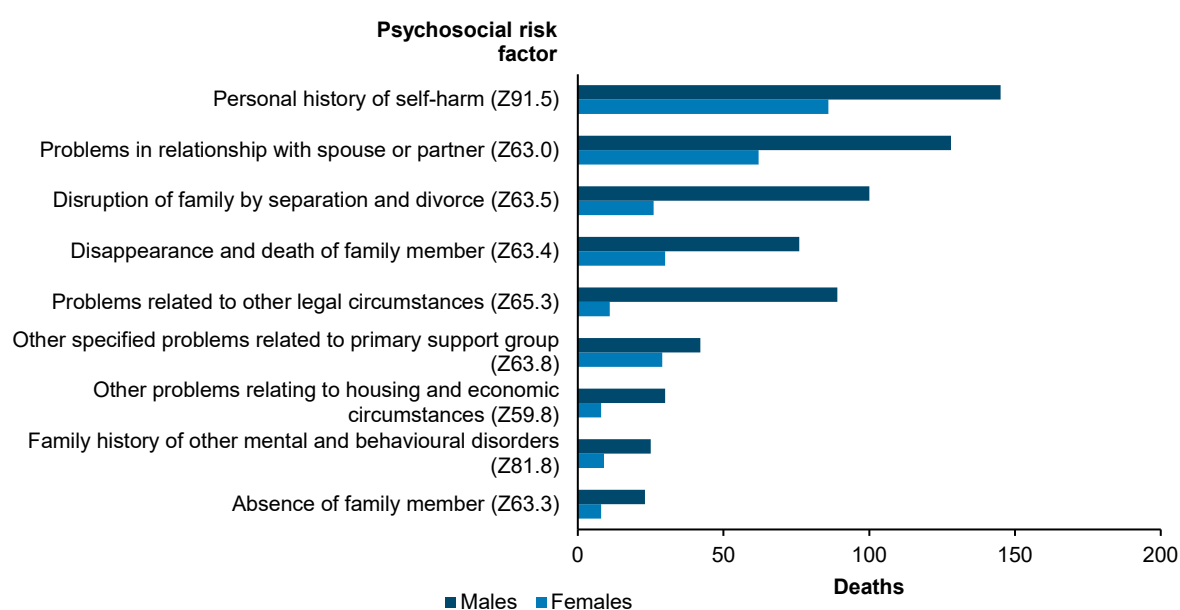
Data on psychosocial factors for 2022 were not available at the time of writing this report. In 2017–2021, 71% of all First Nations deaths by suicide had one or more psychosocial risk factors identified. The most frequently occurring psychosocial risk factors in suicide deaths among First Nations people were:

- a personal history of self-harm (25% of suicide deaths)
- problems in relationship with spouse or partner (20%)
- disruption of family by separation and divorce (14%) (Figure 14.5; Table S14.7).

The most frequently occurring types of psychosocial risk factors associated with deaths by suicide differed by sex, with just over one-third (34%) of First Nations females having a personal history of self-harm as a risk factor, compared with 21% of First Nations males. First Nations males (13%) were more likely to have problems related to other legal circumstances, such as arrest, child custody or support proceedings, litigation or prosecution than First Nations females (4.3%).

Figure 14.5: Most frequently occurring psychosocial risk factors in suicide deaths among First Nations people, by sex, NSW, Qld, WA, SA and NT combined, 2017–2021

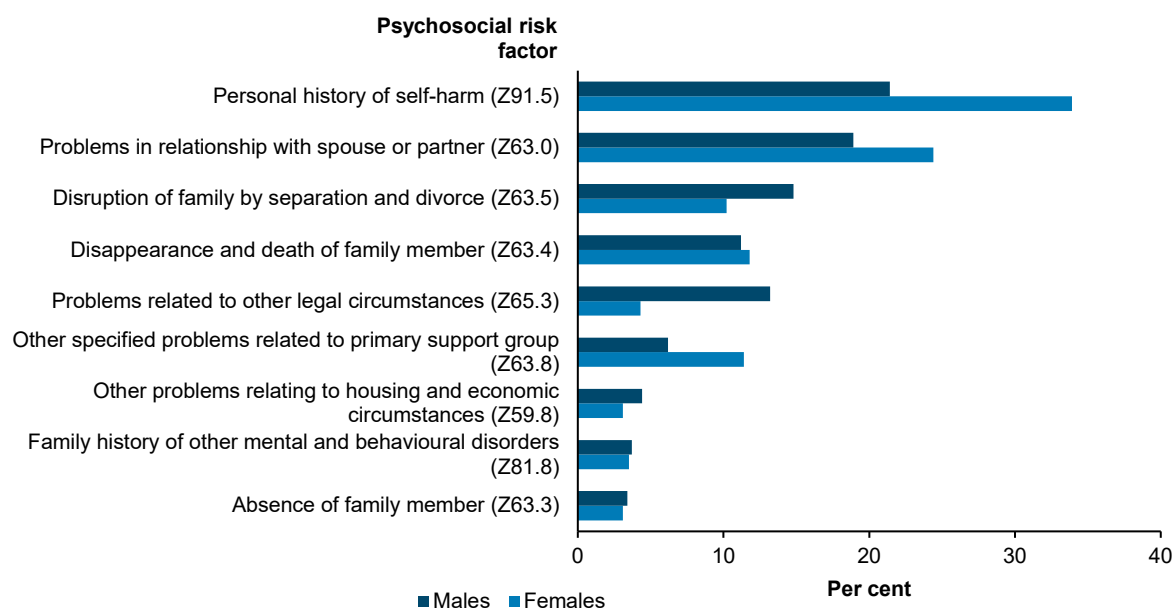
a) Number of deaths



(continued)

Figure 14.5 (continued): Most frequently occurring psychosocial risk factors in suicide deaths among First Nations people, by sex, NSW, Qld, WA, SA and NT combined, 2017–2021

b) Per cent of suicide deaths



Notes

1. Deaths are counted according to year of registration of death, not necessarily the year in which the death occurred.
2. Numbers and percentages are reported for 5 jurisdictions combined – New South Wales, Queensland, Western Australia, South Australia and the Northern Territory. These jurisdictions are considered to have adequate levels of Indigenous identification in mortality data.
3. Suicide deaths are coded to ICD-10 codes X60–X84, Y87.0
4. Deaths registered between 2017 and 2021. Death registrations were 'Final' for 2019 and years prior, 'Revised' for 2020, and 'Preliminary' for 2021. Revised and preliminary versions are subject to further revision by the ABS.
5. Data in this figure indicate the number of deaths with each specified risk factor recorded. Risk factors may not be mutually exclusive, and therefore people with multiple psychosocial factors recorded will be counted in more than one category.
6. Most frequently occurring psychosocial risk factors are based on the top 10 for First Nations people.
7. For a complete list of psychosocial risk factors, see the explanatory note Annex listing: Psychosocial codes (exclusions and inclusions) in Psychosocial risk factors as they relate to coroner-referred deaths in Australia (<https://www.abs.gov.au/statistics/research/psychosocial-risk-factors-they-relate-coroner-referred-deaths-australia#annex-listing-psychosocial-codes-inclusions-and-exclusions->).

Source: AIHW National Mortality Database.

14.3 Literature review

The reasons behind suicide are complex, involving individual circumstances and interaction between several protective and risk factors. This literature review focuses on the key protective/risk factors associated with suicide among First Nations people in the context of the social and emotional wellbeing framework proposed by Gee and colleagues (2014) (Figure 14.6). This framework posits that the social and emotional wellbeing of First Nations families and individuals is influenced by connection to:

- body
- mind and emotions
- kinship
- community
- culture
- Country
- spirituality and ancestors.

The term 'connection' refers to the diverse ways in which people experience and express these various domains of social and emotional wellbeing throughout their lives. For many First Nations people and their families, some of these connections have been markedly disrupted by past and present government policies associated with colonisation, which can be associated with poorer social and emotional wellbeing. Conversely, restoring or strengthening connections to these domains would be associated with increased wellbeing.

The key protective/risk factors associated with suicide among First Nations people can be clustered into 3 main groups, each containing 2 of the domains from the framework of the social and emotional wellbeing. These groups exclude the domain of spirituality and ancestors due to lack of further evidence. The interrelatedness of the domains means many of the protective/risk factors for suicide among First Nations people can be associated with multiple domains. These 3 main groups are factors that affect connection to:

- body, mind and emotions
- family, kinship and community
- culture and Country.

Demographic factors can be considered as the fourth group of potential factors, based on evidence in the literature showing that age, sex and remoteness (part of the culture and Country grouping above) are strongly associated with suicide among First Nations people.

Figure 14.6: A model of social and emotional wellbeing (SEWB)



SEWB Diagram adapted from Gee et al., (2014)

Source: Gee et al. 2014.

14.3.1 Connection to body, mind and emotions

Factors that affect the connection to body, mind and emotions include:

- intentional self-harm hospitalisations
- mental health conditions
- non-mental health conditions and disabilities
- alcohol and substance use.

Previous episodes of intentional self-harm and suicidal behaviour have been identified as strong risk factors for suicide in First Nations people (AIHW 2022d; Shepherd et al. 2018).

Mental health is often identified as a risk factor for suicide (De Leo et al. 2011; SCRGSP 2020). Mental health problems and mental illness are distinct from social and emotional

wellbeing problems, although they can interact and influence one another. Even with good social and emotional wellbeing, people can experience mental illness.

A positive correlation has been shown between psychological (emotional) distress and greater rates of suicidal ideation and suicide attempts among First Nations people (Chamberlain et al. 2009; Luke et al. 2013). Higher risks of suicide have also been observed in contexts and environments where the suicide ideation is high (Dickson et al. 2019; McHugh et al. 2017). A recent meta-analysis by Too and colleagues (2019) found that people who have been diagnosed with a mental health disorder are at an almost 8 times greater risk of suicide than people without such a diagnosis.

Having adequate access to mental health care, as well as reducing societal stigma associated with mental illnesses, is therefore likely to be an essential part of suicide prevention (Too et al. 2019). However, many individuals at risk of suicide will not seek care through professional services or ever be diagnosed with a mental disorder, meaning that access to, or use of, these services is not a good predictor of future risk of self-harm or suicide.

- For example, a study that examined all suicide cases from Queensland during the 1994–2007 period found that only 24% of First Nations people who died by suicide had ever received help for mental health problems (Sveticic et al. 2012). Barriers to accessing mental health care for First Nations people include lack of culturally safe health care, avoiding mainstream health services due to bad past experiences or distrust, and language barriers (Sveticic et al. 2012).

Alcohol and drug misuse (AIHW 2016; Kuipers et al. 2012), including volatile substance use, such as petrol sniffing (d'Abbs and Shaw 2016; Marel et al. 2015) are also commonly identified in the literature as being risk factors for suicide.

Some factors that have been identified as strengthening the connection to body, mind and emotions and protecting against suicide risk for First Nations people include:

- participating in sport (Pandeya et al. 2022)
- culturally safe and responsive services (Department of Health and Aged Care 2021)
- access to appropriate education and employment (Dudgeon et al. 2017)
- education, agency (assertiveness, confidence and control over life), and strong identity (PM&C 2017).

14.3.2 Connection to family, kinship and community

Connection to family and kinship systems are central to the functioning of many First Nations communities. A connection to community – in its many forms – provides opportunities for individuals and families to connect with and support one another, and underpins social and emotional wellbeing across the life span and across generations (Dudgeon et al. 2022). Community participation and contact with friends and family outside the household can enhance a person's sense of belonging and social resilience and offer meaning to everyday life (ABS 2016). Connection to community underpins suicide prevention efforts, strengthens resilience and increases social and emotional wellbeing for First Nations people (Dudgeon et al. 2022).

High rates of suicide among young people and poor health – including mental health and social and emotional wellbeing – often co-exist with other markers of community dysfunction at the community and individual level, and psychological distress such as alcohol and drug misuse, family violence and crime (ATSISPEP 2016).

Factors that affect connection to family, kinship and community include:

- economic stress
- marital status
- stressful life events
- violence
 - domestic and family
 - community and threatened violence.

Access to appropriate education and employment is fundamental to strengthening the wellbeing of individuals, families and communities (Dudgeon et al. 2017). Employment and financial security have been identified as key determinants of better mental health outcomes for First Nations people (Hunter et al. 2022). However, there has been limited research on the relationship between unemployment and suicide risk among First Nations people (AIHW 2022d). Other risk factors identified in this subgroup include those described below:

Stressful life events

- In the wider population, suicidal behaviour is often preceded by stressful or adverse life events – particularly events that involve shame, humiliation, loss, defeat or threat (Beautrais et al. 2005).
- Stressful life events have been shown to precede suicidal behaviour in both First Nations people and indigenous people around the world (Kuipers et al. 2012; Mehl-Madrona 2016).
- Investigating deaths by suicide among First Nations people in the Northern Territory that occurred between July 2000 and December 2010, Kuipers and colleagues (2012) found that conflict and relationship breakdown were key factors associated with suicide. Also, 17% of coroners' reports mentioned a friend's or relative's death before the suicide.
- Exposure to the death by suicide of someone in the community is recognised as a form of community trauma that is linked to increased risk of suicide and self-harm in First Nations people (Dudgeon et al. 2022; Hanssens 2010).
- First Nations people have been identified as being more likely to experience multiple exposures to suicide than non-Indigenous Australians and to being involved in a suicide cluster when exposed to a suicide in their community (Cheung et al. 2014; Hill et al. 2020; Maple et al. 2019; Robinson et al. 2016).
- Hill and colleagues (2020) found that in a specific subset of 117 young Australians aged 10 to 24 who died by suicide clusters between 2006 and 2015, nearly 80% of the individuals belonged to the same age group as the person who initially died by suicide. This suggests that younger people may be particularly susceptible to suicide following exposure to the suicide of a friend or acquaintance. In the same study, 50% of those who were exposed to the initial suicide and also died by suicide, died within 90 days of exposure to that initial suicide. These findings suggest that the first 3 months following exposure to the suicide of another young person may represent a period of heightened suicide risk, and therefore a critical window of opportunity for interventions to avert further suicide deaths.

