

INSIGHTS #1

Findings from *Ten to Men*: The Australian Longitudinal Study on Male Health, 2013–16



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Ten to Men: The Longitudinal Study on Australian Male Health is conducted in partnership between the Australian Government Department of Health and the Australian Institute of Family Studies (AIFS). The mission of the *Ten to Men* study is to build the evidence base on male health and wellbeing to inform the development of health policy and programs targeted to the changing needs of boys and men.

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Foreword

I am pleased to present *Insights #1: Findings from Ten to Men: The Australian Longitudinal Study on Male Health*. Using data collected during 2013/14 and 2015/16 from the ongoing *Ten to Men* study, this report provides valuable details about a diverse set of health conditions and behaviours among boys, male adolescents and adult men in Australia.

High-quality and comprehensive information on the health and wellbeing of certain population sub groups across the life course is crucial for monitoring current and emerging concerns and identifying risk behaviours. It is also vital for the timely development and implementation of equitable, cost effective and evidence-based policy and service delivery, which benefits the wider community. In funding *Ten to Men*, the largest longitudinal study of male health in the world, the Department of Health has made a substantial investment in improving understanding of, and preventing and responding to, health conditions impacting males of all ages and backgrounds in Australia.

This detailed report comprises four empirical chapters that investigate experiences of poor mental health, alcohol use behaviours, overweight and obesity, and health literacy and engagement with Australia's health system among Australian males. Importantly, it highlights that not all males are impacted equally by certain health conditions; for example, it appeared that older males found it more difficult to lose weight once they were overweight or obese. Additionally, younger males were more likely to experience suicidal escalation over time, and males who were more socio-economically disadvantaged were more likely to experience suicidal ideation.

This report's findings also indicate that gaps remain with regard to how we prevent and respond to adverse health outcomes and risk behaviours among males in Australia; for example, Aboriginal and Torres Strait Islander men were more likely to experience barriers to health service use than non-Indigenous men, and less likely to have private health insurance. Although there was no difference between Indigenous and non-Indigenous men regarding abilities to actively engage with health care, or in feeling understood and supported by service providers.

The Insights report aims to showcase the power of the *Ten to Men* study to provide information about health conditions among Australian males and how they change over time. The ongoing nature of the *Ten to Men* study affords us the ability to monitor these issues into the future. This will help us improve responses to health concerns among boys, adolescents and adult men nationwide, which will benefit not only Australian males, but the whole community.

I am very grateful to the many individuals and organisations across Australia – including study participants, the study team, expert advisors and report authors – who contributed to this study.



Andrew Whitecross
AIFS (Acting) Director

November 2020



Message from the Study Director

The Insights #1 report is the first major *Ten to Men* publication produced by the Australian Institute of Family Studies (AIFS) since the study transitioned to AIFS from the University of Melbourne in 2017.

The report's findings are based on data collected in 2013/14 and 2015/16 from surveys with over 16,000 Australian boys, young men and adult males aged 10 to 58 years old.

The findings present valuable evidence on the state of male health in Australia across the domains of mental health, alcohol use, overweight and obesity, and health literacy and health service use. Addressing poor health among Australian males is beneficial for the entire community. The information provided in this Insights report can be used to improve policy and service delivery to achieve better health outcomes among both males and the broader Australian population.

I would like to express my immense gratitude to the many individuals and organisations who contributed to the development of the Insights report, and who continue to support the ongoing *Ten to Men* study. The Department of Health commissioned and continues to fund *Ten to Men*. The study's Scientific Advisory and Community Reference Groups provide indispensable guidance and expert input. The University of Melbourne coordinated Waves 1 and 2 of *Ten to Men*, and Roy Morgan collected the data at both these time points. The Social Research Centre collected Wave 3 data (an especially challenging task given COVID-19). The multitude of AIFS staff members who collectively worked towards the goal of producing a high-quality publication of *Ten to Men* findings. Most of all, I would like to thank every *Ten to Men* participant who has devoted their time and energy to completing study surveys over three waves of data collection.



Dr Galina Daraganova

Study Director, on behalf of the Ten to Men team

November 2020



Key findings

Australian males are more likely than females to experience certain health concerns, including bowel and skin cancer, obesity, diabetes and stroke. They are more likely to engage in risk behaviours such as alcohol and other drug use. Males have a heightened risk of mortality, yet are more likely to think that their health is fine and that they can independently manage health concerns. Men are also less likely to engage with health services compared to women. Importantly, poor health experienced by males can also impact their families, friends and the wider community.

To monitor health trends among males in Australia, and to improve understanding of diverse health issues affecting boys and young and adult men of differing ages, locations and backgrounds, the Australian Government commissioned the *Ten to Men* study. Comprising around 16,000 males aged 10–55 years who resided in urban, regional and rural parts of the country at recruitment (2013/14), it is the first large-scale, nationally representative, longitudinal study to focus exclusively on investigating and improving the health and wellbeing of males in Australia.

This report investigates specific health concerns and related issues affecting boys and young and adult men across the country:

1. poor mental health, including experience of depression, anxiety, loneliness, and suicidal thoughts and behaviours
2. alcohol use
3. overweight and obesity
4. health literacy and engagement with Australia's health care system.

These topics align with a number of priority areas identified in the *National Men's Health Strategy 2020–2030*, including: mental health, chronic conditions, conditions where men are over-represented, and injuries and risk taking.

Overall, the *Ten to Men* findings presented throughout this report indicate that, problematically, Australian males who are particularly vulnerable, disadvantaged or marginalised continue to be disproportionately affected by certain health concerns. For example, unemployed males and those in areas of greater disadvantage were significantly more likely to experience mental health issues. Indigenous boys and young men had almost double the odds of being overweight or obese compared to those who were non-Indigenous. Study findings from two waves of data collection also suggest that many males who experience ill-health, or who are engaging in unhealthy behaviours (e.g. moderate- to high-risk alcohol use), do not transition to stable healthier states or practices over at least the short term. It should be noted that, with only two waves of data collection to date, it is possible that study participants did transition to healthier states/practices, but relapsed; this is something to be explored further with additional waves of data collection.

Study data did indicate that there are opportunities for professional intervention to address ill-health among Australian males. For example, most men with diagnosable mental health problems reported they had recently seen a general practitioner (GP). Men who were overweight or obese were also significantly more likely to be engaged with health care providers (e.g. GPs, dietitians and specialist services). Helping both clients and service providers identify and leverage such opportunities, especially in general practice and primary care settings, could be beneficial for the treatment and/or referral of men to dedicated health care services and resources.

