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Original Research

Adverse childhood experiences among Aboriginal and Torres Strait Islander children and adolescents in Australia: Role of a family with strong kinship and economic well-being

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ABSTRACT

Objective: To examine the prevalence, patterns, and protective factors that mitigate Adverse Childhood Experiences (ACEs) among Aboriginal and Torres Strait Islander children in Australia.
Study design: The Longitudinal Study of Indigenous Children (LSIC) is a prospective cohort study.
Methods: The study included 556 Aboriginal and Torres Strait Islander children aged 3.5 to 16 yrs from the LSIC. Parents/carers reported eight ACE types, including bullying, caregiver mental health issues, substance misuse, incarceration, separation, domestic violence, family death, and racism. ACEs prevalence and patterns were examined; logistic regression identified associated factors.
Results: Approximately 41 % (95 %CI: 37.0–45.2) of children experienced ≥4 ACEs, with bullying (67.4 %) most common and family death (20.5 %) least common. As children grew older, they experienced more ACEs, including bullying, racism and caregiver anxiety/depression. The odds of experiencing four or more ACEs were significantly lower among children with strong family connections (AOR: 0.4, 95 % CI: 0.3, 0.7) and financial stability (AOR: 0.3, 95 % CI: 0.2, 0.4). Strong family connections significantly lowered the odds of incarceration, caregiver separation, and caregiver anxiety/depression. Financial stability reduced the odds of substance abuse, household incarceration, racism, school bullying, domestic violence, and caregiver anxiety/depression.
Conclusions: Aboriginal and Torres Strait Islander children experienced an elevated prevalence of ACEs compared to the overall Australian children. Strong family bonds and financial stability can help mitigate ACEs, suggesting that interventions aimed at enhancing these factors are essential.

1. Introduction

Adverse Childhood Experiences (ACEs) encompass a range of distressing events and unfavourable conditions that can occur during a child's developmental years. These experiences include incidents of physical, emotional, or sexual abuse and neglect, as well as familial adversity such as parental substance misuse, mental health issues, domestic violence, and parental separation or divorce.[1] ACEs can occur from birth to age 18 and often happen together.[1] Experiencing a higher number of different types of ACEs is associated with increased risk for various adverse health outcomes developing later in life. These adverse outcomes include poor self-rated health, engagement in risky health behaviours, the increased incidence of cancer, heart disease, respiratory disease, mental health disorders, substance misuse, and perpetration of violence towards oneself and others.[2] Furthermore, ACEs are linked to homelessness,[3] low educational attainment, and unemployment.[4]

A systematic review and meta-analysis conducted by Madigan et al., in 2023 examined the prevalence of ACEs in 206 studies involving half a million adults. The findings indicated that globally, 60 % of individuals reported experiencing at least one adverse childhood experience (ACE), while approximately 16 % reported encountering four or more ACEs.[5] Within Indigenous populations, the figures are more concerning. ACEs

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are significantly higher in these communities, with an estimated 79 % of individuals reporting at least one ACE and 41 % indicating that they had experienced four or more ACEs.[5] The high prevalence of ACEs within these communities emphasises the need for better understanding and evidence-based targeted interventions and policies to mitigate the long-term effects of childhood adversity and promote resilience and healing. These adversities, however, are deeply rooted in the impacts of colonization, ongoing violence and systemic racism and discrimination experienced by Indigenous peoples.[6–8]

Although ACEs disproportionately affect Indigenous peoples, their prevalence and underlying factors are still limited in the literature. A nationally representative survey on child maltreatment in Australia, highlights the significant prevalence of specific forms of child maltreatment, including physical abuse (32 %), sexual abuse (29 %), emotional abuse (31 %), neglect (9 %), and exposure to domestic violence (40 %).[9] However, the child maltreatment reported in this study is self-reported; the study did not report the burden of child maltreatment on Indigenous populations. Another retrospective audit database study in South Western Sydney reported the prevalence of ACE, including indigenous populations, indicating a high prevalence. The study found that the prevalence of exposure to multiple ACEs (four or more) was about 64 %.[10] However, this study focuses on only one local health district in NSW, limiting the generalizability of the findings. Data from National Child Protection Notifications (reported by AIHW) highlights a significantly higher rate of substantiated child maltreatment among Indigenous children compared to non-Indigenous children. In 2023–24, the rate of substantiated child maltreatment following investigation was 33 per 1,000 among Indigenous children, compared with 5.1 per 1,000 among non-Indigenous children. Among Indigenous children, emotional abuse was the most prevalent form of maltreatment (51.4 %), followed by neglect (29.3 %), while physical abuse (11.2 %) and sexual abuse (7.8 %) were less common.[11]