Family and community violence

- Family violence makes children more vulnerable to suicide and suicide-related behaviour (Dudgeon et al. 2021).

- Community violence has also been identified as a risk factor in sustaining healthy connection to community, as well as for stress, trauma and wellbeing in First Nations people (Dudgeon et al. 2021; PM&C 2017; Zubrick et al. 2014).

Social exclusion in its many forms

- Racism, marginalisation, social disadvantage, physical isolation, social isolation, homelessness, unemployment, job insecurity, and their consequent association with greater exposure to life stressors are also associated with increased risk of suicide (Dudgeon et al. 2021; Fitzpatrick et al. 2019; Headspace 2011; Pandeya et al. 2022).

Harder and colleagues (2012) found, in their review of indigenous peoples around the world, that social and family support were the strongest protective factors in reducing the risk of suicide among indigenous youth in the studies they examined.

Some positive factors identified as strengthening the connection to family, kinship and community, and in protecting against suicide risk for First Nations people are:

- cultural community connectedness (ATSISPEP 2016; Gibson et al. 2021a)
- strong family cohesion (Islam et al. 2022; Luke et al. 2013)
- loving, stable, accepting and supportive family; culturally appropriate family-focused programs and services; support networks; and community-controlled services (PM&C 2017)
- having children, and participating in sport (Pandeya et al. 2022)
- improving employment and income of families (ATSISPEP 2016; Shepherd et al. 2012)
- health promotion, having adults to talk to, having friends to talk to, having a good relationship with family and being happy with where they live (Luke et al. 2013)
- being able to harness the strengths of Elders (Hanssens 2016)
- community safety and school attendance (ATSISPEP 2016)
- self-governance (ATSISPEP 2016; Dudgeon et al. 2022).

14.3.3 Connection to culture and Country

For many First Nations people, a connection to culture provides a sense of continuity with the past and helps underpin a strong identity. The loss of culture and its lasting effects on First Nations people is a risk factor for future suicidal behaviour (Dudgeon et al. 2010; Dudgeon et al. 2017).

Before colonisation, suicide was virtually unknown in First Nations communities (De Leo et al. 2011). The greater prevalence of mental illness and suicide in the contemporary First Nations population, compared with the population before colonisation, reflects the substantial damage done to First Nations culture by colonisation (Parker 2010). The historical and contemporary impacts of colonisation on First Nations people have intergenerational effects, including disconnection from land, culture, religion, tradition and kinship groups – which is ongoing today.

Poor mental health outcomes and suicide in First Nations communities are related to collective trauma, disempowerment and the enduring effects of colonisation (Groves et al. 2022). Dudgeon et al. (2021) propose that existing trauma and intergenerational trauma for First Nations people is compounded by family violence and substance misuse, as well as by stress caused by personal, cultural and institutional racism.

The AIHW (2021) found that, in 2018–19, First Nations people who were survivors of the Stolen Generations aged 50 and over, when compared with First Nations people aged 50 and over who were not removed from their families, were statistically significantly more likely to:

- have used substances in the last 12 months
- be a current smoker
- have experienced racism
- have been a victim of actual or threatened physical harm
- have severe or profound disability
- have poor mental health
- have been diagnosed with a mental health condition.

Many of these factors are also risk factors for suicide.

Other risk factors identified in this subgroup are:

- Racism and discrimination

First Nations people's greater exposure to racism and discrimination, compared with non-Indigenous Australians, has been identified as affecting their mental health and wellbeing, and their suicide risk (PM&C 2017; Priest et al. 2011).

- Interaction with the justice system

Suicidal ideation and attempts are highly prevalent among people in prison compared with the general community (Larney et al. 2012). One study found that nearly two-thirds (64%) of incarcerated First Nations males had experienced suicidal ideation and more than one-half (55%) had attempted suicide (Shepherd et al. 2018).

Some factors identified as strengthening the connection to culture and Country and protecting against suicide risk for First Nations people, include:

- contemporary expressions of culture and spirituality, attending national and local events, cultural institutions, cultural education (Dudgeon et al. 2017)
- cultural involvement and participation (Gibson et al. 2021; Heard et al. 2022; Skerrett et al. 2018)
- time spent on Country (Burgess et al. 2009; Gee et al. 2014; PM&C 2017)
- having primary carers fluent in a First Nations language (Zubrick et al. 2005)
- healing initiatives that build and revitalise language (Zubrick et al. 2014)
- self-determination (Dudgeon et al. 2017)
- cultural continuity (Dockery 2012; Prince 2018)
- cultural social capital (Gibson et al. 2021).

14.3.4 Demographic factors

Demographic factors such as age, sex and place of residence have been identified as influencing individual risk of suicide behaviour – for First Nations people as well as for the wider Australian population (AIHW 2020, 2022e). Increased suicide risk with increased remoteness has been found in both populations (AIHW 2022d; Cheung et al. 2014; Fitzpatrick et al. 2019e).

Deaths by suicide have been observed in mainly younger age groups of First Nations people compared with non-Indigenous Australians, but this could be due to a younger age structure of First Nations people (AIHW 2022e).

In the wider population, males are more likely to die by suicide than females though females have a higher prevalence of suicidal thoughts or behaviours in their lifetime (ABS 2022) and a higher rate of hospitalisations due to intentional self-harm (AIHW 2019b, 2022d). First Nations males have had a consistently higher risk of suicide than First Nations females (De Leo et al. 2011).

14.3.5 Recent AIHW projects related to First Nations deaths by suicide

The National Indigenous Australians Agency has recently funded the AIHW to undertake 4 projects specifically related to data on First Nations deaths by suicide:

1. Mapping the prevalence of suicide among First Nations people (AIHW 2022b): This project aimed to produce accurate estimates of the prevalence of First Nations deaths by suicide at as low a level of geography as possible, given concerns around small numbers from both a statistical and confidentiality point of view. Data from several years were aggregated at the IREG geography level to derive prevalence estimates. Suicide rates were produced by age group, sex and IREG – and the average annual numbers and rates were mapped by sex and IREG over a 10-year period.
2. Investigating the contribution of protective and risk factors for First Nations deaths by suicide (AIHW 2022d): The aims of this project were to:
describe protective/risk factors for First Nations deaths by suicide identified in the literature
 - estimate how these factors contribute to suicide risk
 - examine the extent to which suicide rates and protective/risk factors vary geographically.

The analyses of this project showed that an individual's likelihood of suicide is influenced by the interactions of:

- demographic factors such as gender, age and location of residence
 - variable factors such as secure housing, alcohol and drug use, incarceration and employment
 - factors more specific to First Nations people such as cultural continuity, spirit, language and cultural understandings of wellbeing.
3. Investigating the relationship between First Nations deaths by suicide and service provision (AIHW 2022a): This project examined geographic variation in factors relevant to suicide prevention and the association between service provision and suicide outcomes for First Nations people.
 - In the first part of the project, the geographic variation of suicide rates during a 10-year period was compared with the geographic variation of a selection of circumstances relevant to suicide risk and prevention.
 - The second part used regression modelling to explore the regional-level association between recorded First Nations deaths by suicide and protective/risk factors at the Statistical Area Level 3 (SA3) geography. Analysis of linked data with more detailed information about First Nations people – rather than analysis of the available

regionally aggregated data – is needed to assess the importance of service delivery in preventing First Nations deaths by suicide.

4. Investigating enhancements of First Nations data in suicide-relevant data sets (AIHW 2022c): This project examined the current state of data on First Nations deaths by suicide, including a review of existing literature and national sources of Australian suicide data; relevant individuals and organisations were also consulted to better understand how Indigenous status is collected in data sets.

14.4 Modelling factors associated with suicide

In this section, PLIDA, 2014–15 NATSISS and 2018–19 NATSIHS data sets are used to model First Nations deaths by suicide and mental health.

The PLIDA is a large, linked data source that includes socioeconomic variables. The PLIDA data were primarily used for socioeconomic determinants of suicide and were based on the analysis done by the AIHW (2022e) for the whole Australian population. Some changes have been made to:

- enhance the First Nations population
- include variables that are more relevant to the younger-skewed First Nations population.

Complementing this large linked data source are 2 cross-sectional survey data sets that focus on First Nations people – the NATSIHS and NATSISS. In these surveys, levels of psychological distress were used in the modelling rather than suicide.

Summary of information on the use of these data sets in modelling factors, along with key details of the variables used, assumptions made and explorations undertaken for each data set are provided in Appendix 14A.

The PLIDA has information on the number of First Nations deaths by suicide. Where possible, this chapter focuses on the results from the PLIDA as this data set could be used to model suicide deaths. The factors that PLIDA data help to capture are mainly around economic factors (and how they change) and some information on disability and family structure.

Suicide is a complex issue, however, and several other important risk factors were not available in PLIDA data. These include data on alcohol and substance use, financial stress, experience of physical and threatened violence, racism, interaction with the criminal justice system, removal from family, and cultural protective factors. In order to explore these factors and their role in social and emotional wellbeing we can use the NATSIHS and the NATSISS data. However, the target outcome – death by suicide – is not available in these data. Instead, we can model experience of high and very high psychological distress outcome.

Although not all people who experience psychological distress will die by suicide, those who experience psychological distress are more likely to experience suicidal ideation (Chamberlain et al. 2009). And while the majority of individuals with suicidal ideation never make a suicide attempt, suicidal ideation remains a key factor associated with the risk of suicide (Klonsky et al. 2021). Chamberlain and colleagues (2009) found (via multivariate analysis) that even those with moderate psychological distress were 4 times as likely to experience suicidal ideation as those with low psychological distress; while those with high and very high psychological distress were 21 and 77 times as likely, respectively, to do so. Luke and colleagues (2013), via multivariate analysis, found that emotional distress was statistically significantly greater among First Nations youth reporting suicide ideation and suicide attempt. Adjusting for age and gender, the odds of suicide ideation were 7.6 times as

high for those who were emotionally distressed; the corresponding increased odds for suicide attempts was 2.5 times. First Nations youth who reported a greater number of emotional distress indicators (for example, depression, anger, low self-esteem) also reported greater rates of suicide ideation and suicide attempts.

The use of psychological distress, rather than suicide, in some models in this chapter also relates to the overall outcome of First Nations people's enjoying high levels of social and emotional wellbeing. Psychological distress is captured by the Kessler 5 score – a score of 12 or more is considered 'high or very high' and a score of 15 or more is considered 'very high'. As discussed in Section 14.3, in some studies, psychological distress was positively correlated with suicide ideation, which, in turn, is correlated with suicide attempts.

The factors captured in the NATSIHS 2018–19 include health-related variables such as non-mental health conditions, disability and alcohol and drug use. Other variables covered include economic stress, violence, racism and discrimination, intergenerational trauma (removal from family) and cultural continuity. Age, sex, remoteness area and state/territory were also included.

Many factors in the NATSIHS are also captured in the NATSISS 2014–15, with the main difference being availability of data on interactions with the justice system.

For each of these data sources, 2 types of models were estimated:

1. a model to determine associations of the factors available in the data set with either suicide or psychological distress, controlling for other variables:
 - a Cox proportional hazard model for suicides was employed using the PLIDA
 - a logistic regression model for psychological distress was employed using the NATSIHS and the NATSISS
2. a random forest model to determine the relative importance of each factor (see figures S14.1–S14.3 for details).

For more information about Cox proportional hazard model and random forest analyses see Appendix A. Data and methods.

14.4.1 Results of the Cox proportional hazard model and logistic regression analyses

The results for the Cox proportional hazard model using PLIDA data are shown in Table 14.1. The outcomes of logistic regression analyses using 2018–19 NATIHS and 2014–15 NATSISS are presented in Table 14.2 and individually in tables S14.9 and S14.10.

The discussion of the outcomes of statistical analyses is divided into 4 subsections to present the results for the key factors associated with:

- connection to body, mind and emotions
- connection to family, kinship and community
- connection to culture and Country
- demographic factors.

Table 14.1: Cox proportional hazard model with time-varying covariates using the PLIDA, 2011–2017

Domain	Variable (reference group)	Level	Hazard Ratio
M, B+E ^(a)	Needs assistance (Does not need)	Does need	1.87**
	Marital status (Married)	Never married	1.64**
Family, kinship and community		Widowed/divorced/separated	1.49
	Higher education (Bachelor degree or higher)	Diploma/Certificate	1.13
		School or lower	1.03
	Undertaking study of at least part-time in previous year (No)	Yes	0.61
	Reliance on government payments in the previous year (<10%)	10% to <90%	0.56*
		90% and over	0.42
	Income quintile (3)	1 (lowest)	1.14
		2	0.85
		4	0.58**
		5 (highest)	0.37***
	Change in income quintile (3)	1 (lowest)	1.39
		2	0.86
Demographics	Age group (15–24)	25–34	1.77***
		35–44	1.46*
		45–54	1.05
		55 and over	0.48*
	Sex (Female)	Male	3.02***

Statistical significance levels: *** : $p \leq 0.001$; ** : $p \leq 0.01$; * : $p \leq 0.05$

(d) 'Mind, body and emotions' domain.