Specific findings relating to the above areas are summarised below.

Mental health

- Mental ill-health remains high among Australian men, with up to 25% experiencing a diagnosed mental health disorder in their lifetime, and 15% experiencing a disorder in a 12-month period.
- Anxiety was the most common mental health disorder among Australian boys (those aged 10–14 years), at 9%.
- A significant proportion of men who experienced depression at a given point in time continued to experience it, or relapsed. Of those with self-reported severe depression in 2013/14, 40% still reported experiencing severe depressive symptoms in 2015/16.
- Loneliness was significantly associated with experiences of depression and suicidality among Australian men, above and beyond area-level socio-economic disadvantage and unemployment.
- Young men (Australian males aged 15–17 years) were the most likely to experience suicidal escalation from 2013/14 to 2015/16. Just under 3% of young men escalated to make a first suicide attempt in that time.
- Many Australian males were not accessing professional support from mental health specialists. While over 80% of men with depression, anxiety and/or any suicidality in the past year had seen a GP, only around 40% had seen a mental health professional.

Alcohol use

- Around one-fifth of Australian boys aged 10–14 years have ever consumed ‘more than a sip or taste’ of alcohol. This group are more likely to have friends who have drunk alcohol in the past year, compared to boys who have never drunk alcohol.
- Younger adult males, especially those aged 18–24 years, typically drink at riskier levels than their older counterparts.
- Young men (15–17 years old) who have drunk alcohol before the recommended age of 18 are more likely to engage in riskier alcohol consumption patterns in early adulthood.
- The majority of adult Australian men have drunk alcohol in the past year (88%), of which only a minority – one third – drink at moderate- to high-risk levels.
- Australian men who drank more frequently were significantly more likely to typically drink greater volumes of alcohol per session.
- Many adult males – around three-quarters – engaging in moderate-to-high-risk alcohol consumption did not transition to and maintain low-risk patterns over time.

Overweight and obesity

- The proportion of Australian males classified as overweight or obese increases with age: in 2013/14, around 20% of boys aged 10–14, 29% of young men aged 15–17, 40% of men aged 18–24, 60% of men aged 25–34, and more than 70% of men aged 35–57 were overweight or obese.
- With age, it appeared difficult for Australian males to maintain a ‘normal’ or healthy weight. Among those classified as initially being of a healthy weight, 91% of 10–14 year olds were still at a healthy weight two years later, compared to 82% of 18–24 year olds and 77% of 45–57 year olds.
- Very few males who were classified as overweight or obese in 2013/14 had transitioned to a healthy weight in 2015/16. For example, around 90% of men aged 35–57 who were overweight or obese remained so two years later.
- Men who were overweight or obese in both 2013/14 and 2015/16 were more likely to experience chronic health problems including cardiovascular and respiratory conditions, diabetes and arthritis.
- Among adult Australian men, risk factors for being overweight or obese included low physical activity, frequent medication use, poor diet, heavy smoking, heavy drinking and lower overall life satisfaction.

Health literacy and health service use

- Although the vast majority of Australian men – 95% in 2013/14 – considered their health to be important, only around two-thirds actively looked after their health.
- GPs were the most commonly accessed health service among adult Australian males in 2015/16.
- Around 30% of Australian men were not getting regular (i.e. annual) check-ups.
- Less than half of adult Australian males had visited a dentist in the past year. For example, in 2015/16 only around one-third of those aged 18–44 had seen a dentist in that time.
- A minority of Australian men – around 7% in 2015/16 – reported being unable to access health care when they needed it. Common barriers among this group included cost (52%) and long waiting times (35%).
- Men who identified as Indigenous Australian had around 70% higher odds of experiencing barriers to health service use than non-Indigenous men. Further, only 25% of Indigenous men had private health insurance, compared to over half (59%) of non-Indigenous men.

Introduction

Ten to Men: The Australian Longitudinal Study on Male Health is the first large-scale, nationally representative, longitudinal study to focus exclusively on investigating and improving the health and wellbeing of males in Australia. It is also the largest longitudinal study of male health in the world. Funded by the Department of Health (DoH), it was established in 2012 to investigate five broad research themes in relation to Australian males: physical health; social and environmental determinants of health; health-related behaviours; mental health and wellbeing; and health services and knowledge. Moving forward, the study is guided by – and seeks to address the priority areas and key issues of – the *National Men's Health Strategy 2020–2030*.¹

The *Ten to Men* (TTM) sample includes over 16,000 males who were aged between 10 and 55 years at recruitment. The sample comprises three distinct cohorts: boys (aged 10–14 years), young men (15–17 years), and adults (18 years and above). Data collection for the study was undertaken by the University of Melbourne across two 'waves' (time periods) in 2013/14 and 2015/16 (Waves 1 and 2, respectively). Wave 3 of data collection, managed by the Australian Institute of Family Studies (AIFS), was undertaken from July to December 2020.

Similar to how insights are gleaned from the Australian Longitudinal Study on Women's Health² (Brown et al., 1996) about the health and wellbeing of females in Australia, data collected for TTM help improve our understanding of the characteristics and behaviours of boys, young men and adult males nationwide, and how certain factors are associated with a range of health outcomes. Indeed, previous publications using TTM data have examined diverse issues affecting Australian males such as sleep apnoea (Chamara Visanka et al., 2016), sexual functioning among men with disabilities (Bollier, King, Shakespeare, Hocking, & Kavanagh, 2019), associations between job stressors and suicide (Milner, Currier, Lamontagne, Spittal, & Pirkis, 2017), correlates of self-rated health (Koelmeyer, Currier, et al., 2016), and diabetes (Koelmeyer, Shyamali, & Dallas, 2016).

This Insights report is designed to promote *Ten to Men*, showcase the breadth of data collected, and disseminate its findings in an accessible format to diverse audiences, including health care providers, the general public, researchers and policy makers. Above all, it aims to provide a broad overview of the health of males in Australia and highlight specific concerns affecting this group: poor mental health, weight issues and obesity, involvement in 'risk' behaviours such as heavy alcohol use, and sub-optimal rates of health and social support service use.