Despite the growing recognition of ACEs and their widespread impacts in Indigenous populations, research exploring the factors associated with ACEs remains extremely limited. In this population, the role of colonization, intergenerational trauma, and ongoing systemic barriers has profoundly shaped the risk and distribution of ACEs. Therefore, understanding resilience, cultural strengths, and protective factors that support positive childhood development and social and emotional well-being is critical. Studies conducted in Indigenous communities globally reported some cultural factors that can be positively related to reducing the burden of ACEs.[6–8,12] For example, a recent study in Indigenous communities highlight key protective factors for fostering resilience and well-being, including strong cultural identity, family cohesion, engagement in traditional practices, and community connectedness.[13] Radford et al., in 2021 emphasize that cultural continuity, collective resilience, and connection to Country play vital roles in mitigating adversity.[6]

Although most of the research on ACEs has focused on non-Indigenous populations, there have been limited studies conducted among Indigenous populations.[14,15] However, most of these findings were based on cross-sectional studies, rather than longitudinal ones. There is a significant research gap that persists regarding identifying the protective factors of ACEs among Indigenous children and adolescents, particularly in Australia. Identifying these protective factors is essential to addressing the unique challenges faced by Indigenous children and adolescents and can inform the development of targeted interventions to support their health and well-being. Therefore, the present study aims to examine the prevalence of ACEs and protective factors that could potentially mitigate the ACEs among Aboriginal and Torres Strait Islander children and adolescents, utilizing data from a longitudinal study of Indigenous children in Australia. By focusing on this understudied population and leveraging a longitudinal dataset, this research seeks to contribute to a better understanding of ACEs and inform to design culturally sensitive interventions to promote the well-being of Indigenous children and adolescents.

2. Methods

2.1. Data source

This study used data from Footprints in Time; a longitudinal study known as the Longitudinal Study of Indigenous Children (LSIC).[16] LSIC collects data about Indigenous children's health, development, familial dynamics, and social circumstances. This study employs a longitudinal research design, allowing for the systematic collection of data from the same cohort of Indigenous children and their families, facilitating the observation of evolving trends. The Australian Government Department of Social Services funds and oversees the LSIC, an ongoing Australia-wide longitudinal study of Aboriginal and Torres Strait Islander children and their families.[17] This study started in 2008 and included 1671 Aboriginal and Torres Strait Islander children. The children were divided into two groups: the baby cohort (B cohort), aged six months to 2 years, and the kindergarten cohort (K cohort), aged 3.5 years to 5 years, in wave 1. To ensure the diversity of the sample in remote areas and to accommodate the wishes of a few families, 88 more children were added to the study in wave 2. The children in this study were selected from 11 distinct locations across Australia, representing various socioeconomic statuses, rural and remote areas, and cultural groups.

There have been 13 waves of data collection in the LSIC. However, wave 13 was excluded from this study because only 58 % of respondents participated, mainly due to the COVID-19 pandemic. The current study included 556 participants from the K-cohort who responded to either wave 11 or 12 to ensuring they were close to 18 years of age to capture as much of the childhood duration as possible, in line with the definition of ACE assessment. Details of the selection of the analytic sample are presented in Fig. 1.