Notes

- For this analysis, 2011 Census and 2011 to 2017 Causes of Death data were linked to the ABS Person Linkage Spine (Spine). The Spine is comprised of all people in the Medicare Enrolments Database, Personal Income Tax or Social Security and Related Information data sets at any point between 2006 and 2016. As the 2011 Census occurred in August 2011, data is from September 2011 to December 2017.
- Data for Suicide (X60–X84, Y87.0) are from the ICD-10 chapter All external causes of morbidity and mortality (V01–Y98).
- Synthetic income data were developed by the Australian National University using personal income tax data, social security payment information and Census information (for more information see Biddle and Marasinghe (2021)). The person's synthetic income was grouped into quartiles of high, medium high, medium low and low.
- Only people aged 15 and over in the linked 2011 Census data set have been included, representing almost 200,000 First Nations people in the 2011 Census and around 290 deaths by suicide from 2012 to 2017. This age group was chosen because most deaths by suicide occur in this age group.
- All values except for age and synthetic income are of September 2011 and are held constant over the time the person was at risk of death by suicide. Age is the age at year of risk, while synthetic income is of the year prior to the year of risk. For the 2011 year of risk, the person's 2011 synthetic income is used.
- Missing values are excluded from this analysis.

Source: AIHW analysis of PLIDA.

Table 14.2: Logistic regression results (odds ratios) on high and very high psychological distress (Kessler score 12+) using the NATSIHS 2018–19 and NATSISS 2014–15

Domain	Variable (reference group)	Level	NATSIHS	NATSISS
Body, mind and emotions	Long-term non-mental health condition(s) (No)	Yes	1.76***	1.34**
	Severe or profound disability (No)	Yes	2.37***	2.24***
	Frequency of 7+ alcohol drinks (<1 day/week)	1–2 days/week	1.02	
		3–4 days/week	2.24*	
		5 or more days/week	2.23*	
	Alcohol risk in last 2 weeks (No consumption)	Low		1.12
		Medium		1.09
		High		1.05
	Substance use (Not used)	Used	1.63***	1.35**
		Refused answer	1.08	0.95
		Unsure	0.77	
Family, kinship and community	Whether could raise \$2,000 in emergency (No)	Yes	1.04	1.25*
		Unsure		1.55*
	Went days without money for necessities (No)	Yes	1.98***	1.71***
	Labour force status (Employed)	Unemployed	1.62*	1.35*
		Not in labour force	2.05***	1.46***
	Highest level of education (Degree or higher)	Cert. 3–Adv. Dip., year 11 or year 12	1.36	1.36
		Cert. 1–2, year 10 below	1.49	1.31
	SEIFA IRSD quintile (Middle 3)	1 (Lowest)	1.12	1.1
		2	1.17	1.16
		4	1.29	1.08
		5 (Highest)	1.23	0.7
	Lives in crowded household (No)	Yes		1.15
	Death of family member/close friend in last year (No)	Yes		1.16
	Experienced physical harm in last 12 months (No violence experienced)	Domestic/family violence, but not other violence	1.52	2.0***
		Other violence, but not domestic/family	0.59	1.18
		Both domestic/family and other violence	0.88	3.81
		Experienced, type unknown	1.14	0.99
	Experienced (face-to-face) threatened physical violence in last 12 months (None experienced)	Experienced threatened, but not face-to-face	2.63**	
		Experienced threatened face-to-face domestic/family violence but not other	2.62**	
		Experienced threatened face-to-face other violence but not domestic/family	2.48***	
		Experienced both threatened face-to-face domestic/family and other violence	2.71	
	Experienced threatened physical harm in last 12 months (No)	Yes		1.56***

(continued)

Table 14.2 (continued): Logistic regression results on Kessler score 12+ using the NATSIHS 2018–19 and NATSISS 2014–15

Domain	Variable (reference group)	Level	NATSIHS	NATSISS
Culture and Country	Unfair treatment because Indigenous in last 12 months (No unfair treatment)	Experienced unfair treatment	1.62***	1.41**
		Unsure whether experienced unfair treatment	1.1	1.31
	Avoided events because unfair treatment because Indigenous in last 12 months (No)	Yes		1.65***
	Removal from family (Self and relatives not removed)	Self-removed, relatives not removed		1.45
		Self-removed (whether or not relatives removed)	1.53*	
		Older relatives removed, self not removed	1.33	1.16
		Both self and relatives removed		1.27
		Other/not stated	1.15	
		Refused answer		1.18
	Recognises homelands (Recognises)	Does not recognise	1.28*	1.12
	Proud to be Indigenous (No)	Yes	0.52*	
	Identifies with a clan, tribe or language group (No)	Yes	1	0.89
		Refused	1.18	
	Involved in cultural activities in last 12 months (No)	Yes		1.03
	Arrested in the last 5 years (No)	Yes		1.16
	Incarcerated (No)	Yes, in the last 5 years		1.18
		Yes, more than 5 years ago		1.09
Geographic	Remoteness area (Major cities)	Inner regional	1.47*	
		Outer regional	1.05	
		Remote	1.07	
		Very remote	1.03	
	Remoteness (Non-remote)	Remote		1.0
	State (Qld)	NSW	0.88	1.02
		Vic	0.92	1.25
		WA	0.92	1.25
		SA	1.04	0.98
		Tas	0.96	0.88
		ACT	0.91	1.3
		NT	0.95	1.03
Demographic	Age group (15–19)	20–29	1.05	0.83
		30–39	0.82	0.78
		40–49	0.87	0.87
		50 and over	0.64	0.89
	Sex (Female)	Male	0.67***	0.59***

Statistical significance levels: *** : $p \leq 0.001$; ** : $p \leq 0.01$; * : $p \leq 0.05$;

Note: Data are for those aged 15 and over.

Source: AIHW analysis of 2018–19 NATSIHS and 2014–15 NATSISS.

Factors associated with connection to body, mind and emotions

In the Cox proportional hazard model using PLIDA data, First Nations people who needed assistance with core activities had statistically significantly higher risk of death by suicide (1.9 times).

Among the health-related measures in the NATIHS and NATSISS surveys, variables that were associated with statistically significantly higher odds of having high or very high psychological distress included:

- having a long-term non-mental health condition (OR = 1.8 in NATSIHS and OR=1.3 in NATSISS)
- consuming 7 or more alcoholic drinks on 5 or more days a week (OR = 2.2 in NATSIHS)
- substance use (OR = 1.6 in NATSIHS and OR = 1.4 in NATSISS).

Factors associated with connection to family, kinship and community

In the model predicting the hazard of suicide using PLIDA data, First Nations people who were in the fourth or fifth (highest) income quintile had a statistically significantly lower (0.6 and 0.4 times, respectively) risk of death by suicide than those in the middle income quintile.

For psychological distress outcome, First Nations people who went days without money for necessities had statistically significantly higher odds of reporting high or very high psychological distress (OR=2.0 in NATSIHS and OR=1.7 in NATSISS).

Labour force status was a statistically significant predictor in psychological distress model. Compared with being employed, the odds of having high or very high psychological distress were 1.6 times as high for those who were unemployed and 2.1 times as high for those not in the labour force, based on the NATSIHS (results were similar in the model using NATSISS).

The experience of either physical harm or threatened physical harm in the previous 12 months had varying effects in psychological distress models. Analysis of the NATSISS found that those who experienced domestic/family violence, but not other violence, had statistically significantly higher (2 times) odds of having high/very high psychological distress compared with those who did not experience physical harm in the last 12 months. The odds of having high/very high psychological distress were statistically significant and 1.6 to 2.6 times as high for those who experienced various forms of threatened physical harm as for those experiencing no threatened physical harm (using both surveys).

Factors associated with connection to culture and Country

The results from the NATSIHS and NATSISS surveys show that the experience of unfair treatment in the previous 12 months because of one's Indigenous status was statistically significantly associated with psychological distress: those who experienced unfair treatment had at least 1.4 times higher odds of reporting high or very high psychological distress than those who experienced no unfair treatment.

Ever having been removed from family (whether or not relatives were removed) was associated with statistically significantly higher odds (1.53 times) of high or very high psychological distress based on the NATSIHS. Other categories of this variable showed higher odds but were not statistically significant.

Protective cultural factors – such as whether a First Nations person lives on or recognises homelands; whether they identify with a clan, tribe or language group; and whether they are proud to be Indigenous – were not statistically significantly associated with the odds of reporting high or very high psychological distress, except for statistically significantly lower

(0.52 times) odds among those who were proud to be Indigenous compared to those who were not proud to be Indigenous in the NATSIHS.

Demographic factors

Age was found to be statistically significantly associated with suicide risk. In the Cox proportional hazard model, compared with those aged 15–24, First Nations people aged 25–34 and 35–44 had statistically significantly higher (1.77 and 1.46 times, respectively) risk of death by suicide.

Sex was also a significant predictor of suicide risk, considering other factors. In the PLIDA analysis, First Nations males had statistically significantly higher (over 3 times) risk of death by suicide than First Nations females. In both psychological distress models First Nations males had lower odds (OR=0.59 in NATSISS, OR=0.67 in NATSIHS) of reporting high or very high psychological distress than females, consistent with the literature on the wider population reporting females to have relatively high rates of psychological distress but relatively low suicide rates (see Section 14.3).

14.4.2 Random forest analysis

The variable importance rankings from the random forest analysis obtained from 2 alternative methods (Method A and Method B) are presented for each of the outcome variables of interest.

Most important variables explaining suicide risk

The random forest analysis of risk of death by suicide produced 3 relative importance groups (Figure 14.7). Sex was found to be the most important variable explaining variation in the risk of death by suicide, while income had medium importance. All other variables were ranked in the least important group.

Most important variables explaining psychological distress

The random forest analysis of psychological distress using NATSISS produced 3 (based on Method A) and 4 (based on Method B) groups of relative importance (Figure 14.8), while the analysis of NATSIHS resulted in 5 groups (both methods) (Figure 14.9).

Across both NATSISS and NATSIHS models going days without money for necessities was ranked in the highest importance group explaining the most variation in psychological distress.

Labour force status and ability to raise \$2,000 in an emergency were found to be of medium to high importance (second highest importance group in NATSISS and third group in NATSIHS) in explaining variation in psychological distress.

The experience of either physical harm or threatened physical harm in the previous 12 months had varying importance (from medium to low) in explaining the variation in psychological distress.

Meanwhile the experience of unfair treatment in the previous 12 months because of one's Indigenous status, ever having been removed from family, or having relatives ever removed from family, as well as protective cultural factors – such as whether a First Nations person lives on or recognises homelands; whether they identify with a clan, tribe or language group; and whether they are proud to be Indigenous – were found to be of low importance in explaining the variation in psychological distress.

Figure 14.7: Balanced random forest model for variable importance estimation for First Nations deaths by suicide using PLIDA, 2011–2017

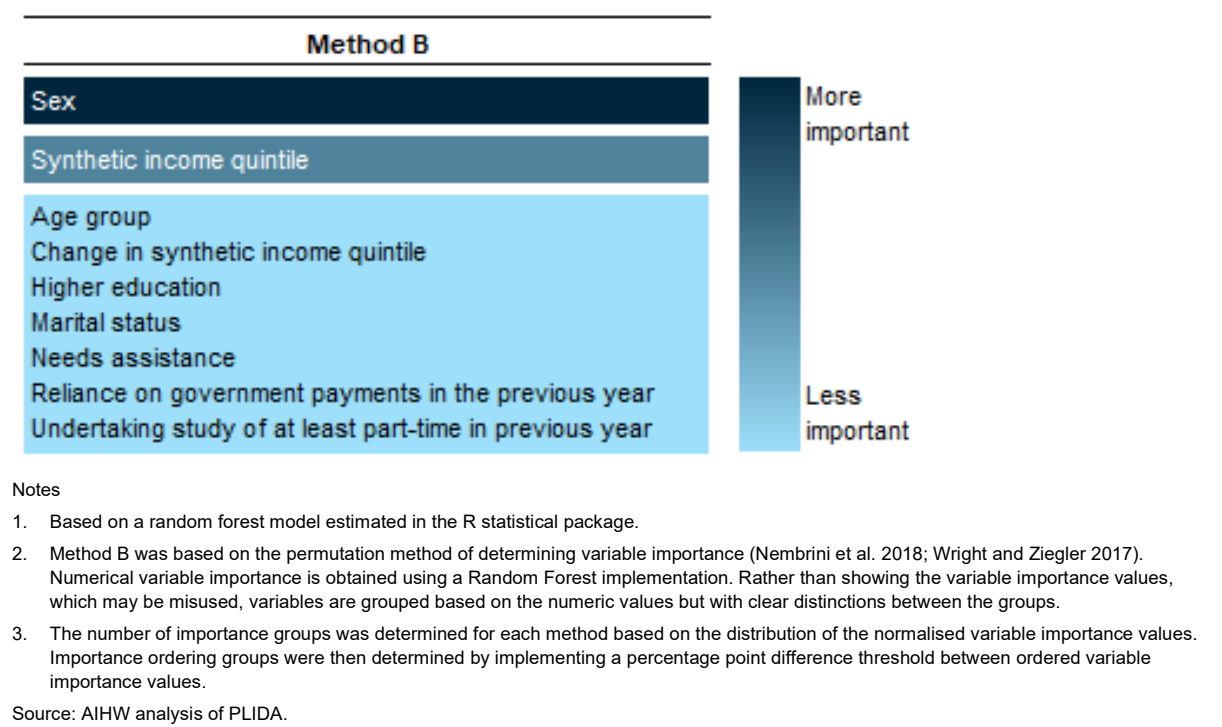


Figure 14.8: Relative importance groupings of variables predicting psychological distress, First Nations people, 2014–15 NATSISS

2014–15 NATSISS	
Method A	Method B
Experienced physical harm in last 12 months	Went days without money for necessities
Went days without money for necessities	Labour force status
Experienced threatened physical harm in last 12 months	Whether could raise \$2,000 in emergency
Avoided events because unfair treatment because Indigenous in last 12 months	Experienced threatened physical harm in last 12 months
Labour force status	Severe or profound disability
Severe or profound disability	Age group
Age group	Alcohol risk in last 2 weeks
Alcohol risk in last 2 weeks	Arrested in the last 5 years
Arrested in the last 5 years	Avoided events because unfair treatment because Indigenous in last 12 months
Death of family member or close friend in last 12 months	Death of family member or close friend in last 12 months
Highest level of education	Experienced physical harm in last 12 months
Identifies with a clan, tribe or language group	Highest level of education
Incarcerated	Identifies with a clan, tribe or language group
Involved in cultural activities in last 12 months	Incarcerated
Lives in crowded household	Involved in cultural activities in last 12 months
Lives on homelands	Lives in crowded household
Long-term non-mental health condition(s)	Lives on homelands
Recognises homelands	Long-term non-mental health condition(s)
Removal self/relatives from family	Recognises homelands
Remoteness	Removal self/relatives from family
SEIFA quintile	Remoteness
Sex	SEIFA quintile
State	Sex
Substance use	State
Unfair treatment because Indigenous in last 12 months	Substance use
Whether could raise \$2,000 in emergency	Unfair treatment because Indigenous in last 12 months

Notes

1. Based on a random forest model estimated in the R statistical package.
2. Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a Random Forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
3. The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: AIHW analysis of 2014–15 NATSISS.