This report presents data from Waves 1 and 2 of *Ten to Men*. Using data from both waves enables the identification and investigation of changes to the health status of males in Australia over time. Further data collections will facilitate the identification and monitoring of longer-term trends including transitions in and out of various health states and associated behaviours. This will be invaluable for informing timely, targeted and evidence-based policy and practice to achieve the best health outcomes for males and the broader Australian community.

The four chapters in this report comprise themes purposely aligned with priority areas in the *National Men's Health Strategy 2020–2030*. The chapters are:

1. *Mental health of Australian males. Depression, suicidality and loneliness.* This chapter focuses on experiences of depression, anxiety, loneliness and suicidal thoughts and behaviours among Australian males.
2. *Alcohol use among Australian males.* This chapter analyses alcohol use patterns among boys, young men and adults in Australia, including an investigation of factors associated with engaging in moderate-to-high risk alcohol consumption.

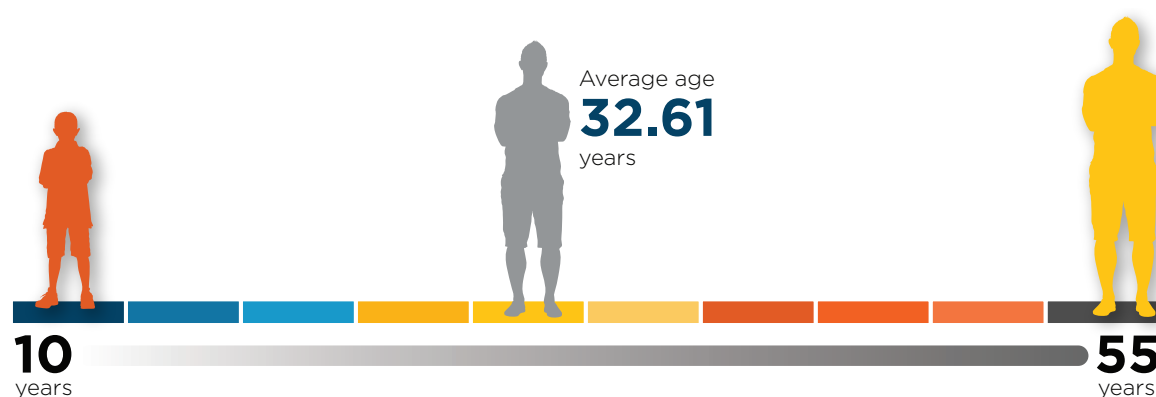
¹ See www1.health.gov.au/internet/main/publishing.nsf/Content/national%20mens%20health-1

² See www.alsw.org.au

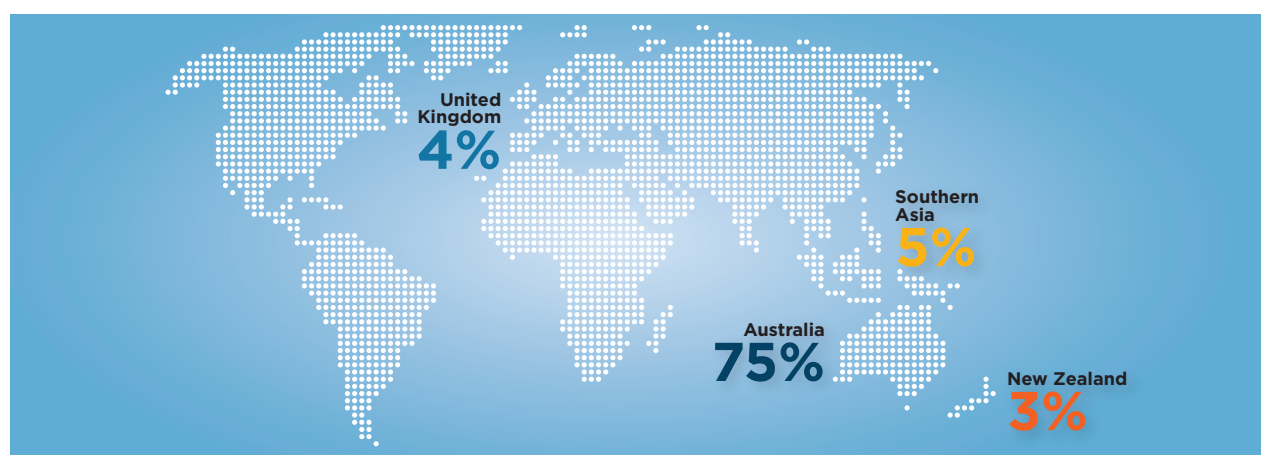
3. *Overweight and obesity among Australian males.* This chapter investigates the significant public health concerns of overweight and obesity among Australia's male population, including an examination of shifts between 'healthy', 'overweight' and 'obese' weight classifications between TTM data collection waves.
4. *Health literacy and health service use among Australian men.* This chapter examines patterns of health and support service use among adult males, in addition to identifying barriers to service use and health service literacy.

Cohort characteristics at recruitment

The *Ten to Men* cohort ($N = 16,021$ at Wave 1) was recruited throughout major cities and inner and outer regional areas of Australia between October 2013 and July 2014. At baseline, participants were aged between 10 and 55 years; the average age was 32.61 years ($SD = 13.15$). Sub-cohorts included boys aged 10-14 ($n = 1,099$), young men 15-17 years ($n = 1,026$), and adult males aged 18-55 years ($n = 13,896$). The recruitment methodology and characteristics of the cohort at baseline have been described in detail elsewhere (Pirkis et al., 2017); however, a brief overview of the sample is provided below, with comparisons between the sample's characteristics and those of the Australian male population aged 10-55 years included where possible, as per 2011 Census data ($n = 6,729,687$).³

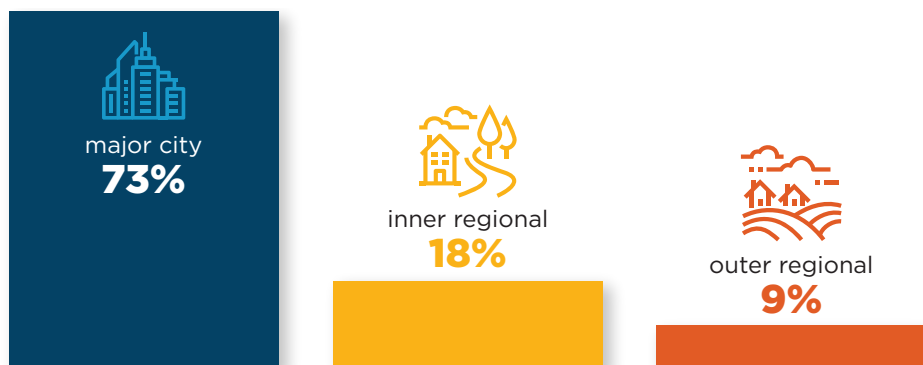


Around three-quarters of the cohort (75%) were born in Australia, a comparable proportion to Australian males aged 10-55 at the 2011 Census (74%). The remaining participants were most commonly born in Southern Asia (5%), the United Kingdom (4%) and New Zealand (3%). Around 11% typically spoke a language other than English at home. A higher proportion – approximately 20% – of Australian males were estimated to mainly speak a language other than English at home, according to the 2011 Census.