2.2. Measurement of individual ACEs and multiple ACEs

Like many other longitudinal cohort studies,[18,19] LSIC collected detailed information at individual, family/carers, and social levels across many domains over time. We have explored all the domains and identified eight ACEs items that are closely related to the traumatic events experienced during childhood, as measured across Waves 1 to 12 of the LSIC. Overall, LSIC never focused on collecting ACE data from the participants. All these ACEs items are part of the broader LSIC data collection. A continuous measure of multiple ACEs was calculated by summing all ACE types (range 0–8); this measure was then recoded into five categories: (i) zero ACE, (ii) only 1 ACE, (iii) any 2 ACEs, (iv) any 3 ACEs and (v) 4 or more ACEs. All eight ACE items were reported by the

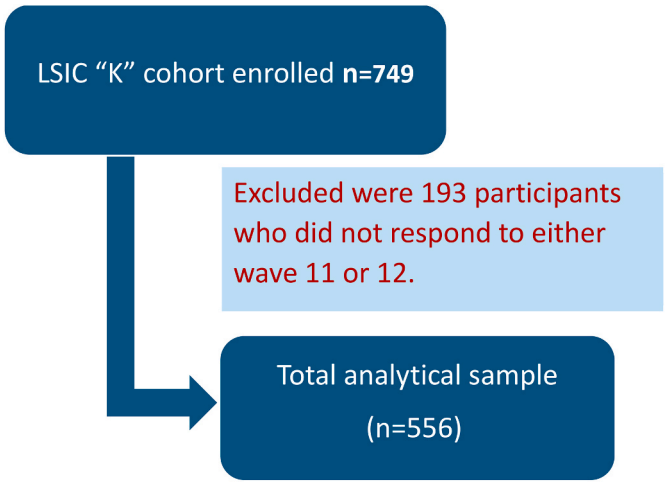

Fig. 1. Flow chart for sample selection.

primary caregiver and detailed in Supplementary File 1.

2.3. Protective factors of ACEs

Drawing on findings from the literature and the data available in the LSIC, this study identifies strong family bonds, financial stability, and cultural knowledge and practices as critical protective factors against ACEs. In this study, the degree of strong families who help each other was assessed and subsequently recoded into two categories: (i) Always/Most times and (ii) Sometimes/Not really. Financial stability was assessed by inquiring whether the primary caregiver did not experience any of the following six events in the past 12 months due to financial constraints: (i) inability to pay bills on time, (ii) inability to make housing payments on time, (iii) going without meals, (iv) inability to heat or cool the home, (v) pawning or selling possessions, and (vi) receiving assistance from a welfare organization. The responses were categorized into three groups: financial stable, one type of financial hardship, and multiple types of financial hardship.[20] A cultural knowledge and practice score was constructed on the total score of the following three items as reported by the primary carer: (i) How often the [study child] goes to Indigenous cultural events; (ii) How often does the primary caregiver teach [study child] traditional practices, fishing, hunting, etc; and (iii) How often does the primary caregiver teach study child traditional arts, painting dance, etc. Each of these items was coded as “never”, “occasionally”, “often” and “very often”.

2.4. Other variables

Other variables are considered potential confounders of the association between protective factors and ACEs based on the literature reviews and the priori association of these factors with both exposures and outcomes. The age of the children was used as a continuous variable. The variable for sex was dichotomized into ’Male’ and ’Female’. Indigenous status was classified into three distinct categories: ’Aboriginal’, ’Torres Strait Islander’, and ’Both Aboriginal and Torres Strait Islander’. The primary caregiver’s highest level of education was reported and ranged from no formal education to the completion of year 12 or an equivalent level. The current employment status of the primary caregivers was recorded as a binary variable with categories ‘Yes’ or ‘No’. Using the caregiver self-report, the safety of the community or neighbourhood was assessed and classified into three groups: (i) Very safe/Quite safe, (ii) Okay, and (iii) Not very safe/Dangerous.

Geographical remoteness was quantified using the Level of Relative Isolation (LORI) scale.[21] The LORI scale measures the relative distance of families from population canters and is categorized into four levels: "none", "low isolation", "moderate isolation", and "high/extreme isolation". The level of disadvantage in a particular area was assessed using the Index of Relative Indigenous Socioeconomic Outcomes (IRISEO). This index is considered a more accurate measure of the socioeconomic status (SES) of Indigenous people compared to traditional indices such as the Socio-Economic Indexes for Areas (SEIFA). The IRISEO employs nine SES indicators, including employment, education, income, and housing, to rank the socioeconomic status of Indigenous Australians residing in a specific area relative to one another.[22] In this study, the areas were categorized into levels of advantage as follows: "lowest quintile (IRISEO 1 & 2)," "second quintile (IRISEO 3 & 4)," "third quintile (IRISEO 5 & 6)," "fourth quintile (IRISEO 7 & 8)," and "highest quintile (IRISEO 9 & 10)."