Figure 14.9: Relative importance groupings of variables predicting psychological distress, First Nations people, 2018–19 NATSIHS

2018–19 NATSIHS			
Method A	Method B		
Went days without money for necessities	Went days without money for necessities		More important
Experienced face to face threatened physical harm in last 12 months	Experienced face to face threatened physical harm in last 12 months		
Severe or profound disability	Age group		
Experienced physical harm in last 12 months	Labour force status		
Labour force status	Long-term non-mental health condition(s)		
Age group	Remoteness		
Frequency of 7+ alcohol drinks	Severe or profound disability		
Highest level of education	Unfair treatment because Indigenous in last 12 months		
Identifies with a clan, tribe or language group	Whether could raise \$2,000 in emergency		
Long-term non-mental health condition(s)	Experienced physical harm in last 12 months		
Proud to be Indigenous	Frequency of 7+ alcohol drinks		Less important
Recognises homelands	Highest level of education		
Remoteness	Identifies with a clan, tribe or language group		
Removal self/relatives from family	Recognises homelands		
SEIFA quintile	Removal self/relatives from family		
Sex	SEIFA quintile		
State	Sex		
Substance use	State		
Unfair treatment because Indigenous in last 12 months	Substance use		
Whether could raise \$2,000 in emergency	Proud to be Indigenous		

Notes

- Based on a random forest model estimated in the R statistical package.
- Method B was based on the permutation method of determining variable importance (Nembrini et al. 2018; Wright and Ziegler 2017). Numerical variable importance is obtained using a Random Forest implementation. Rather than showing the variable importance values, which may be misused, variables are grouped based on the numeric values but with clear distinctions between the groups.
- The number of importance groups was determined for each method based on the distribution of the normalised variable importance values. Importance ordering groups were then determined by implementing a percentage point difference threshold between ordered variable importance values.

Source: AIHW analysis of 2018–19 NATSIHS.

14.5 Policy implications

Outcome 14 of the 2020 National Agreement on Closing the Gap relates to Aboriginal and Torres Strait Islander people enjoying high levels of social and emotional wellbeing. This chapter broadly examined the progress on the target associated with this outcome – a significant and sustained reduction in suicide of First Nations people towards zero. It looked at suicide rates at the national and jurisdictional levels, as well as by selected demographic characteristics (age and sex), psychosocial risk factors and geographical characteristics (remoteness area and IREG).

Analyses of the NMD for the 5 jurisdictions for which Indigenous identification is considered adequate show there were around 210 suicide deaths among First Nations people in 2022. Based on progress since the baseline year, 2018, the target is worsening: the age-standardised rate of suicide deaths increased from 25 in 2018 to 30 per 100,000 population in 2022. In 2017–2021, the most frequently occurring psychosocial risk factors in suicide deaths among First Nations people were a personal history of self-harm (25% of suicide deaths), problems in relationship with spouse or partner (20%) and disruption of family by separation and divorce (14%).

The identified contributing factors behind suicide in the existing literature are complex, involving individual circumstances and interaction between several protective and risk factors. To capture individual factors identified in the literature, the analysis in this chapter used 3 data sets to model First Nations deaths by suicide and psychological distress. PLIDA data have information on the number of First Nations deaths by suicide. However, several important protective and risk factors identified in the literature were not available in these data. Therefore, the latest NATSIHS and NATSISS were used to investigate these risk factors, by modelling experience of high and very high psychological distress.

The findings from Cox proportional hazard models showed that the risk of dying by suicide among First Nations people was statistically significantly higher for:

- males
- those aged 25–34 compared with those aged 15–24
- those who need assistance with core activities
- those who never married compared with those who are married.

The risk of dying by suicide was statistically significantly lower for First Nations people in the highest income quintile compared with the middle quintile.

The findings from logistic regression models showed that the odds of having high or very high psychological distress among First Nations people were statistically significantly higher for:

- females
- those with long-term non-mental health condition/s
- those with severe or profound disability
- those drinking alcohol more frequently
- those using substances
- those who went days without money for necessities
- those not in labour force
- those who experienced domestic/family violence, threatened non-domestic/family face-to-face violence, or unfair treatment because they are Indigenous

- those who were removed from family
- those who avoided events because of unfair treatment because they are Indigenous.

The sex differences in suicide and psychological distress are consistent with literature on the wider population. Males are more likely to die by suicide than females, while females are more likely to have suicidal thoughts or behaviours in their lifetime, and to have higher levels of psychological distress.

The random forest analysis showed that the most important factor of suicide was sex (being male), while the most important factors of psychological distress were characteristics such as going days without money for necessities in the last 12 months, experiencing physical harm in the last 12 months and experiencing threatened physical harm in the last 12 months.

Understanding the relationships between the range of interrelated protective and risk factors associated with suicide among First Nations people is key to developing appropriate policies and suicide prevention programs. While some factors identified in our analysis are non-modifiable (such as sex, age and living in remote areas), they can help determine who may be at increased risk and improve responses and support services for those who need them. Other factors, such as economic wellbeing, labour force participation, alcohol and substance use, and experience of unfair treatment and violence are modifiable and can be actioned through social policy and programs.

The Aboriginal and Torres Strait Islander Suicide Prevention Evaluation Project (ATSISPEP) identified a set of success factors for suicide prevention among First Nations people (ATSISPEP 2016). Many of these factors could not be analysed in this chapter as data were not available; however, some of them related to factors found to be statistically significant in our report. Some examples of these success factors and related programs are:

- responding to community challenges, poverty, social determinants of health: several of the factors identified in our report are social determinants of health. The National Empowerment Project is a First Nations-led project that has been run in 11 First Nations communities to promote positive social and emotional wellbeing, make improvements in social determinants of health and reduce suicide
- cultural elements – building identity, social and emotional wellbeing, healing: our report found that being proud to be Indigenous was associated with statistically significantly lower odds of reporting high or very high psychological distress and that those who were removed from family had higher odds of reporting high or very high psychological distress. The Mowanjum Connection to Culture program supports maintenance of culture through teaching and learning to help people engage with culture. Red Dust Healing is a national First Nations cultural healing program that explores historical trauma and uses First Nations culture in the healing process
- alcohol /drug use reduction: both alcohol and substance use statistically significantly increased the odds of reporting high or very high psychological distress. In the Yiriman Project in Western Australia, young people spend time on Country and can reconnect with their culture in an environment free from alcohol and other drugs
- continuing care/assertive outreach post emergency department after a suicide attempt/mental health support: although not directly estimated in our report, mental health problems and intentional self-harm have been identified in the literature as risk factors for suicide. Appropriate and continuing care once people leave an emergency department, and for those at risk in the community at any one time, is one of the strategies in the ‘systems approach’ to suicide prevention that underpins the Primary Health Network guidelines for the planning and commissioning of suicide prevention activity across Australia.

The policy responses to social and emotional wellbeing and suicide prevention need to be multidimensional and involve a wide range of stakeholders, including services outside the health sector, such as housing, education, employment, recreation, child protection and family services, crime prevention and justice (AIHW and NIAA 2023).

Suicide prevention studies have identified the need to focus on protective factors, such as community connectedness, strengthening the individual and rebuilding family, as well as culturally based programs (AIHW and NIAA 2023; Dudgeon et al. 2017; Dudgeon et al. 2022). Approaches to suicide prevention should be led by First Nations people and include healing activities. For example, the Youth Empowerment and Healing Cultural Camp in Western Australia runs one-week camps for children and youth at risk of suicide. This community-led program aims to strengthen wellbeing and resilience through social empowerment and healing by providing connection to culture and Country (AIHW and NIAA 2023).

Improving access to mental health services is also an important part of suicide prevention. There are known service gaps, with 68% of First Nations-specific primary care services reporting gaps in services for mental health/social and emotional health and wellbeing and 45% reporting gaps for alcohol, tobacco and other drug services in 2017–18 (AIHW 2019a). Analysis of deaths by suicide in Queensland between 1994 and 2007 found that only 24% of First Nations people had received treatment from a mental health professional in their lifetime, compared with 43% of non-Indigenous people (Sveticic et al. 2012).

The barriers to First Nations people's accessing mental health services may be that services are inaccessible for financial or geographical reasons, or there may be a reluctance to use services because they are not culturally safe environments (ATSISPEP 2016).

To support access for First Nations people, it is important for all mental health services to offer a culturally safe environment and provide trauma-informed care (ATSISPEP 2016). Dudgeon et al. (2017) propose that the development of trauma-informed, culturally safe general population services and the expansion of Aboriginal Community Controlled Health Services to provide mental health services to First Nations people are critical to improving access to mental health services.

It is also important that crisis support services are available for those who need them. ATSISPEP (2016) recommended that support should optimally be available 24 hours a day, 7 days a week for people at risk of suicide. As well, people at risk of suicide should be seen within a minimum standard time and there should be follow-up and clear referral pathways between health services, support services and other providers.

Despite the high rates of First Nations people in prison and the high rates of suicide among people in prison, there are few evaluations of First Nations-specific mental health and wellbeing initiatives in prisons (Perdacher et al. 2019). One program that showed positive results was a First Nations art program in a Queensland prison. After adjusting for suicide/self-harm history, an increase in attending this program was associated with a reduction in suicide/self-harm risk (Rasmussen et al. 2018). ATSISPEP (2016) proposed that as well as support within prisons, there should also be post-release mentoring, and justice reinvestment where the money that would have been spent on imprisonment is reinvested into services that focus on the underlying causes of crime, including mental health and alcohol and other drug services.

Community awareness and culturally appropriate training are also important aspects of suicide prevention. An Aboriginal and Torres Strait Islander Mental Health First Aid training course was delivered to Groote Eylandt and Bickerton Island community members between December 2016 and May 2017 (NIAA 2019). The evaluation found that the training increased

participants' ability to recognise the signs of mental health issues and assist with a mental health crisis; 85% of participants thought they would need to use their new skills in the next 12 months.

Cultural continuity or community control is also widely recognised as an important part of suicide prevention (Dudgeon et al. 2021). Chandler and Lalonde (2008) showed that there were no suicides among young First Nations people in British Columbia in communities with all the 'cultural continuity factors', while those communities with none of the 'cultural continuity factors' had the highest suicide rates. The 'cultural continuity factors' included whether communities had:

- achieved a measure of self-government
- litigated for aboriginal title to traditional lands
- accomplished a measure of local control over health, education, policing and welfare services
- created community facilities for the preservation of culture
- elected band councils composed of more than 50% women.

The National Mental Health and Suicide Prevention Agreement sets out the shared intention of the Australian, state and territory governments to work in partnership to improve the mental health of all Australians and ensure the sustainability and enhance the services of the Australian mental health and suicide prevention system. The priority areas identified within the Agreement include:

- regional planning and commissioning
- priority populations
- stigma reduction
- safety and quality
- gaps in the system of care
- suicide prevention and response
- psychosocial supports outside the National Disability Insurance Scheme
- national consistency for initial assessment and referral
- workforce
- data and evaluation.

The Agreement identifies First Nations peoples as a priority population and commits to work in partnership with them, their communities, organisations and businesses to improve their access to, and experiences of, social and emotional wellbeing, and mental health and suicide prevention services.

Appendix 14A: Technical notes

Assumptions in the PLIDA data

For this analysis, 2011 Census and 2011 to 2017 *Causes of death* data were linked to the ABS Person Linkage Spine. The key assumptions made were as follows:

- Indigenous status information in the 2011 Census was supplemented with Indigenous status from the National Death Index.
- Income data were used – these data were developed by the Australian National University using personal income tax data, social security payment information and Census information (for more information see Biddle and Marasinghe [2021]). The person's income was grouped into quintiles.
- Only people aged 15 and over in the linked 2011 Census data set have been included, representing almost 200,000 First Nations people in the 2011 Census and around 290 deaths by suicide from 2011 to 2017. This age group was chosen because most deaths by suicide occur in this age group.
- Several time-varying variables were included in the analyses, namely:
 - age
 - income, as described above
 - change in income from the previous year
 - reliance on government payments in the previous year, defined as having less than 10%, 10–90% and over 90% of income from government benefits
 - engaged in at least part-time education in the previous year.