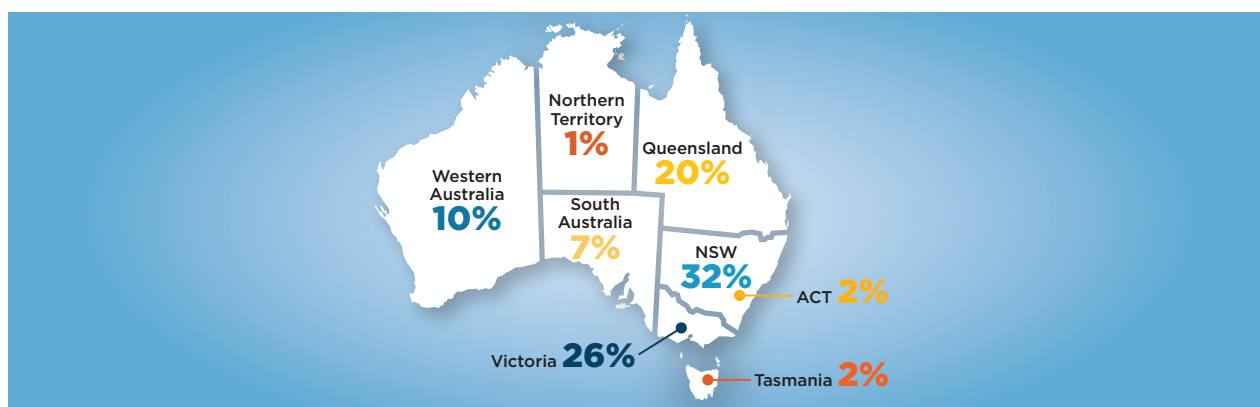


³ Sample weights (for TTM participants) were produced for the study dataset to reduce the effect of bias in sample selection and participant non-response. These weights were used in analyses in the four empirical chapters of this report, except where stated otherwise.

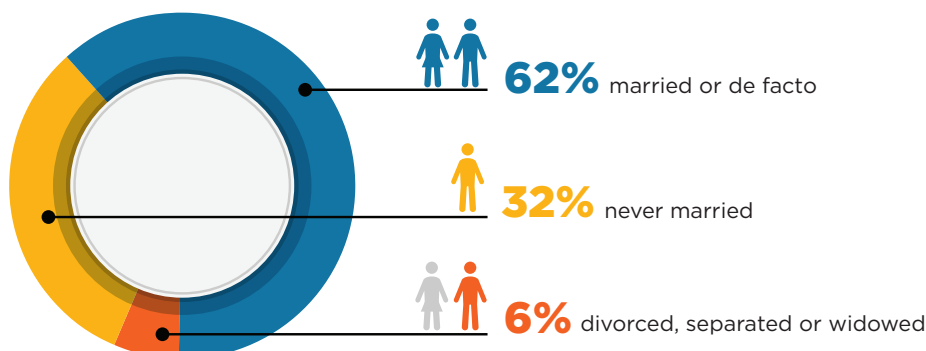
Only a minority of participants (approximately 3%) identified as Indigenous Australian (Aboriginal and Torres Strait Islander), which was consistent with around 3% of Australian males aged 10-55 who identified as Indigenous at the 2011 Census. Close to three-quarters (73%) resided in major cities at recruitment, compared to 18% who lived in inner regional areas and 9% in outer regional areas. These figures match well with 2011 Census data: 71% of males aged 10-55 lived in major cities, 17% in inner regional areas, and 9% in outer regional areas.



In terms of geographical location at recruitment, participants most commonly resided in NSW (32%) and Victoria (26%), followed by Queensland (20%), Western Australia (10%), South Australia (7%), Tasmania (2%), the ACT (2%) and the Northern Territory (1%). These proportions were very similar to those recorded for males aged 10-55 in the 2011 Census: NSW (32%), Victoria (25%), Queensland (20%), Western Australia (11%), South Australia (7%), Tasmania (2%), the ACT (2%) and the Northern Territory (1%).

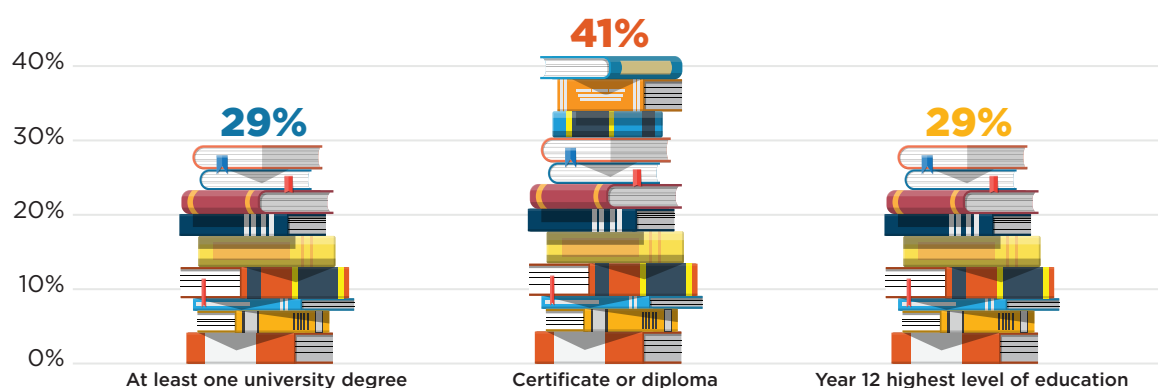


Among adult TTM participants at baseline ($n = 13,891$), the vast majority (around 92%) identified as heterosexual. Of the rest, approximately 2% identified as homosexual, 2% identified as bisexual, and a further 2% of participants were unsure about their sexual identity. Sixty-two per cent were married or in a de facto relationship, whereas just under one-third (32%) had never been married. Around 6% were divorced, separated or widowed. In comparison, at the 2011 Census, around 45% of adult males aged 10-55 were married, 46% had never married, and 9% were divorced, separated or widowed.