2.5. Statistical analysis

Descriptive statistics were utilized to summarize the baseline characteristics of the study population. Continuous variables were summarized using means and standard deviations, while categorical variables were presented as frequencies and percentages. We estimated the prevalence of each ACE and four or more ACEs. The proportion of ACEs was estimated using longitudinal data by aggregating exposures to adverse experiences across waves. The proportion of children with ACE items was compared across different subgroups stratified by sociodemographic variables. Furthermore, we also observed the trends across different ages to understand how these ACEs manifest and change throughout childhood. This helps to understand the developmental trajectory of ACEs and highlighted critical periods where interventions might be most effective. Logistic regression analysis was conducted to identify and quantify the associations between predictors and ACE items. The strength of these associations was assessed by calculating odds ratios (OR) along with their corresponding 95 % confidence intervals (CIs). The logistic regression models were constructed based on relevant literature and the availability of variables. All analyses were performed using Stata version 18.0 (College Station, Texas, USA).

3. Results

The sociodemographic characteristics of the study children are presented in Table 1. We included a total of 556 children from the LSIC study. The median age of children was 4.3 years at enrol with a sex ratio of 1:1. Most of the children were Aboriginal (88.7 %), followed by Torres Strait Islander (6.8 %) and both Aboriginal and Torres Strait Islander (4.5 %). Over half (53.2 %) of the children did not experience financial hardship, and multiple types of financial hardship were reported for 25.7 % of the children. Almost 75 % of the children lived in areas with none or low relative isolation, while a smaller proportion lived in areas with high/extreme (12.6 %) isolation, and 28 % of the children (combining 4th & 5th quintile of the IRSEO index) were socioeconomically advantaged.

3.1. Prevalence of ACEs

The study found that 15 % of participants experienced only one ACE, 21 % experienced two ACEs, 19 % experienced three ACEs, and 41 %

Table 1
Study participant characteristics at baseline (n = 556).

Characteristic	Value
Age of child (years) at enrol, median (IQR)	4.3 (3.9, 4.6)
Sex of child	
Male	278 (50.0 %)
Female	278 (50.0 %)
Indigenous status of children	
Aboriginal	493 (88.7 %)
Torres Strait Islander	38 (6.8 %)
Both Aboriginal and Torres Strait Islander	25 (4.5 %)
Primary caregiver highest year of schooling	
Year 12 or equivalent	163 (29.9 %)
Year 11 or equivalent	108 (19.8 %)
Year 10 or equivalent	168 (30.8 %)
Year 9 or below	107 (19.6 %)
Primary caregiver currently employed	
Yes	181 (32.6 %)
No	375 (67.4 %)
Financial stability	
No financial hardship	296 (53.2 %)
One type of financial hardship	117 (21.0 %)
Multiple types of financial hardship	143 (25.7 %)
Level of Relative Isolation (LORI)	
None	144 (25.9 %)
Low	270 (48.6 %)
Moderate	72 (13.0 %)
High/Extreme	70 (12.6 %)
Relative Indigenous Socioeconomic Outcomes (IRISEO)	
Lowest quintile	87 (15.7 %)
2nd quintile	84 (15.1 %)
3rd quintile	230 (41.4 %)
4th quintile	82 (14.8 %)
Highest quintile	73 (13.1 %)
Cultural knowledge and practice score, Mean (SD)	6.0 (2.4)

experienced four or more ACEs, as outlined in Table 2. Furthermore, the analysis indicated that specific subgroups were less likely to experience four or more ACEs. These included Torres Strait Islander children (10.5 %), children from financially stable households (28.7 %), children residing in areas of high or extreme isolation (28.6 %), children living in strong family bonds (37.9 %), and children residing in safe communities (34.9 %), as detailed in Supplementary Table 2.