Assumptions in the NATSIHS 2018–19 and NATSISS 2014–15 data

Several potential factors are captured by proxy variables in the NATSIHS 2018–19 and NATSISS 2014–15. Details are shown of variables with assumptions on their grouping.

Variables in both data sets

- Non-mental health conditions and disabilities – any long-term health condition that is not related to mental health; and any severe or profound disability.
- Economic stress – this potential factor has many different aspects from housing, education through to food security. The variables that capture some of these areas include:
 - financial stress, using information on whether household could raise \$2,000 in an emergency and whether went days without money for basic living expenses in the past 12 months
 - labour force status grouped by employed, unemployed and not in the labour force
 - SEIFA quintile, which captures the economic prosperity of the area
- Racism and discrimination – whether experienced unfair treatment because Indigenous in the previous 12 months.
- Cultural continuity:
 - whether recognises homelands
 - whether identifies with a clan, tribe or language group.

Variables in NATSIHS 2018–19

- Alcohol and drug use – the frequency of 7 or more standard alcoholic drinks in a day; and whether used any substances in the previous 12 months.
- Violence – both experienced and threatened violence are broken down by the relationship to the perpetrator; this allows the distinguishing between ‘domestic and family violence’ and ‘non-domestic and family violence’. This split was done for both experiences of physical violence and experiences of threatened physical violence, and for all instances of violence or threatened violence in the last 12 months. Consequently, violence can be broken down into:
 - no instances in the last 12 months
 - domestic/family violence only
 - non-domestic/family violence only
 - both domestic/family violence and non-domestic/family violence
 - violence but category could not be determined.
- Intergenerational trauma – whether the respondent was ever removed from their family (whether or not relatives were removed); whether older relatives (parents, [great] grandparents or aunts or uncles) were ever removed from family (but not the respondent); and whether other relatives were ever removed from family (but not the respondent).
- Cultural continuity – whether proud to be Indigenous.

Variables in NATSISS 2014–15

- Alcohol and drug use – alcohol risk level in the previous 2 weeks; and whether used any substances in the previous 12 months.
- Economic stress – lives in a crowded house.
- Stressful life events – a major life stressor can be captured by whether experienced the death of a family member or close friend in the past 12 months.
- Violence – both experienced and threatened are included; however, the only information on the relationship to the perpetrator is available for the most recent experience of physical violence; it does not contain information on all instances in the last 12 months, nor does it contain any information on the relationship of the perpetrator for threatened violence.
- Intergenerational trauma – whether the respondent was ever removed from their family; whether relatives were ever removed from family; and whether both the respondent and relatives were removed from family.
- Cultural continuity – variables used to proxy different aspects of this potentially protective factor include:
 - lives on homelands
 - involved in cultural activities in the previous 12 months.
- Interactions with the justice system – 2 measures are used: arrested in the previous 5 years, and ever incarcerated.

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Appendix A. Data and methods

Data

A wide range of administrative and survey data were used to analyse trends and model target outcomes. Table A.1 presents the data and relevant years used for each target.

The available data for 3 of the 14 targets (life expectancy, child protection, and youth detention) lacked contextual factors required for regression analysis. Modelling of 7 of the remaining 11 targets was based on the 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) dataset (ABS 2019). The 2018–19 NATSIHS, conducted between July 2018 and April 2019, was the most recent available survey of the First Nations population when this report was prepared.

The target outcome measures available in this survey were:

- year 12 or equivalent completion
- tertiary education completion
- youth engagement in education, and employment
- crowded housing
- family violence
- psychological distress (as a proxy for reduction in suicide outcome).

In the study of the factors associated with psychological distress, data from the 2014–15 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) (ABS 2016) were used in addition to the NATSIHS data. The NATSISS was also used in analysing the adult imprisonment outcome. The factors associated with early child development and preschool attendance outcomes were analysed using 2021 Australian Early Development Census (AEDC) data, and the factors associated with the healthy birthweight outcome were analysed using National Perinatal Data Collection (NPDC) data for the period from 2018 to 2021.

Table A.1: Closing the Gap targets and data sources

Target	Data used for trend analysis	Data used for modelling
1. Long and healthy lives	National Mortality Database (NMD) 2017–2021	Data not available for modelling
2. Born healthy and strong	AIHW National Perinatal Data Collection, 2018–2021	AIHW National Perinatal Data Collection, 2018–2021
3. Early childhood education	National Early Childhood Education and Care Collection 2022; ABS Schools data 2022	Australian Early Development Census, 2021
4. Children thriving	Australian Early Development Census, 2021	Australian Early Development Census, 2021
5. Student learning potential	2021 Census of Population and Housing	2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)
6. Further education pathways	2021 Census of Population and Housing	2018–19 NATSIHS
7. Youth engagement	2021 Census of Population and Housing	2018–19 NATSIHS
8. Economic participation	2021 Census of Population and Housing	2018–19 NATSIHS
9. Housing	2021 Census of Population and Housing	ABS Australian Census Linked Dataset 2011–2016; 2018–19 NATSIHS
10. Criminal justice	2021 National Prisoner Census	2014–15 National Aboriginal and Torres Strait Islander Social Survey (NATSISS)
11. Youth justice	Youth Justice National Minimum Data Set 2022–23	Data not available for modelling
12. Child protection	AIHW collection of the Child Protection National Minimum Data Set 2022-23	Data not available for modelling
13. Family safety	National Hospital Morbidity Database, 2018–2021; 2018–19 NATSIHS	2018–19 NATSIHS
14. Social and emotional wellbeing	NMD	2014–15 NATSISS; 2018–19 NATSIHS; Person Level Integrated Data Asset

Methods

Calculating estimated number of people needed to meet the target

The estimated number of people required to meet the target in the specified year is calculated by determining the projected total population with target specifications – or the so-called ‘population at risk’ (the denominator) in the target year (based on Estimates and projections of Aboriginal and Torres Strait Islander Australians [ABS 2011-to-2031]) – and then multiplying this by the target percentage. The product would be the number of people meeting the target outcome in the target year.

From this number, we then subtract the estimated number of people meeting the target outcome in the most recent year available using 2021 estimates (ABS 2011-to-2031). The difference is the additional or fewer number of people required to meet the target in the target year.

We can divide this difference by the number of years between the most recent year with data available and the target year to get the average increase or decrease per year required in the number of people meeting the target outcome to stay on the trajectory to meet the specified target in the target year.

For example, to estimate the increase in the number of First Nations youth who would need to be fully engaged in education, employment and training (EET) for the 2031 target of 67% to be achieved:

- first, we calculate the estimated number of First Nations youth fully engaged in EET in 2031 by multiplying the projected number of First Nations people aged 15–24 in 2031 – which is estimated to be around 219,200 – by the 2031 national target of 67%, which is equal to 146,800 First Nations youth fully engaged in EET in 2031
- next, we calculate the estimated number of First Nations youth fully engaged in EET in 2021 (the most recent year with data available) by multiplying the 2021 ABS estimated First Nations people aged 15–24 (182,600) and the proportion of First Nations youth engaged in EET in 2021 (58%) – this equates to 105,900 First Nations youth fully engaged in EET in 2021
- the difference in the estimated numbers of First Nations youth fully engaged in EET between 2031 and 2021 (40,900) is the increase in the number of First Nations youth needed to reach the target. Dividing this number by the number of years between 2021 and 2031 (10), equates to about 4,100. This means that between 2021 and 2031 the average number of First Nations youth fully engaged in EET would need to increase by about 4,100 per year in order to meet the target of 67% fully engaged in EET by 2031.

Logistic regression analysis

Logistic regression was used to model the associations between predictor variables and target outcomes and to identify the most important factors. Logistic regression is a statistical technique that models the log-odds of an event as a linear combination of one or more independent variables. Independent or predictor variables, also known as explanatory variables, can be either categorical or continuous, while the outcome in binary logistic regression is dichotomous and can take a value of either 0 or 1. All independent variables can enter the model simultaneously, allowing an association between each independent variable and the outcome to be estimated, net of other factors.

As the log-odds produced by the logistic regression analysis are difficult to interpret, it is common to transform the estimates into odds ratios (ORs), which represent the odds that an outcome will occur given a particular event (or in one group), compared with the odds of the outcome's occurring in the absence of that event (or in the reference group). If the OR is greater than 1, the event is associated with a higher odds of the outcome's occurring. Conversely, if the OR is less than 1, the event is associated with a lower odds of that outcome's occurring.

The level of statistical significance of the estimates in the logistic regression is tested through the Wald statistic, the square of which is very close to the chi-square statistic. Statistical significance is determined by using the *p*-value. In this report a *p*-value of less than 0.05 is considered as a statistically significant outcome, which implies that there is less than a 5% chance that the observed association is being caused by random noise and that there is enough evidence to reject the null hypothesis.

In Chapter 14, a Cox proportional hazards model for suicides was used to determine associations of the factors with the hazard of suicide, controlling for other variables. The Cox proportional hazards model is often used to study relationships between the time to event outcome – in this case suicide, and a set of explanatory variables. The Cox proportional hazards model assumes that the hazard rate of a person with one set of covariates is proportional to the hazard rate of a person with a different set of covariates.

Random forest analysis

The relative importance of variables in regression models was estimated using Random forest (RF) analysis. RF is a machine learning algorithm that builds multiple decision trees and combines their predictions to improve accuracy, robustness, and generalizability. Each decision tree is a simple "if-then" rule. RF creates many of these trees, each looking at different factors in the data. The algorithm randomly selects subsets of the training data and random subsets of features for each tree, ensuring diversity among trees. Each tree makes a prediction. RF combines all trees' predictions to give the most reliable answer (Breiman 2001).

The internal estimates produced by RF analysis are used to measure variable importance. Variable importance rankings in this report were obtained from 2 alternative measures:

- the bias-corrected Gini method of determining variable importance
- the permutation method of variable importance (Nembrini et al. 2018; Wright and Ziegler 2017).

Each of these methods assigns a numerical score of importance to each variable used in the regression model. The numerical value (or scale) of these measures is arbitrary: only relative values matter, allowing the variables to be classified in order of importance, from highest to lowest. Both measures of importance are subject to some biases; however, comparing the rankings of all variables across both measures allows predictors with consistent higher or lower relative importance to be identified.

For simplicity of presentation – and considering potential biases of the RF methodology when applied to relatively small survey data sets – the results on the ranking of the relative importance of the variables are grouped into a small number of categories, ordered according to their importance (from more important to less important). The variables in the most important group were responsible for explaining more of the variation in the outcome than the variables in groups of lower importance.

It is important to note that the results of RF analysis can vary from the outcomes of logistic regression analysis because they evaluate variables in different ways.

- RF measures variable importance based on how much they help in splitting the data to reduce uncertainty in decision trees. It evaluates variables individually and interactively, meaning it considers complex relationships and interactions. A variable that helps split data even a little at multiple points in different trees can still get high importance – even if it's not significant in a regression model.
- Regression models, on the other hand, check if a variable's effect is reliably different from zero based on statistical tests. If a variable has a small effect or is correlated with another variable, it may appear statistically insignificant – even if it matters in RF.
- In RF, if two variables are highly correlated, one may get most of the importance while the other gets almost none. In regression, both may get low statistical significance because their effects are spread out.
- A variable with a strong linear effect might be ranked low in RF if it doesn't help split data in meaningful ways. But in regression, it would show as highly significant.
- A variable might not be significant in regression because it works only in combination with others. RF can detect these interactions, ranking the variable as important.

A simple example would be a model predicting house prices, where “square footage” has a strong linear effect and is highly significant in regression, but “zip code” might be insignificant because it interacts with other factors, such as school ratings, crime rates, etc. However, “zip code” might be very important in RF since it helps split data into meaningful groups.

In summary, RF results identify the factors that most influence an outcome, or the population groups that are most vulnerable, while regression model estimates help understand the direction and the strength of the association between these important factors and the outcome variables. Together, the outcomes of these methods can help inform social policy and develop effective interventions and targeted support programs.

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Appendix B. Data quality and limitations

The relevance and validity of research undertaken to analyse trends and to model the factors associated with targets is highly dependent on the quality and timeliness of available data when this report was prepared. The main issues identified across the datasets are:

- the quality of identification of First Nations people
- the possible undercounting of First Nations people
- the change in Indigenous identification over time.

As well, the modelling analyses are limited by the availability and quality of measures in the data, as well as by small numbers of the First Nations population. Many important factors measuring individuals' socioeconomic background, connection to culture and Country, experience of racism and discrimination, access to culturally safe service and so on, are often not available in the survey data used for modelling analysis in this report.

It must also be noted that the associations observed in the modelling outcomes using survey data should not be interpreted as causation. All data used in statistical modelling in this report are cross-sectional data – collected at one point in time – and do not allow the timeline or the order of life events to be identified or change over time to be assessed.

In addition there are known limitations specific to each dataset that need to be taken into consideration when interpreting the results of the analyses. Table B.1 presents a list of the data sets used in this report and a summary of known issues related to each.