At recruitment, most (83%) adult participants reported being employed, 10% reported being unemployed and looking for work, and 7% reported being out of the labour force. In comparison, 77% of adult Australian males aged 18-55 were employed at the 2011 Census.

With regard to highest education level among adult participants, 41% had a certificate or diploma, 29% had at least one university degree, whereas the highest level of education for a further 29% was Year 12 (i.e. finished high school) or less. In comparison, 2011 Census data indicated that around 34% of Australian men aged 18-55 had a certificate or diploma, and 19% of men aged 18-55 had at least one university degree.



References

- Bollier, A.-M., King, T., Shakespeare, T., Hocking, J., & Kavanagh, A. (2019). Sexual functioning in men with and without disabilities: Findings from a representative sample of Australian men. *The Journal of Sexual Medicine*. doi:10.1016/j.jsxm.2019.07.021
- Brown, W. J., Bryson, L., Byles, J. E., Dobson, A. J., Manderson, L., Schofield, M., & Williams, G. (1996). Women's Health Australia: Establishment of the Australian Longitudinal Study On Women's Health. *Journal of Women's Health*, 5(5), 467-472.
- Chamara Visanka, S., Dallas, R. E., Dianne, C., Jennifer, L. P., Adrian, L., Caroline, L. et al. (2016). Sleep apnoea in Australian men: Disease burden, co-morbidities, and correlates from the Australian Longitudinal Study on Male Health. *BMC Public Health*, 16(3), 51-61. doi:10.1186/s12889-016-3703-8
- Koelmeyer, R., Currier, D., Spittal, M. J., Schlichthorst, M., Pirkis, J. E., & English, D. R. (2016). Age matters: Exploring correlates of self-rated health across four generations of Australian males. *Behavioral Medicine*, 42(3), 132-142. doi:10.1080/08964289.2015.1121132
- Koelmeyer, R., Shyamali, C. D., & Dallas, R. E. (2016). Diabetes in young adult men: Social and health-related correlates. *BMC Public Health*, 16(3), 63-69. doi:10.1186/s12889-016-3704-7
- Milner, A., Currier, D., Lamontagne, A. D., Spittal, M. J., & Pirkis, J. (2017). Psychosocial job stressors and thoughts about suicide among males: A cross-sectional study from the first wave of the Ten to Men cohort. *Public Health*, 72. doi:10.1016/j.puhe.2017.02.003
- Pirkis, J., Currier, D., Carlin, J., Degenhardt, L., Dharmage, S. C., Giles-Corti, B., Gordon, I. R. et al. (2017). Cohort profile: Ten to Men (the Australian Longitudinal Study on Male Health). *International Journal of Epidemiology*, 46(3), 793-794i. doi: 10.1093/ije/dyw055



Chapter 1

Mental health of Australian males: depression, suicidality and loneliness

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Key messages

Mental health concerns among men:

- Mental ill-health remains high among Australian men, with up to 25% experiencing a diagnosed mental health disorder in their lifetime, and 15% experiencing a disorder in a 12-month period.
- Anxiety was the most common mental health disorder among boys (9%).
- Depression was the most common mental health disorder among young men and adults, steadily increasing in prevalence from age 15–17 (7%) to old age (13%).
- A significant proportion of men who experienced depression at a given point in time continued to experience it or relapsed. Of those with self-reported severe depression in 2013/14, 40% still reported experiencing severe depressive symptoms in 2015/16.



40% of men who experienced
SEVERE DEPRESSION
were experiencing this
2 years later

- Young men were the most likely to experience suicidal escalation from 2013/14 to 2015/16, with just under 3% of young men escalating to make a first suicide attempt in that time.
- Around 4% of Australian men reported that they are lonely (i.e. have no close friend).
- Loneliness was significantly associated with experiences of depression and suicidality among Australian men, above and beyond area-level socio-economic disadvantage and unemployment.



Men who were
NOT LONELY
had significantly
better mental health:
they were less likely to be **depressed**,
experience **anxiety** or any **suicidality**

Health service use among men:

- Only a quarter of men said they would be likely or very likely to seek help from a mental health professional if they experienced an emotional or personal problem. Almost 25% said they would not seek help from anyone.
- Adult men said they would be least likely to seek help from a phone helpline, with around 80% indicating they would be very unlikely or unlikely to seek help from this source.
- Many Australian males were not accessing professional support. While over 80% of men with depression, anxiety and/or any suicidality in the past year had seen a General Practitioner (GP), only around 40% had seen a mental health professional.



Over **80%** of adult men who experienced **depression**,
anxiety or **suicidality** in the past 12 months had
CONTACT WITH A GP
however, **less than half** had contact with a
mental health professional

Overview

AIFS recognises that each of the numbers reported here represents an individual. AIFS acknowledges the devastating effects suicide and self-harm can have on people, their families, friends and communities.

This chapter discusses suicide and presents material that some people may find distressing. If you or someone you know is feeling depressed or suicidal, please contact one of the following services:

- In an emergency, call 000
- Lifeline www.lifeline.org.au ph. 13 11 14
- Kids Help Line (5-25 years) kidshelpline.com.au ph. 1800 55 1800
- MensLine Australia mensline.org.au ph. 1300 789 978

Mental ill-health is common among Australians; about one in five experience some type of mental health concern during any given year (Australian Bureau of Statistics [ABS], 2007). Mental illness tends to develop early in life, with three-quarters of those who have mental ill-health first experiencing symptoms before the age of 25 years (Kessler et al., 2007). Mental health difficulties present a range of challenges and are often associated with adverse outcomes including reduced quality of life (Evans, Banerjee, Leese, & Huxley, 2007) and changes in socio-economic participation (Doran & Kinchin, 2019).