The most prevalent ACEs among Aboriginal and Torres Strait Islander children were bullying at school (67.4 %) and family experiences of racism, discrimination, or prejudice (48.8 %). Additionally, 42.8 % of children had lived with someone who had been incarcerated, while 41.9 % experienced caregiver separation and 35.8 % lived with someone who had issues with alcohol or drugs. Less common were experiences such as living with a caregiver who had anxiety/depression (23.7 %), witnessing domestic violence (21.4 %), and the death of a family member (20.5 %), as detailed in Table 2.

Torres Strait Islander children (2.9 %), children from financially stable families (23.8 %), and children living in strong families (29.7 %) were less likely to experience domestic violence. The prevalence of bullying at school was lower among children from financially stable families (63.2 %) and children from high/extreme isolation areas (54.3 %), as detailed in Supplementary Tables 3 and 4

Children from financially stable families (18.6 %), children living in high/extreme isolation areas (7.1 %), children from the lowest quintile socioeconomic (4.6 %), and children living in strong families (20.39 %) were less likely to be exposed to caregiver anxiety/depression. Children whose primary caregiver completed year 12 of schooling (27.6 %), children whose primary caregiver is currently employed (28.7 %), children from financially stable families (26.4 %), children from the highest quintile socioeconomic (28.8 %) were less likely to be exposed to household substance abuse than their counterparts, as detailed in Supplementary Tables 5 and 6

Torres Strait Islander children (18.4 %), children whose primary caregiver completed year 12 of schooling (33.1 %), children whose primary caregiver is currently employed (34.8 %), children from financially stable families (33.8 %), children living in strong families (40.3 %), and children living in safe communities (35.6 %) were less likely to experience family member incarceration. Torres Strait Islander children (23.7 %), children from financially stable families (37.8 %), children from the lowest quintile of socioeconomic status (24.1 %), and children living in strong families (38.8 %) were less likely to experience separation of caregivers, as detailed in Supplementary Tables 7 and 8

Children from no isolation areas (13.2 %) and children from the highest quintile socioeconomic (12.3 %) were less likely to be exposed to family member death. Torres Strait Islander children (16.2 %), children whose primary caregiver completed year 12 of schooling (45.7 %), children whose primary caregiver is currently employed (42.2 %), children from financially stable families (41.3 %), and children from high/extreme isolation areas (26.1 %) were less likely to experience family experiences of racism, discrimination, or prejudice than their counterparts, as detailed in Supplementary Tables 9 and 10.

Table 2
Prevalence of Adverse Childhood Experiences (ACEs) among Aboriginal and Torres Strait Islander children in Australia (n = 556).

Type of ACEs	Prevalence in % (95 % CI)
ACEs	
Bullying at school	67.4 (63.4, 71.2)
Caregiver anxiety/depression	23.7 (20.4, 27.5)
Household Substance Abuse	35.8 (31.9, 39.9)
Household Incarceration	42.8 (38.7, 47.0)
Separation of caregivers	41.9 (37.9, 46.1)
Death of family member	20.5 (17.3, 24.1)
Household Discrimination	48.8 (44.7, 53.0)
Domestic violence	21.4 (27.5, 35.5)
Prevalence of multiple ACEs	
0 ACE	4.9 (3.3, 7.0)
only 1 ACE	14.7 (12.0, 18.0)
Any 2 ACEs	20.5 (17.3, 24.1)
Any 3 ACEs	19.0 (15.8, 22.4)
Any 4 or more ACEs	41.0 (37.0, 45.2)

3.2. Patterns of ACE items

Fig. 2 illustrates that the patterns of ACEs vary across different ages of children, specifically, the prevalence of bullying at school, caregiver anxiety/depression, and family experiences of racism, discrimination, or prejudice increases as children grow older. However, these patterns were influenced by factors such as community safety, the level of relative isolation, indigenous socioeconomic outcomes the strength of the family and financial stability. For example, in communities with higher safety levels, strong family bonds, and financially stable households, the increase in certain ACEs may be less pronounced, highlighting the protective role of these factors. Conversely, in areas with lower isolation, the prevalence of ACEs may be higher and more persistent over time. Supplementary Figs. 1–5 provide a detailed breakdown of how these contextual factors impact the patterns of ACEs as children age.