Table B.1: List of data sources and limitations

Data set	Data limitations
2021 Australian Census of Population and Housing	Infrequent collection and non-response. Further information on data quality can be found at https://www.abs.gov.au/census/guide-census-data/census-methodology/2021/quality-declaration .
Australian Census Linked Dataset 2011-2016	False links can occur during the linkage process: even when a record pair matches on all or most linking fields, it may not actually belong to the same individual. Sampling error is possible due to a small proportion of the total population being used to produce estimates that represent the whole population. Further information on data quality can be found at https://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/2080.0Quality%20Declaration02011-2016?opendocument&tabname=Notes&prodno=2080.0&issue=2011-2016&num=&view= .
National Mortality Database 2017–2021	Not all First Nations deaths are correctly identified in death registrations. The level of First Nations mortality is likely to be underestimated. Further information on data quality can be found at https://www.abs.gov.au/methodologies/deaths-australia-methodology/2022 and https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2022 .

(continued)

Table B.1 (continued): List of data sources and limitations

Data set	Data limitations
AIHW National Perinatal Data Collection, 2018–2021	Quality of Indigenous identification – underreporting of First Nations data; small numbers in certain maternal conditions and baby outcomes can create variability in time series. Further information on data quality can be found at https://meteor.aihw.gov.au/content/799298 .
Australian Early Development Census, 2021	Quality of Indigenous identification; subjective measurement of child and child's family related items. Further information on data quality can be found at https://www.aedc.gov.au/resources/about-the-aedc .
National Early Childhood Education and Care Collection (NECECC) 2022	The current methodology results in enrolment rates for early childhood exceeding 100% for some jurisdictions. Further information on data quality can be found at https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4240.0.55.001Chapter62013 .
ABS Schools data 2022	Occasionally, different jurisdictions make changes in the administration of their education system that can impact on the coherence of the statistics over time. The comparability of these statistics may vary between state and territories, and that of schooling sectors, where different policies and administrative arrangements may affect different outcomes. Further information on data quality can be found at https://www.abs.gov.au/methodologies/schools-methodology/2021 .
2018–19 National Aboriginal and Torres Strait Islander Health Survey	Survey results are subject to sampling errors – a small proportion of the population is used to produce estimates that represent the whole population. Non-sampling errors may include: non-response, misunderstanding of questions or errors in recording, coding or processing the survey; responses being possibly affected by imperfect recall or individual interpretation of survey questions. Further information on data quality can be found at https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/national-aboriginal-and-torres-strait-islander-health-survey/latest-release .
2021 National Prisoner Census	Indigenous status is self-identified with Indigenous status not known for fewer than 1% of prisoners in 2022. Further information on data quality can be found at https://www.abs.gov.au/methodologies/prisoners-australia-methodology/2022

(continued)

Table B.1 (continued): List of data sources and limitations

Data set	Data limitations
Youth Justice National Minimum Data Set, 2022–23	The data are subject to revisions each year and may not match previously published data. The most recent data are the most accurate. About 5% of all young people in the Youth Justice National Minimum Data Set since 2000–01 have an unknown Indigenous status. Further information on data quality can be found at https://meteor.aihw.gov.au/content/772562 .
AIHW collection of the Child Protection National Minimum Data Set, 2022–23	Data produced from the Child Protection National Minimum Data Set are based on nationally agreed specifications and may not match state and territory figures published elsewhere; they also may not be comparable with data for previous years. There are differences in jurisdictional policy, practice, legislation and data systems that can affect the interpretation of child protection data. Further information on data quality can be found at https://meteor.aihw.gov.au/content/757571 .
National Hospital Morbidity Database, 2018–2021	Interpretation of results should take into account the relative quality of the data from the jurisdictions. Time series analyses may be affected by changes in the quality of Indigenous identification over time. Time series presentations in this report include data from both public and private hospitals across several jurisdictions, so the overall effect of changes in Indigenous identification over time is unclear. Further information on data quality can be found at https://www.aihw.gov.au/reports-data/myhospitals/content/about-the-data .
2014–15 National Aboriginal and Torres Strait Islander Social Survey	Survey results are subject to sampling errors – a small proportion of the population is used to produce estimates that represent the whole population. Non-sampling errors may include non-response; misunderstanding of questions or errors in recording, coding or processing the survey; responses being possibly affected by imperfect recall or individual interpretation of survey questions. Further information on data quality can be found at https://www.abs.gov.au/ausstats/abs@.nsf/PrimaryMainFeatures/4720.0?OpenDocument .

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Abbreviations

ABS	Australian Bureau of Statistics
ACCHS	Aboriginal Community Controlled Health Services
ACCO	Aboriginal community-controlled organisation
ACECQA	Australian Children's Education and Care Quality Authority
ACLD	Australian Census Longitudinal Dataset
ACT	Australian Capital Territory
AEDC	Australian Early Development Census
AIHW	Australian Institute of Health and Welfare
AMI	acute myocardial infarction (heart attack)
AQF	Australian Qualifications Framework
ASAIR	age-standardised adult imprisonment rate
ASGS	Australian Statistical Geography Standard
ASR	age-standardised rate
ATAR	Australian Tertiary Admission Rank
ATSICPP	Aboriginal and Torres Strait Islander Child Placement Principle
ATSISPEP	Aboriginal and Torres Strait Islander Suicide Prevention Evaluation Project
BMI	body mass index
CBDC	centre-based day care
CDEP	Community Development Employment Projects
CDP	Community Development Program
Census	ABS Census of Population and Housing
CI	confidence interval
CIHD	chronic ischaemic heart disease
CNOS	Canadian National Occupancy Standards
COAG	Council of Australian Governments
COPD	chronic obstructive pulmonary disease
COVID-19	coronavirus disease of 2019
CP NMDS	Child Protection National Minimum Data Set
CPS	child protection system
CtG	Closing the Gap

CVD	cardiovascular diseases
ECEC	Early childhood education and care
ECECC	Early childhood education and care collection
EET	employment, education or training
ERP	estimated resident population
EYLF	Early Years Learning Framework
FASD	foetal alcohol syndrome disorder
ICD-10	International Statistical Classification of Disease and Related Health Problems, tenth revision (ICD-10)
ICD-10-AM	International Statistical Classification of Disease and Related Health Problems, tenth revision (ICD-10), Australian Modification
ICH	Indigenous Community Housing
IHD	ischaemic heart disease (also known as coronary heart disease)
ILOC	Indigenous Location
IREG	Indigenous Region
IRSAD	Index of Relative Socioeconomic Advantage and Disadvantage
IRSD	Index of Relative Socioeconomic Disadvantage
LDC	Long Day Care
LSAC	Longitudinal Study of Australian Children
LSIC	Longitudinal Survey of Indigenous Children
ME	marginal effects
NAPLAN	National Assessment Program – Literacy and Numeracy
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
NCPDC	National Child Protection Data Collection
NECECC	National Early Childhood Education and Care Collection
NEET	not in employment, education or training
NMD	National Mortality Database
NPARIH	National Partnership Agreement on Remote Indigenous Housing
NPDC	National Perinatal Data Collection
NQF	National Quality Framework for Early Childhood Education and Care
NQS	National Quality Standards
NSW	New South Wales

NT	Northern Territory
NTER	Northern Territory Emergency Response
OECD	Organisation for Economic Co-operation and Development
OOHC	out-of-home care
OR	odds ratio
PISA	Programme for International Student Assessment
PLIDA	Person Level Integrated Data Asset
pp	percentage point
Qld	Queensland
ROGS	Report on Government Services
RSE	relative standard error
SA	South Australia
SA2	Statistical Area, level 2
SA3	Statistical Area, level 3
se	standard error
SEIFA	Socioeconomic Indexes for Areas
SOMIH	state owned and managed Indigenous housing
Tas	Tasmania
UANP	Universal Access to Early Childhood Education and Care National Partnership Agreement
VET	Vocational, Education and Training
Vic	Victoria
WA	Western Australia
WHO	World Health Organization
YBFS	Year Before Full-Time School
YJ NMDS	Youth Justice National Minimum Data Set

Symbols

Symbol	Definition
n.a.	not available, not applicable
n.p.	not published
. . (2 spaced full stops)	no data/insufficient data
— (em dash)	rounded to zero (for example, in a table showing whole numbers, the statistic is less than 0.5) including null cells
– (minus)	negative or minus values
%	per cent
n	number
<	less than
>	greater than
≤	less than or equal to
≥	greater than or equal to
\$	Australian dollars, unless otherwise specified

Glossary

Aboriginal and/or Torres Strait Islander people: People who have identified themselves, or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin. See also **First Nations people**.

acts intended to cause injury: Acts, excluding attempted murder and those resulting in death, which are intended to cause non-fatal injury or harm to another person and where there is no sexual or acquisitive element.

acute myocardial infarction (AMI): Life-threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot.

adults in prison: People aged 18 and over in all states and territories from 2019 – except in Queensland where people aged 17 and over were classed as adults in prison before 2019 (ABS classification).

age-specific rate: Rate for a specific age group. Age-specific rate is calculated by dividing the number of events (for example, deaths) in each specified age group, by the total population at risk of the event in the same age group. Rates can be expressed in many ways, for example, per 100,000 population.

age-standardisation: A method of removing the influence of age when comparing rates between population groups with different **age structures**. This is necessary when the rates vary strongly with age. The age structures of the different populations are converted to the same 'standard' structure, and then the rates that would have occurred with that structure are calculated and compared.

age-standardised rates: are **incidence**, or **prevalence rates** that allow making comparisons between populations that have different age structures. The age structures of the different populations are converted to the same 'standard' structure, and then the rates that would have occurred with that structure are calculated and compared. Rates can be expressed in many ways, examples, per 100,000 per population years, per 100,000 population and per 1,000 population.

age structure: Relative number and percentage of people in each age group in a population.

aggregate sentence length: The longest period that the convicted person in prison may be detained for the current sentenced offence/s in the current episode. This is also the maximum sentence length for a convicted person in prison for the current episode.

appropriately sized housing: A household that has bedrooms spare or does not require any additional bedrooms to meet the CNOS standard. See **Canadian National Occupancy Standard (CNOS)**.

average day: A measure calculated by summing the number of days each young person spends under youth justice supervision during the financial year and dividing this by the total number of days in the year. It indicates the number of people under supervision on any given day during the year, and the average number of young people supported by the supervision system at any one time – that is, it reflects both the number of young people supervised and the amount of time they spent under supervision.

Bachelor degree or higher: An undergraduate or postgraduate qualification at a university.

breach: An event that occurs when a young person re-offends or fails to comply with the conditions of a community-based order.

burden of disease: A term referring to the quantified impact of a disease or injury on an individual or population, using the **disability-adjusted life years** measure.

Canadian National Occupancy Standard (CNOS): Standard used to assess overcrowding in households, based on the number, sex, age and relationships of household members. The CNOS specifies that:

- no more than 2 people shall share a bedroom
- parents or couples may share a bedroom
- children under 5, either of the same sex or opposite sex, may share a bedroom
- children under 18 of the same sex may share a bedroom
- a child aged 5–17 should not share a bedroom with a child under 5 of the opposite sex
- single adults 18 and over and any unpaired children require a separate bedroom.

A household that requires at least one additional bedroom to meet the CNOS standard is considered crowded or overcrowded.

A household that requires 4 or more additional bedrooms to meet the CNOS standard is considered severely crowded or severely overcrowded.

cancer (malignant neoplasm): A large range of diseases in which some of the body's cells become defective, begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

carcinoma: A cancer that begins in the lining layer (epithelial cells) of organs such as the lungs.

cardiovascular disease/condition: Any disease that affects the circulatory system, including the heart and blood vessels. Examples include coronary heart disease, heart failure, rheumatic fever and rheumatic heart disease, congenital heart disease, stroke and peripheral vascular disease.

cause(s) of death: All diseases, morbid conditions or injuries that either resulted in or contributed to death – and the circumstances of the accident or violence that produced any such injuries – that are entered on the Medical Certificate of Cause of Death. Causes of death are commonly reported by the underlying cause of death.

centre based day care: A centre-based form of child-care service providing all-day or part-time care typically for children from 6 weeks to 6 years of age who attend the centre on a regular basis. Care is generally provided in a building (or part thereof), created or redeveloped specifically for use as a child-care centre, and children are usually grouped together in rooms according to age. The majority of centres operate between 6:00/6:30 am and 6:00/6:30 pm on normal working days for a minimum of 48 weeks per year, so that parents can manage both the care of their children and demands of their employment. Private operators, local councils, community organisations, employers or non-profit organisations may operate these services. Services may offer access to preschool programs for children of eligible age (age varies between jurisdictions) and provide care for school children before and after school and during school holidays.

cerebrovascular disease: Any disorder of the blood vessels supplying the brain or its covering membranes. A notable and major form of cerebrovascular disease is **stroke**.

child maltreatment: 'Abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, negligence and commercial or other exploitation, which results in actual or potential harm to the child's

health, survival, development or dignity in the context of a relationship of responsibility, trust or power' (WHO 2020).

child protection: 'The prevention of, and response to, exploitation, abuse, neglect, harmful practices and violence against children' (UNICEF 2021).

child protection system: Child protection services provided by governments.

circulatory disease: An alternative name for **cardiovascular disease**.

circulatory system: The system (heart and blood vessels) that circulates blood around the body to supply oxygen and nutrients to all body tissues and to carry away waste products from them. Also known as the cardiovascular system.

community-based supervision: A legal arrangement that requires a young person to be supervised by a youth justice agency within the community. Community-based supervision may be unsentenced or sentenced. Unsentenced community-based legal orders include supervised or conditional bail and home detention bail; sentenced community-based orders include probation and similar orders, suspended detention, and parole or supervised release.

community housing: Housing managed by community-based organisations, available to households with low to moderate income or special needs. Community housing models vary across states and territories, and the housing stock may be owned by a variety of groups including government. First Nations people can access community housing.

coronary heart disease (CHD): A disease due to blockages in the heart's own (coronary) arteries, expressed as *angina* or a *heart attack*. Also known as *ischaemic heart disease*.

correlation: A statistical measure of the relationship between 2 variables.