Among males, the personal, societal and economic costs of unaddressed mental ill-health are significant. Estimates suggest that the annual costs for severe mental illness among Australians are over \$50 billion, which include the direct costs of mental health care and other services as well as the indirect costs due to loss of productivity (Cook, 2019). From 15 to 24 years of age, the leading causes of disease burden in males are suicide and self-inflicted injuries, and alcohol use disorders. Between 25 and 44 years of age, suicide and self-inflicted injuries continue to be the leading cause of disease burden (and fatal burden) for males (Australian Institute of Health and Welfare [AIHW], 2019a).

Recent statistics show that suicide continues to be more common among Australian men than women (ABS, 2019), with men making up more than three-quarters of suicidal deaths. On average, there are six male suicides every day. Research has also indicated that the risk of suicide increases over time for men (AIHW, 2016, 2019a), with the highest rates of suicide among those aged 30–59 years.

This chapter focuses on the mental health of men of different ages, followed by who they seek help from for their mental health concerns. Using data from the two current waves of *Ten to Men* (TTM), this chapter explores the mental health disease burden, symptoms and severity of depression among males of all ages, prevalence and patterns of escalation in suicide, and how loneliness may affect these experiences. Health care use for those with past year depression, anxiety and suicidality is also explored. Analyses aim to include boys where possible, but generally the focus throughout the chapter is on young men and adults.

Diagnosed mental health disorders

Psychiatric disorders range from mood disorders, such as depression, through to substance use disorders. Around a quarter of Australian males experience at least one of these disorders in their lifetime, with the most common being depression, followed by anxiety (Williams et al., 2015).

Experience of lifetime and past year mental health disorders

In 2013/14, TTM respondents were asked about a range of mental health conditions they had been diagnosed with in their lifetime or experienced in the past 12 months (Box 1.1).

Box 1.1: Diagnosed mental health disorders

Ten to Men young men (15–17 years old) and adult men (18–57 years old) were asked:

- whether they had ever been diagnosed with each condition in the past ('Has a doctor or other health professional ever told you that you had this condition?')
- whether they had experienced recent (past year) symptoms or associated treatment ('Have you been treated for or had any symptoms of this condition in the past 12 months?').

Parents of boys (10–14 years old) were also asked to report diagnosed mental health disorders on behalf of their sons.

The list of mental health conditions included:

- for adult males: depression, anxiety, schizophrenia, post-traumatic stress disorder (PTSD)
- for young men and boys: depression, anxiety, eating disorders, substance abuse and conduct disorder.

Population estimates were calculated for each age group. This represents the approximate number of males in that age group in Australia who would have been suffering from that condition at the time of measurement.

Among adults in the TTM sample, the lifetime prevalence of any mental health disorder was high, although somewhat lower than other population estimates (Table 1.1).¹ This is likely due to TTM participants not being asked about their experience of all mental health disorders. Nevertheless, findings indicate that, in 2013/14, just under one-quarter of adult men had experienced one of the included disorders in their lifetime. Depression and anxiety were the most commonly reported diagnosed mental health disorders for all age groups.

While depression was the most common disorder (lifetime and 12-month prevalence) among both adult men (20% and 13%, respectively) and young men (11% and 7%, respectively), anxiety was the most common among boys (9% and 6%, respectively). Population estimates are included in Table 1.1 to indicate roughly how many individuals were likely affected in the population, based on the population size at that time. For example, it is estimated that in 2013/14, almost 700,000 Australian adult men experienced symptoms or were treated for depression in the past year.

¹ Previous population estimates rely on national health and mental health surveys conducted by the ABS and AIHW. More information can be found in the following resources: AIHW. (2019). *The health of Australia's males*. Retrieved from www.aihw.gov.au/reports/men-women/male-health. ABS. (2018). *National Health Survey: First results 2017–18*. (ABS cat. no. 4364.0.55.001). Canberra: ABS.

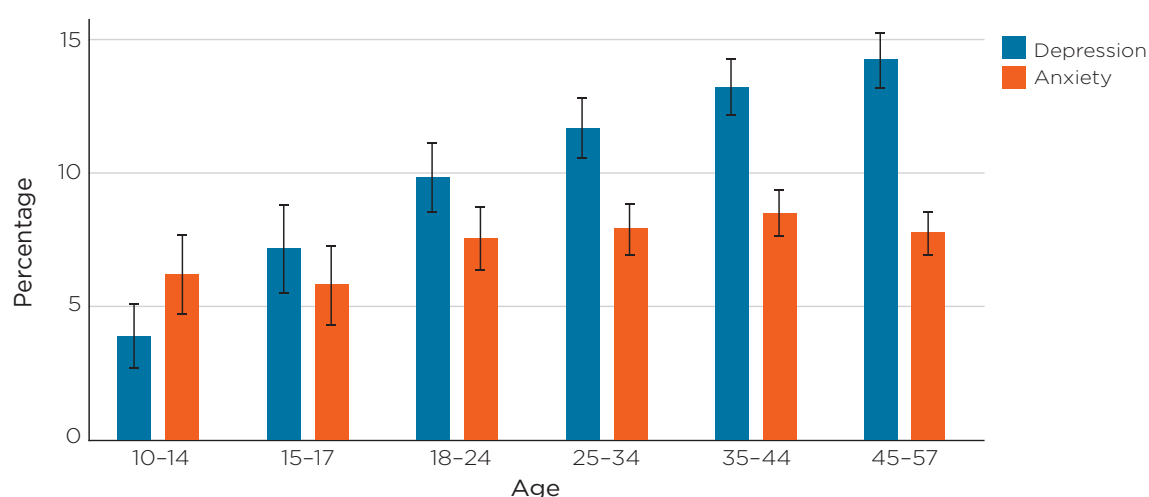
Table 1.1: Estimated prevalence of mental health disorders (lifetime and past year) among Australian males in 2013/14

	Lifetime		12-months	
	%	Population estimate	%	Population estimate
Boys (n = 1,099) Population size = 685,424				
Any disorder	11.2	76,630	7.9	54,217
Mood disorders: Depression	4.9	33,517	4.0	27,074
Anxiety disorders: General anxiety disorder	9.1	62,236	6.3	43,045
Disruptive, impulse-control, and conduct disorders				
Conduct disorder	0	-	0	-
Young men (n = 1,024) Population size = 425,936				
Any disorder	14.1	60,185	9.6	40,720
Mood disorders: Depression	10.9	46,299	7.4	31,562
Anxiety disorders: General anxiety disorder	9.1	38,803	5.8	24,704
Eating disorders	1.3	5,367	0.7	3,024
Substance abuse disorders	1.3	5,495	0	-
Disruptive, impulse-control, and conduct disorders				
Conduct disorder	1.1	4,558	0	-
Adults (n = 13,891) Population size = 5,424,422				
Any disorder	23.5	1,272,569	15.1	820,173
Mood disorders: Depression	19.7	1,065,899	12.8	693,241
Anxiety disorders: General anxiety disorder	12.1	654,728	8.0	435,581
Trauma-related disorders: Post-traumatic stress disorder (PTSD)	3.2	175,209	1.9	103,606
Psychotic disorders: Schizophrenia	0.8	45,023	0.6	30,377

Note: 'Any disorder' was calculated based on whether the respondent had said 'yes' to any of the disorders that they were asked about.