3.3. Protective factors of ACEs

Table 3 highlights that financial stability and strong family bonds were protective factors, in that they were associated with reduced ACEs. The data demonstrate that children from financially stable families were significantly more likely to avoid challenges such as four or more ACEs (AOR:0.3; 95 % CI: 0.2, 0.4), family member substance abuse (AOR: 0.3; 95 % CI: 0.2, 0.5), family member incarceration (AOR: 0.5; 95 % CI: 0.3, 0.8), family experiences of racism, discrimination, or prejudice (AOR: 0.5; 95 % CI: 0.3, 0.8), caregiver anxiety/depression (AOR: 0.4; 95 % CI: 0.3, 0.8), domestic violence (AOR: 0.5; 95 % CI: 0.3, 0.9), and bullying at school (AOR: 0.5; 95 % CI: 0.3, 0.8). Similarly, the presence of strong family connections contributed to lower odds of four or more ACEs (AOR:0.4; 95 % CI: 0.3, 0.7), family member incarceration (AOR: 0.5; 95 % CI: 0.3, 0.9), separation of caregivers (AOR: 0.4; 95 % CI: 0.2, 0.6), and caregiver anxiety/depression (AOR: 0.3; 95 % CI: 0.2, 0.6). However, the Cultural knowledge and practice score was not significantly associated with ACEs.

4. Discussion

This study aimed to examine the prevalence and factors associated with ACEs among Aboriginal and Torres Strait Islander children in Australia. The findings contribute to the growing body of literature on the strengths of Indigenous children and adolescents, particularly in the context of ACEs. Although the prevalence of ACEs—especially school bullying, caregiver mental health issues, and experiences of racism or discrimination—is concerning, the research underscores notable protective factors within this population, including strong family connections and financial stability.

The study revealed a high prevalence of ACEs, with over half of participants experiencing four or more ACEs, aligning with previous research by Wickramasinghe et al.,[10] who reported similar rates among Aboriginal and Torres Strait Islander Australian children. This prevalence may primarily result from intergenerational trauma, socio-economic disadvantage, and systemic inequities. Historical factors, such as the Stolen Generations and ongoing racism, likely contribute to psychological stress and family instability.[23,24] Additionally, poverty, limited access to culturally safe services, and disconnection from cultural identity may further exacerbate vulnerabilities.[25,26]

Despite these challenges, strong family connections and financial stability emerged as critical protective factors. This strength-based finding underscores the importance of family cohesion and cultural ties in Indigenous communities, which are decisive protective factors.[27] The importance of strong family connections has also been identified in