Cox proportional hazard model: A regression model for investigating the association between the survival time of patients and one or more predictor variables.

crowded (and overcrowded): A household that requires one or more additional bedrooms to meet the CNOS standard. See **Canadian National Occupancy Standard (CNOS)**.

crude rate: A rate that provides information on the number of events relative to the population 'at risk' (for example, the entire population) in a specified time period, without adjustments for other factors such as age. Crude rates can be expressed in many ways, such as, per 1,000 population or per 100,000 population.

decile: Each of 10 groups of equal size after dividing a population according to the distribution of scores or values of a continuous variable. For example, the Index of Relative Socioeconomic Disadvantage (IRSD) derived by the Australian Bureau of Statistics (ABS) as part of the Socioeconomic Indexes for Areas (SEIFA), divides geographical areas in Australia into 10 deciles containing equal numbers of areas, with the lowest ranked 10% of areas for each socioeconomic index being placed in Decile 1 and the highest ranked 10% in Decile 10.

detention: A legal arrangement that requires a young person to be detained in a youth justice detention centre. This includes both sentenced and unsentenced detention.

detention sentence: A sentence that requires the young person to be detained in a youth justice detention centre.

determinant: Any factor that can increase the chances of ill health (risk factors) or good health (protective factors) in a population or individual.

disability-adjusted life year: A year (1 year) of healthy life lost, either through premature death or equivalently through living with disability due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

disability status: A person has a disability if they have an impairment which restricts their everyday activities and has lasted, or is expected to last, for at least six months. A person's disability status is classified by whether they have:

- a profound core activity limitation – those who always need help with self-care, mobility and communication tasks
- a severe core activity limitation – those who don't always need help with self-care, mobility, and communication tasks, but may require help at times
- a moderate core activity limitation – those who had difficulty with self-care, mobility, and communication tasks but did not require help
- a mild core activity limitation – those who only required aids to undertake self-care, mobility, and communication tasks, or who were unable to do any of the additional mobility tasks (for example, easily walk 200 metres, walk up and down stairs without a handrail)
- a specific restriction when participating in schooling or employment activities
- no specific limitation with core activities or restriction with schooling or employment activities.

dwelling: A structure or discrete space within a structure intended for people to live in, or where a person or group of people live. A structure that people live in is a dwelling regardless of its intended purpose. A vacant structure is only a dwelling if intended for human residence. A dwelling may include one or more rooms used as an office or workshop, provided the dwelling is in residential use.

employed: A term that describes a person of working age who, during the reference period, was engaged in any activity to produce goods or provide services for pay or profit. This includes working at a full-time or part-time job (including casual), or being away from work during the reference period.

employment rate: The percentage of people currently in employment. The denominator includes people who are unemployed or not in the labour force. In Chapter 8, the percentage is of the working age population (25–64 years).

engaged in employment, education or training (EET): A term describing how youths are classified into different categories of engagement in employment, education or training, based on information about their employment status and educational attendance from the Australian Census of Population and Housing. Being **fully engaged** in employment, education or training is the formal Closing the Gap target measure. See also **partially engaged in EET, NEET**.

equivalised household income: Total household income that has been adjusted to facilitate comparison of income levels between households of differing size and composition. It is an indicator of the economic resources available to a standardised household. For a lone-person household, it is equal to income received. For a household comprising more than one person, it is an indicator of the household income that a lone-person household would require to enjoy the same level of economic wellbeing as the household in question.

equivalised household support income: A measure of the income of the household, excluding the income of the individual survey participant aged 15–24. The individual's income is excluded because it would be associated with their employment status, a component of their EET engagement status. The measure is obtained by subtracting the individual survey participant's gross weekly income from the total gross weekly income of the whole household. The result is then adjusted (or equivalised) to account for differences in household size and composition, enabling comparability across households.

estimated resident population (ERP): Official Australian Bureau of Statistics estimate of the Australian population. Derived from the 5-yearly Census counts and updated quarterly between Censuses, based on births, deaths, and net migration. Based on a person's usual residence. First Nations populations are based on the Census of Population and Housing counts of First Nations people, adjusted for net under-count as measured by the Post Enumeration Survey.

excess deaths: The difference between the observed number of deaths for First Nations people during a period and the number expected if the rates for non-Indigenous Australians during that same period had applied to the First Nations population.

explanatory variable: A variable selected for inclusion in a statistical model as it is expected to explain or account for, in part, the variation in the outcome variable.

family: Two or more people, one of whom is at least aged 15, who are related by blood, marriage (registered or de facto), adoption, step or fostering, and are usually resident in the same household (ABS definition). Each separately identified couple relationship, lone-parent-child relationship or other blood relationship forms the basis of a family. Some households contain more than one family. Non-related people living in the same household are not counted as family members (unless under age 15).

family type: One-parent family, couple-family and other family type (the 3 types of families for which the NATSISS collected data).

fatal burden: The burden from dying 'prematurely' as measured by years of life lost (YLL). Often used synonymously with YLL, and also referred to as 'life lost'.

financial stress: A term that describes being unable to raise \$2,000 in an emergency.

First Nations household: A household that contains one or more people who identify as being of Aboriginal and/or Torres Strait Islander origin.

First Nations people: People who have identified themselves, or have been identified by a representative (for example, their parent or guardian), as being of Aboriginal and/or Torres Strait Islander origin.

full-time employment: The employment status of a person who worked, or usually works, 35 hours or more each week at the time of survey – includes those who were employed in 2 or more part-time jobs and who worked, in total, more than 35 hours.

fully engaged in employment, education or training (EET): A term that describes a person who is engaged in work and/or study full time, whether primarily through full-time work, primarily through full-time study, through a combination of part-time work and part-time study, or some other less common scenarios.

gap: The difference between rates for First Nations and non-Indigenous Australians.

hazard ratio: A ratio that indicates how many times higher the probability of an event is in one group of people with a particular characteristic than in another group without that characteristic, after adjusting for other factors in the model. In the context of this report, the size of the reported hazard ratio indicates the strength of the relationship a factor has to deaths by suicide, relative to the reference group.

heart attack: A life-threatening emergency that occurs when a vessel supplying blood to the heart muscle is suddenly blocked completely by a blood clot. The medical term commonly used for a heart attack is *acute myocardial infarction*.

homicide and related offences: The unlawful killing, attempted unlawful killing or conspiracy to kill another person.

household: For Census purposes, one or more people, at least one of whom is at least aged 15, who are usually resident in the same private dwelling. The total number of households is equal to the total number of occupied private dwellings, as a Census form is completed for each household from which dwelling information for the household is obtained. (Note that the definition of household varies depending on the data collection.)

For the AIHW National Housing Assistance Data Repository purposes, a household is a group of 2 or more related or unrelated people who usually reside in the same dwelling, and who make common provision for food or other essentials for living. A household can also be a single person living in a dwelling who makes provision for his or her own food and other essentials for living, without combining with any other person. The number of households may differ from the number of dwellings.

housing affordability: The cost of housing compared with the financial situation of households. Housing affordability is often measured using the proportion of households in financial housing stress.

housing of acceptable standard: A variable that describes whether a dwelling is of acceptable standard. A dwelling with fewer than 3 major structural problems; with working facilities for washing people, washing clothes or bedding, and for preparing food; and with working sewerage facilities was deemed to be of acceptable standard (according to the 2018–19 NATSIHS). A dwelling was deemed to be not of an acceptable standard if any of these facilities were unavailable, or if it had 3 or more major structural problems.

housing suitability: A variable that describes whether a dwelling is of an appropriate size in terms of the number of bedrooms needed for the size and composition of the household. For the purposes of the NATSIHS, dwellings requiring one or more bedrooms for a household than are available are considered *overcrowded*, while dwellings with the required number of bedrooms or spare bedrooms are considered appropriately sized or *uncrowded*. The housing suitability variable used in the 2018–19 NATSIHS is based on the Canadian National Occupancy Standard and may not adequately reflect First Nations perspectives on crowding.

housing tenure: A term that describes whether a household rents or owns an occupied dwelling, or whether it is occupied under another arrangement.

illicit drug offences: The possessing, selling, dealing or trafficking, importing or exporting, manufacturing or cultivating of drugs or other substances prohibited under legislation.

in the labour force: An expression that describes those who are either engaged in economic work (employed) or actively looking for work and available to start (unemployed) during the reference week of the Australian Bureau of Statistics Census.

index sentence: The sentence from which returns to sentenced supervision are counted.

Indigenous community housing: Housing that First Nations communities own and/or manage. These organisations may either directly manage the dwellings they own or sublease tenancy management services to the relevant state/territory housing authority or another organisation. This type of housing is made available to households with at least one First Nations member.

Indigenous status: A data item that records whether a person has identified themselves or has been identified by a representative (for example, their parent or guardian), as being of **Aboriginal and/or Torres Strait Islander** origin.

International Statistical Classification of Diseases and Related Health Problems (ICD): The World Health Organization's internationally accepted classification of death and disease. The Tenth Revision (ICD-10) is currently in use.

investigation: The process by which departments gather more information about a child involved in a notification. Staff assess the harm or degree of harm to the child and their protective needs. Investigations may include sighting or interviewing the child where practical (DSS 2021).

ischaemic heart disease: Also known as coronary heart disease or coronary artery disease is a term given to heart problems caused by narrowed heart (coronary) arteries that supply blood to the heart muscle.

labour force: People who are employed or unemployed but actively looking for work during the reference week of the Australian Bureau of Statistics (ABS) Labour Force Survey. This definition applies to the ABS Labour Force Survey and may differ somewhat from the definitions in other collections. See also **not in the labour force**.

labour force participation rate: The labour force (those employed and unemployed) as a proportion of the population.

legal status (Chapter 10): The legal status of an offender is determined by the warrant/s or court order/s that provide the legal basis for the detention in custody of the offender. A legal status of sentenced includes no appeal current, awaiting appeal, unfit to plead, and not guilty on grounds of insanity. A legal status of unsentenced includes unconvicted awaiting court hearing or trial, awaiting sentence, and awaiting deportation. A legal status of post-sentence is where a person in prison is subject to extended detention in prison following the completion of a custodial sentence.

legal status (Chapter 11): A descriptor of whether a young person is subject to unsentenced or sentenced orders. Young people may also have a legal status of 'other' (neither sentenced nor unsentenced).

life expectancy: An indication of how long a person can expect to live, depending on the age they have already reached. Technically, it is the expected number of years of life left to a person at a particular age if death rates do not change. The most commonly used measure is life expectancy at birth.

life tables: Tables of annual probabilities of death in the general population.

logistic or logit regression modelling: A statistical technique that can be used to identify characteristics that are significant in explaining an outcome of interest represented by 2 categories (binary outcome). By examining the relationships of multiple explanatory variables simultaneously with the outcome, regression modelling can assess the significance of each explanatory variable, while accounting for the effects of the other explanatory variables in the model.

malignant: A term that describes a tumour with the capacity to spread to surrounding tissue or to other sites in the body.

marginal effects (ME): The difference in the probability of an outcome (for example, the probability of being fully engaged in EET) between 2 groups (categories of an explanatory variable), such as males and females, accounting for all other explanatory variables in a model. Where there are more than 2 groups, each group is compared with a common reference group – for example, each of the other Australian states and territories may be compared with New South Wales.

mild or moderate core activity limitation: The limitation of a person who needs no help but has difficulty with core activities (moderate) or has no difficulty (mild) with core activities, but uses aids or equipment, or has one or more of the following restrictions:

- cannot easily walk 200 metres

- cannot walk up and down stairs without a handrail
- cannot easily bend down to pick up an object from the floor
- cannot use public transport
- can use public transport but needs help or supervision
- needs no help or supervision but has difficulty using public transport.

mortality: The number or rate of deaths in a population during a given time period.

most serious charge: The charge which, historically, for unsentenced people in prison (whether convicted or not) carries the longest statutory maximum penalty. From 2006, the Prisoner Census moved towards the use of the National Offence Index for determining the most serious charge.

most serious offence: The offence for which a sentenced person in prison has received the longest sentence in the current episode for a single count of the offence – except for Tasmania, where most serious offence/charge data were determined by applying the National Offence Index, as the longest sentence cannot be attributed to a single offence.

multi-family household: A household with 2 or more families. See **family**.

multivariate modelling: Any statistical technique that can be used to identify characteristics that are significant in explaining an outcome of interest, while simultaneously accounting for other relevant explanatory variables.

neoplasm: An abnormal ('neo' = new) growth of tissue. Can be benign (not a cancer) or malignant (a cancer). Also known as a tumour.

non-fatal burden: The burden from living with ill health as measured by years lived with disability (YLD). Often used synonymously with YLD.

non-Indigenous: People who have not indicated that they are of **Aboriginal or Torres Strait Islander** origin.

not in employment, education or training (NEET): A classification that represents an outcome of the different combinations of time spent in work or education or training in which the person is not working at all nor engaged in any formal education or training activities.

not in the labour force: An expression that describes people who are not employed, unemployed and not actively looking for work or those who are actively looking for work but not available to start during the reference week of the ABS Census. This definition applies to the ABS Labour Force Survey and may differ somewhat from the definitions in other collections. See also **labour force**.

notification: A report made to a child protection department alleging child abuse or neglect, child maltreatment or harm to a child. These reports can be made by individuals or organisations (DSS 2021).

odds: The probability of an event occurring divided by the probability of the event not occurring. That is:

odds = probability divided by (1 minus the probability).