Source: TTM data, Wave 1, all cohorts, weighted

The prevalence of the most common disorders (depression and anxiety) varied substantially by age (Figure 1.1). Experiences of depression steadily increased with age, ranging from 7% of 15–17 year olds to just under 15% of men aged 45 and over. In comparison, the prevalence of anxiety did not vary much by age, ranging from 6% of those aged 15–17 to around 8% of men aged 18 and over.

Figure 1.1: Estimated prevalence of past year anxiety and depression among Australian males aged 10–57 in 2013/14

Note: n = 1,030 at age 10–14; 963 at age 15–17; 1,966 for ages 18–24; 3,058 for ages 25–34; 4,080 for ages 35–44; and 4,475 for ages 45 and over. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 1, all cohorts, weighted

Credit: Ten to Men 2020 (creativecommons.org/licenses/by/4.0/)

Socio-demographic factors linked to anxiety and depression

Previous research has pointed to several socio-demographic factors associated with an increased risk of experiencing poor mental health. These factors include disadvantage, lower education, unemployment and ethnic minority status (Bailey, Mokongho, & Kumar, 2019; Lorant et al., 2003). Identifying as non-heterosexual has also been linked with an increased risk for depression (Scott, Lasiuk, & Norris, 2016).

In the TTM sample, after accounting for all these socio-demographic factors, age, non-heterosexuality, being from a culturally and linguistically diverse background (CALD), higher education, unemployment, marital status and higher area-level disadvantage all significantly affected the likelihood of experiencing depression and anxiety (Table 1.2).

Table 1.2: Socio-demographic characteristics associated with past year depression and anxiety among adult men in 2013/14

	Depression		Anxiety	
	aOR	SE	aOR	SE
Age	1.02***	<-0.01	1.01*	<0.01
Non-heterosexuality	1.54***	-0.16	1.26*	0.16
Aboriginal and/or Torres Strait Islander	1.37*	-0.22	0.94	0.20
CALD background	0.25***	-0.04	0.28***	0.06
Highest level of education achieved (ref. = completed Year 12)				
<Year 12	1.00	-0.08	1.04	0.10
Certificate/diploma	1.10	-0.08	1.09	0.10
University degree	1.79***	-0.28	1.80***	0.33
Employment status (ref. = employed)				
Unemployed, looking for work	2.64***	-0.23	2.31***	0.24
Out of labour force	4.28***	-0.38	4.33***	0.42
Marital status (ref. = single)				
Widowed	1.22	-0.52	1.95	0.85
Divorced	1.49***	-0.20	1.44**	0.23
Separated but not divorced	2.48***	-0.36	1.23	0.24
Married/de facto	0.82**	-0.06	0.81**	0.08
SEIFA (ref. = low disadvantage)				
High disadvantage	1.47***	-0.12	1.55***	0.16
Middle disadvantage	1.21**	-0.09	1.39***	0.13
ASGS (ref. = inner city)				
Inner regional areas	1.08	-0.07	0.99	0.08
Outer regional areas	0.88*	-0.07	0.88	0.08
Total, N	12,577		12,539	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. SEIFA = Socio-Economic Indexes for Areas; ASGS = Australian Statistical Geography Standard; CALD = Culturally and Linguistically Diverse; (ref.) is the reference category to which the other categories are compared. aOR = Adjusted Odds Ratio. SE = standard errors.

Source: TTM data, Wave 1, adult cohort

Among adult men, being out of the labour force was associated with the greatest risk for depression; those who were out of the labour force were four times more likely to have depression compared to those who were employed. Being unemployed, identifying as non-heterosexual and experiencing high area-level disadvantage were also associated with a significantly higher risk of having depression.

Being from a CALD background was associated with a lower likelihood of having depression. Being married/living in a de facto relationship was also associated with a reduced risk for experiencing depression, while being divorced or separated was associated with a 1.5 and 2.5 times increased risk for depression, respectively. This suggests being in a relationship has a protective role against depression for males. This is consistent with literature that indicates that men, in particular, experience mental health benefits from being in a relationship (Amato, 2014; Bulloch, Williams, Lavorato, & Patten, 2017).

Similar results were found for anxiety among adult men. Being unemployed or out of the labour force were associated with increased likelihood of experiencing anxiety, and this effect was greater for being out of the labor force than unemployed but looking for work. Adult men of CALD backgrounds were less likely to experience anxiety. Education and regional location were not significantly associated with anxiety, except for having a university degree, which was associated with an almost two-fold increase in the likelihood of experiencing anxiety.

Findings, therefore, indicate that rates of depression and anxiety are high among Australian males, and support previous evidence that males with specific socio-demographics are at greater risk of experiencing these disorders. In particular, being unemployed and living in a more highly disadvantaged area are common experiences among men who report depression and anxiety. Identifying as non-heterosexual is associated with increased risk for depression but not necessarily anxiety.

Experience of two or more mental health disorders

Many who experience one mental health disorder also experience symptoms of one or more other disorders at the same time (termed 'comorbidity'). Here, comorbidity is defined as having experienced two or more of the included disorders in the past 12-month period. It is important to consider the cumulative burden comorbid disorders can have. Research indicates that lifetime comorbidity for some disorders is as high as over 90% (Kessler, Berglund, Demler, Walters, & Jin, 2005; Krueger, Chentsova-Dutton, Markon, Goldberg, & Ormel, 2003). Having more than one disorder at the same time significantly increases the personal and public health costs, as it becomes much more difficult to effectively diagnose and treat disorders that may share underlying symptoms.