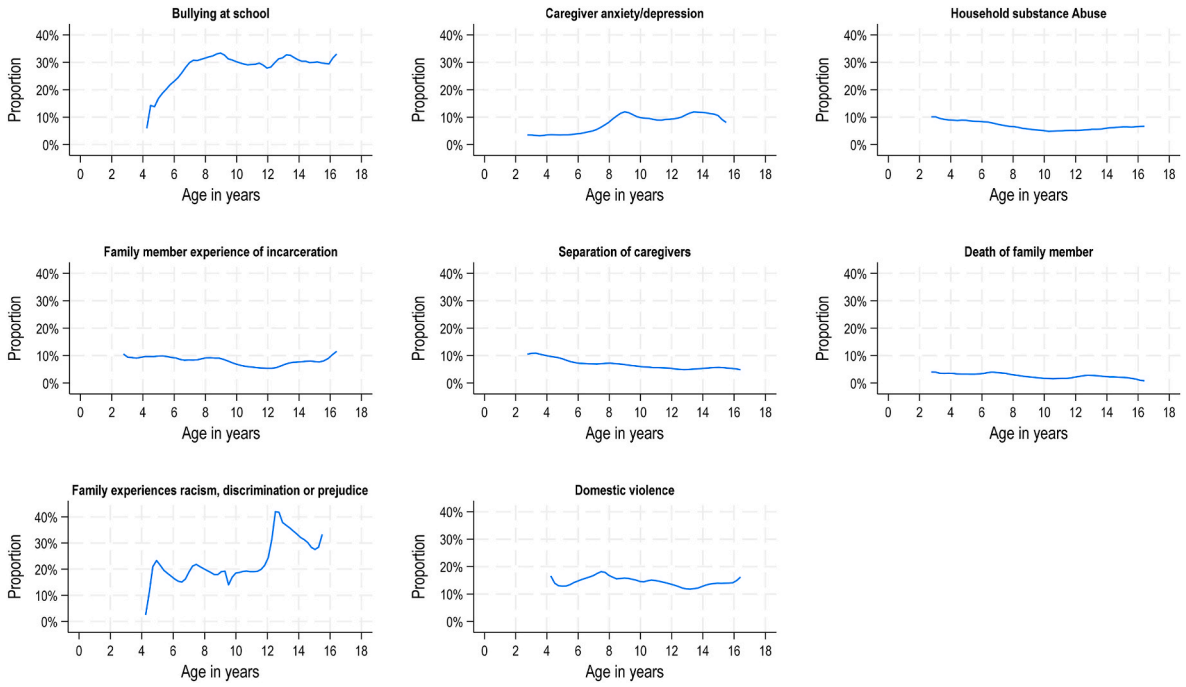

Fig. 2. Trends in the proportion of children who had experience of ACEs across different ages (in years).

Table 3
Protective factors of ACEs among Aboriginal and Torres Strait Islander children and adolescents in Australia (n = 556).

Predictors	Four or more ACEs	Adjusted Odds Ratio (95 % Confidence Interval)							
		Household substance abuse	Family member experience of incarceration	Separation of caregivers	Death of family member	Family experiences racism, discrimination or prejudice	Caregiver anxiety/ depression	Bullying at school	Domestic violence
Financial stability									
Multiple types of financial hardship	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
One type of financial hardship	**0.6 (0.3, 0.9)**	**0.5 (0.3, 0.8)**	0.8 (0.4, 1.3)	1.5 (0.9, 2.5)	1.2 (0.6, 2.4)	0.6 (0.4, 1.1)	0.8 (0.4, 1.4)	**0.5 (0.3, 0.9)**	1.5 (0.8, 2.6)
Financially stable	**0.3 (0.2, 0.4)**	**0.3 (0.2, 0.5)**	**0.5 (0.3, 0.8)**	0.9 (0.5, 1.4)	0.8 (0.5, 1.5)	**0.5 (0.3, 0.8)**	**0.4 (0.3, 0.8)**	**0.5 (0.3, 0.8)**	**0.5 (0.3, 0.9)**
Primary caregiver has a strong family									
Sometimes/Not really	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref	Ref
Always/Most times	**0.4 (0.3, 0.7)**	0.8 (0.5, 1.3)	**0.5 (0.3, 0.9)**	**0.4 (0.2, 0.6)**	0.9 (0.5, 1.6)	1.0 (0.6, 1.7)	**0.3 (0.2, 0.6)**	0.8 (0.4, 1.3)	0.7 (0.4, 1.2)
Cultural knowledge and practice score	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)	0.9 (0.9, 1.1)	1.2 (1.0, 1.3)	1.1 (0.9, 1.2)	0.9 (0.8, 1.0)	0.9 (0.9, 1.1)	1.0 (0.9, 1.2)

Note: Statistically significant values are highlighted in bold. The Indigenous status of children, the Primary caregiver's highest year of schooling, the Primary caregiver's current employment, the Level of Relative Isolation (LORI), Relative Indigenous Socioeconomic Outcomes (IRISEO), and the Safe community were adjusted additionally.