Odds and probability values will be close to each other when the probability is small (closer to zero).

odds ratio (OR): The odds of the event in one group, for example exposure group, divided by the odds in another group (e.g. not exposed). The OR represents the odds that an outcome will occur, given a particular exposure, compared with the odds of the outcome's

occurring in the absence of that exposure. The value of the odds ratio is interpreted as follows:

- An odds ratio close or equal to 1 means that the exposure has little or no effect on the odds of the outcome's occurring.
- An odds ratio greater than 1 means that the exposure increases the odds of the outcome's occurring.
- An odds ratio less than 1 means that the exposure decreases the odds of the outcome's occurring.

out-of-home care: Overnight care for children aged under 18 who are unable to live with their families due to child safety concerns. It is a medium- or long-term arrangement when there is a high level of risk determined by child protection authorities or when parents cannot care for their children for a time.

overcrowded (and crowded): A household that requires one or more additional bedrooms to meet the CNOS standard. The CNOS standard may not adequately reflect First Nations people's perspectives on crowding. See **Canadian National Occupancy Standard (CNOS)** and **housing suitability**.

over-representation: A term that describes being represented disproportionately or in too large a number compared with population size.

parole or supervised release: A sentenced community-based supervision order that is issued or enacted following a period of sentenced detention. Release on parole or supervised release is possible in some situations when a young person has served a specified proportion of their detention sentence. A breach of the parole or supervised release order usually results in the young person's returning to detention to serve the remainder of the sentence.

part-time employment: The employment status of a person who worked, or usually works, less than 35 hours a week at the time of the survey or Census.

partially engaged in employment, education or training: A term that describes a person employed or studying part-time (and not engaged in both work and study). For example, a person:

- employed part-time and not attending an educational institution
- studying part-time and either unemployed or not in the labour force.

preschool program: A structured play-based learning program, delivered by a degree qualified teacher, and aimed at children in the year or two before they start full-time schooling (irrespective of whether the institution providing it is government or privately provided). Programs may be delivered in a variety of service settings, including separate preschools or kindergartens, and a centre-based day care service in association with a school.

prior imprisonment: Imprisonment under sentence in an adult prison before the current situation. Prior sentence of periodic detention is included as prior imprisonment. People in prison who have had previous adult imprisonment in another state or territory may not be counted as having prior imprisonment. Prior imprisonment in the Australian Capital Territory includes both episodes of imprisonment under sentence and on remand.

prisoner: A person held in custody. For the purposes of the National Prisoner Census, prisoners are those whose confinement is the responsibility of a corrective services agency.

probation and similar: A sentenced community-based supervision order that may be issued with additional mandated requirements, such as community work or program attendance.

The youth justice agency may or may not directly supervise any additional mandated requirements, but remains responsible for the overall supervision and case management of the young person. Includes probation, recognisance and community service orders that a youth justice agency supervises or case manages.

proxy variable: A variable used in place of another variable that is more relevant but is more difficult to measure.

public housing: Rental housing managed by all state and territory housing authorities. Included are dwellings owned by the housing authority or leased from the private sector or other housing program areas and used to provide public rental housing or leased accommodation for public housing tenants. It is accessed by those on low incomes and/or with the greatest and/or special needs. First Nations people can access public housing.

public order offence: Offence relating to personal conduct that involves (or may lead to) a breach of public order and decency, or is indicative of criminal intent, or is otherwise regulated or prohibited on moral or ethical grounds. In general, a public order offence does not involve a specific victim or victims; however, some such offences, such as offensive language and offensive behaviour, may be directed towards a single victim.

quintile: One of 5 groups of equal size into which population can be divided according to the distribution of scores or values from a continuous variable. The Index of Relative Socioeconomic Advantage and Disadvantage (IRSAD) derived by the ABS as part of the SEIFA divides geographical areas in Australia into 5 quintiles containing equal numbers of areas, with the lowest-ranked 20% of areas being placed in Quintile 1 and the highest-ranked 20% being placed in Quintile 5.

random forest model: An example of non-parametric modelling which is a type of modelling used in statistics and machine learning that does not assume any specific form for the relationship between independent and dependent variables. In this report, it is used to estimate the relative importance of independent variables in explaining the outcome (for example, the outcome in Chapter 7 is being fully engaged in EET).

rate: One number (the numerator) divided by another number (the denominator). The numerator is commonly the number of events in a specified time. The denominator is the population 'at risk' of the event. Rates (crude, age-specific and age-standardised) are generally multiplied by a number such as 10,000 to create whole numbers.

rate ratio: The ratio of 2 rates (of 2 groups or populations).

reception: The event of entering a detention centre to begin an unsentenced or sentenced detention order. Neither a transfer to a new detention centre nor a change in legal status constitutes a reception; however, if a young person is released from detention and then re-enters it at a later date, this is a new reception.

recidivism: A repeated criminal activity, synonymous with terms such as 'repeat offending' and 're-offending'.

relative standard error: A measure of sampling error; that is, the difference between an estimate derived from a sample survey and the 'true value' that would be obtained if the whole survey population were enumerated.

release on bail: An order that may be given by a court, following a period of remand, for a young person to be released into the community, pending the outcome of the trial. Bail may be either unsupervised or supervised.

remand (Chapter 11): The act of placing in custody a young person accused of an offence to await trial or the continuation of the trial.

remand prisoners (remandees) (Chapter 10): People who have been placed in custody while awaiting the outcome of their court hearing. They may be unconvicted (remanded in custody for trial), convicted but awaiting sentence (remanded in custody for sentence) or awaiting deportation. Some sentenced people in prison also have active remand warrants against them. In such cases, these people in prison are counted as sentenced.

remoteness area: A classification that divides each state and territory into several regions based on their relative accessibility to goods and services (such as general practitioners, hospitals, and specialist care) as measured by road distance. These regions are based on the Accessibility/Remoteness Index of Australia and defined as Remoteness Areas by the Australian Standard Geographical Classification (before 2011) or the Australian Statistical Geographical Standard (from 2011 onwards) in each Census year. The 5 Remoteness Areas are: *Major cities, Inner regional, Outer regional, Remote* and *Very remote*.

rental stress: The situation of a household whose housing costs are more than 30% of the gross household income.

return sentence: A sentence that occurs after the index sentence.

return to sentenced supervision: An episode in which a young person returns to the youth justice agency for a period of sentenced supervision following one or more previous period(s) of sentenced supervision.

risk factor: Any factor that represents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease; others are not necessarily so. Along with their opposites, protective factors, risk factors are known as *determinants*.

robbery, extortion and related offences: Acts intended to unlawfully gain money, property or other items of value from, or to cause detriment to, another person by using the threat of force or any other coercive measure.

sentenced people in prison: People who have received a term of imprisonment from a court. This includes offenders who have been given an indeterminate sentence or custodial order – for example, people detained under the ‘Governor’s/HM’s Pleasure’ and ‘Forensic Patients’, or those who have received a life sentence. Before 2017, periodic detainees in New South Wales and the Australian Capital Territory were also included.

sentenced supervision: Any form of sentenced youth justice supervision (community-based or detention).

severe crowding: A household that requires 4 or more additional bedrooms to meet the CNOS standard. See **Canadian National Occupancy Standard (CNOS)**.

sexual assault and related offences: Acts, or intents of acts, of a sexual nature against another person which are non-consensual, or consent is proscribed.

social determinants of health: The circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. These circumstances are in turn shaped by a wider set of forces, including economics, social policies and politics.

social housing: Includes **public housing** and **community housing**, as well as housing programs specifically for First Nations people – **state owned and managed Indigenous housing**, and **Indigenous community housing**.

socioeconomic disadvantaged areas: Socioeconomic categories are based on different aspects of disadvantage (for example, low income, low educational attainment, and high unemployment) and reflect the overall or average level of disadvantage of the population in an area. Individuals in the same area may differ from each other in their socioeconomic

category. The ABS uses a set of indexes created from summarising the diverse population, family and household characteristics related to socioeconomic advantage and disadvantage collected in the Census of Population and Housing and provide a ranking of areas in Australia. See SEIFA.

Socioeconomic Indexes for Areas (SEIFA): A set of indexes, created from Census data, that aim to represent the socioeconomic position of Australian communities and identify areas of advantage and disadvantage. The index value reflects the overall or average level of advantage and disadvantage of the population of an area; it does not show how individuals living in the same area differ from each other in their socioeconomic group.

socioeconomic position: An indication of how 'well off' a person or group is. In this report, socioeconomic position is often reported using the Socioeconomic Indexes for Areas, typically for 5 groups (quintiles) or 10 groups (deciles) – from the most disadvantaged (worst off or lowest socioeconomic area) to the least disadvantaged (best off or highest socioeconomic area). Levels of income, education and occupation are common person-based indicators of socioeconomic position.

state owned and managed Indigenous housing (SOMIH): Housing that state and territory governments provide and manage. It is accessed by those on low incomes and/or with special need and is available to households that have at least one member who identifies as being of Aboriginal and/or Torres Strait Islander origin.

statistical significance: A term used in **statistical hypothesis testing** to refer to the likelihood that the relationship observed between two or more variables in a sample is caused by something other than chance. Statistical significance is determined by using the p-value. The researcher decides on a p-value to determine the minimum significance level based on the level of risk of the experiment. The standard is to use a p-value of less than 0.05, which implies that there is less than 5% chance that the observed association is being caused by random noise and that there is enough evidence to reject the null hypothesis.

statistical hypothesis testing: A method of making decisions using data, whether from a controlled experiment or an observational study (not controlled).

stroke: An event that occurs when an artery supplying blood to the brain suddenly becomes blocked or bleeds. A stroke often causes paralysis of parts of the body normally controlled by that area of the brain, or speech problems and other symptoms. It is a major form of *cerebrovascular disease*.

substantiation: The result of a finalised investigation which concludes that there is reasonable cause to believe that a child has been, is being, or is likely to be, abused, neglected or otherwise harmed. This may include cases where children have no suitable caregiver (DSS 2021). See **investigation**.

suicidal behaviours: The collective term for suicidal ideation, suicide plans and suicide attempts.

suicidal ideation: Serious thoughts about ending one's own life.

supervised or conditional bail: The act of allowing a young person accused of an offence to await trial, or the continuation of the trial, in the community under the supervision of a youth justice agency.

suspended detention: A sentence that usually involves a period of intensive supervision in the community with the possibility of detention if the young person breaches that supervision. Includes immediate release orders, suspended detention orders and intensive supervision of young people with detention orders.

theft and related offences: The unlawful taking or obtaining of money or goods not involving the use of force, threat of force or violence, coercion or deception, with the intent to permanently or temporarily deprive the owner or possessor of the use of the money or goods, or the receiving or handling of money or goods obtained unlawfully.

through-care program: A program that provides support to a person, beginning when they first go into prison and continuing to support them to transition into the community after release.

underlying cause of death: The primary or main cause of death: the condition, disease or injury that initiated the sequence of events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury.

unemployed: The employment status of a person who does not have a job and is actively looking for one. This could be a full-time or part-time job.

unemployment rate: The percentage of people currently not employed. The denominator excludes people not in the labour force. In Chapter 8, the analysis is limited to those aged 25–64 years, as they are considered to be of working age.

unlawful entry with intent/burglary, break and enter: The unlawful entry of a structure with the intent to commit an offence where the entry is either forced or unforced.

unsentenced people in prison: A legal status indicating that a person is confined to custody on remand while awaiting the outcome of their trial. They may be unconvicted (remanded in custody for trial), convicted but awaiting sentence (remanded in custody for sentence) or awaiting deportation.

unsentenced supervision: Youth justice supervision (community-based or detention) that occurs when a young person has not been sentenced. It may occur when they have been charged with an offence and are awaiting the outcome of their legal matter, or when they have been found guilty in court and are awaiting sentencing.

variable: A characteristic, factor or data item recorded in a data set.

vascular: A term that relates to blood vessels.

working age: Generally refers to people aged 15–64. In Chapter 8, the term refers to those aged 25–64.

youth justice agency: The state or territory government agency or department responsible for youth justice supervision.

youth justice detention centre: A place administered and operated by a youth justice agency where young people are detained while under the supervision of the relevant youth justice agency.

youth justice system: The set of processes and practices for managing children and young people who have committed, or allegedly committed, an offence.

YLD (years lived with disability): A measure of the years of what could have been a healthy life but were instead spent in states of less than full health. YLD represent non-fatal burden.

YLL (years of life lost): Years of life lost due to premature death, defined as dying before the global ideal life span at the age of death. YLL represent fatal burden.

References

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WHO (World Health Organization) (2020) Child maltreatment [fact sheet], WHO, Geneva, accessed 3 March 2023. <https://www.who.int/news-room/fact-sheets/detail/child-maltreatment>

Related publications

Closing the Gap targets – key findings and implications: Supplementary materials

[Closing the Gap dashboard](#)



This report presents the current state and progress over time of 14 of 17 targets endorsed in the 2020 National Agreement on Closing the Gap. The trends are analysed by various geographic, demographic and socioeconomic factors. The key factors associated with each target are identified by reviewing Australian and international literature, and by modelling target outcomes using a wide range of population, administrative and survey data. The implications of the findings are discussed in the context of existing policy and programs.

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