previous literature. For example, strong family bonds were found to lower the odds of incarceration, caregiver separation, and mental health issues, suggesting that Indigenous family structures provide a critical support network that may prevent ACEs.[28,29] This finding aligns with existing literature emphasising the protective nature of Indigenous cultural practices and family systems.[30] Similarly, financial stability emerges as a critical protective factor in this study, with a strong correlation between economic security and reduced risks of substance abuse, incarceration, and domestic violence. This finding underscores the importance of addressing systemic discrimination to improve the financial conditions of Indigenous families to enhance the overall well-being of children. It suggests that targeted initiatives aimed at addressing economic inequalities may have a profound impact on reducing the prevalence of ACEs, which may improve health and well-being outcomes. By addressing economic disparities, policymakers and community leaders can build on the strengths of Indigenous families to create environments where children can thrive.[31]

Interestingly, this study did not find a significant association between the Cultural Knowledge and Practice Score and ACEs. This finding suggests a complex interaction between cultural identity and adverse experiences. While cultural knowledge and identity are recognized as protective factors, their efficacy may depend on other variables, such as

the strength of community ties, access to resources, and systemic barriers.[32] Cultural practices may provide resilience against some adversities but may not directly counter systemic challenges or intergenerational trauma.

This study has examined the prevalence, patterns, and protective factors of ACEs among Aboriginal and Torres Strait Islander children, expanding our knowledge of ACEs in a priority population. However, not all children who experience ACEs have adverse outcomes. Some children demonstrate resilience, which is the capacity to recover or adapt from the impacts of adverse events (e.g., ACEs).[33] Future research in this population should explore mediating and moderating factors that influence the relationship between ACEs and health and wellbeing outcomes, for example individual coping skills, family connection and community strengths. Children live within complex ecological environments, that can confer or inhibit risk and protective factors at multiple levels, including individual, family, community, and societal levels. Factors from all of these levels should be explored.

The findings of this study suggest that a shift in focus when developing interventions and policies may be needed. Rather than concentrating solely on the deficits within Indigenous communities, it is crucial to recognize and build upon these populations' existing strengths and protective factors. Programs designed to strengthen family connections, support cultural continuity, and enhance economic stability are likely to be effective in reducing the occurrence and impact of ACEs. The effectiveness of such strength-based approaches has been supported by research conducted by Priest et al.,[24] who emphasize the importance of culturally relevant and community-driven solutions in addressing the challenges faced by Indigenous children and adolescents.

A notable strength of this study is its use of the LSIC dataset, which offers robust longitudinal data for understanding ACEs among Indigenous children. The longitudinal aspect of the LSIC allows for an analysis of ACEs across different ages, offering insights into how these experiences change over time. Furthermore, the study underscores the protective role of financial stability and strong family connections, contributing valuable information for targeted interventions, and filling a critical gap in understanding the challenges faced by Indigenous children and adolescents in Australia. However, there are several limitations. First, this study is its reliance on self-reported data from parents/carers, which may introduce reporting bias or inaccuracies in recalling ACEs. Second, the sample size may only partially capture the diversity of experiences across different Indigenous communities in Australia. Third, physical, emotional, and sexual abuse variables, which are the essential ACE items, are not measured in the study. Fourth, the degree of strong family support was originally measured on a four-point scale and subsequently recoded into two categories (Always/Most of the time vs. Sometimes/Not really) for analytical purposes and ease of interpretation. We acknowledge that this dichotomisation may reduce variability and nuance in responses. Finally, many of the measures used in the LSIC survey and in this study have not been culturally validated, which may reduce reliability for Aboriginal and Torres Strait Islander children and warrant cautious interpretation of the results.

In conclusion, while the prevalence of ACEs among Indigenous children is significant, this study underscores the critical role of family cohesion and financial stability as protective factors. Future research and interventions should adopt strength-based approaches that align with Indigenous cultural values, fostering resilience and promoting long-term health and well-being for children and adolescents in these communities.

Ethical approval

Ethical approval was not required for this study as it utilized secondary data from the Longitudinal Study of Indigenous Children (LSIC). However, the LSIC study initially received approval from the Australian Government Department of Health Departmental Ethics Committee. Since mid-2018, ethical oversight has been provided by the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Human Research Ethics Committee (HREC).

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Not applicable.

Declaration of competing interest

The authors declare no conflicts of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2025.106061.

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