In 2013/14, around 15% of TTM adult respondents had experienced at least one mental health disorder in the last 12 months. Comorbidity was also proportionally high, with almost 7% of all TTM adult men having experienced at least two mental health disorders in the past 12 months (Table 1.3). Out of those who experienced any mental health disorder, 57% experienced only one disorder, around 36% experienced two disorders, and 7% experienced three or more in the past year. The most commonly co-occurring disorders were depression and anxiety. Almost 90% of adult men who had any comorbidity reported experiencing both depression and anxiety in the past 12 months. This is equivalent to roughly 6% of all Australian men (or 309,124 men) in 2013/14. Around one-quarter of those with comorbidity experienced both PTSD and depression.

Past year experiences of comorbid mental health disorders appear to be common among adult men, and the associated burden would be high. Given how common depression is among adult men, this is explored in greater depth to look not just at the past year diagnosed disorder but also to examine symptom severity and potential changes (improvement and worsening) over time.

Table 1.3: Comorbidity among adult males with at least one mental health disorder in past 12 months in 2013/14

	Prevalence of comorbidity 12-months %
Number of disorders among all adult males	
Any disorder (at least one)	15.1
Any comorbidity (2+ disorders)	6.5
Total, <i>n</i>	13,894
Number of disorders among adult males with at least one disorder	
1	57.0
2	36.0
3+	7.1
Total, <i>n</i>	2,155
Most common comorbid disorders among adult males with at least two disorders	
Depression and anxiety	88.4
PTSD and depression	22.9
Total, <i>n</i>	929

Notes: Comorbidity is only evaluated for those disorders that had been assessed and is likely an underestimation. Types of comorbidity (e.g. depression and anxiety, PTSD and depression) were not mutually exclusive; so it is possible that there are some cases who had depression, anxiety and PTSD, or comorbidity of a different set of psychiatric disorders. Because *n*'s for those comorbidities were much smaller, they were not reported.

Source: TTM data, Wave 1, adult cohort, weighted

Depression: severity, symptoms, persistence

To be diagnosed with depression, a person needs to be experiencing symptoms for at least two weeks (American Psychiatric Association, 2013), and symptoms need to be experienced at least half of the time. Individual symptoms and symptom severity were examined among TTM respondents using a self-report questionnaire that assessed depressive symptoms experienced in the last two weeks, and how often (Box 1.2).

Box 1.2: Measuring symptoms of depression

The Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001) was used to assess depressive symptoms over the past two weeks. The questionnaire included nine items with responses on a four-point scale where 0 meant 'not at all', 1 'several days', 2 'more than half of days' and 3 'nearly every day'. These were summed to create the PHQ score, which ranged from 0 to 27, with higher scores indicating a greater level of depression severity. The scores were then divided into four categories:

Score	Depression severity	Comments
0–4	Minimal or none	Monitor
5–9	Mild	Clinical judgement to determine necessity of further assessment and/or treatment
10–14	Moderate	
15–27	Moderately severe	Warrants active treatment
Probable major depressive disorder		
10+	Probable MDD	Needs at least 5 out of all 9 symptoms experienced more than half the days in the past two weeks (must include either depressed mood or anhedonia (i.e. inability to feel pleasure))

In the past two weeks, adult men were most likely to experience probable major depression (7%), with around 5% of all men experiencing severe symptoms (Table 1.4). Around a fifth of boys, young men and adults experienced mild symptoms. Compared to other general population estimates that examined depressive severity (e.g. Germany: Hinz et al., 2016; Kocalevent, Hinz, & Brähler, 2013), a greater proportion of TTM adult males experienced mild, moderate and severe depressive symptoms in the past two weeks.

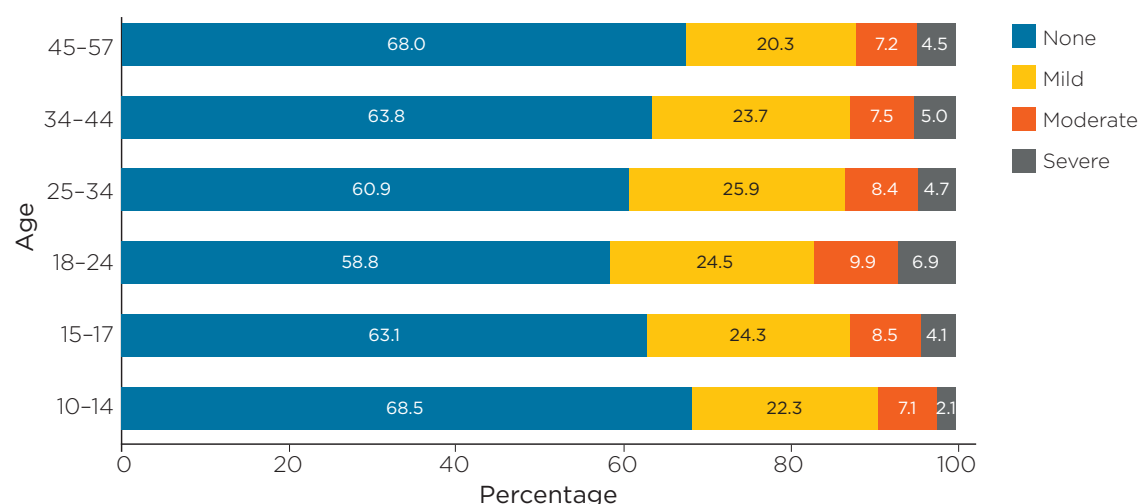
Table 1.4: Depression severity in the past two weeks among males by age group in 2013/14

	Boys %	Young men %	Adults %
Depression severity			
None	69.4	62.9	63.2
Mild	21.5	23.8	23.7
Moderate	7.9	9.4	7.6
Severe	1.2	3.9	5.5
Total, %	100.0	100.0	100.0
Probable major depressive disorder			
Score 10+	2.2	5.8	6.9
Total, n	1,066	1,004	13,573

Source: TTM data, Wave 1, all cohorts, weighted

To explore depression severity across ages in greater depth, symptom severity was mapped by age groups with adults separated into four age categories. This showed that severity among adults varied across life stages (see Figure 1.2).

Figure 1.2: Depressive symptom severity by age groups in 2013/14



Notes: $N = 15,414$, broken down by age group: $n = 1,030$ at age 10–14; 963 at age 15–17; 1,966 for ages 18–24; 3,058 for ages 25–34; 4,080 for ages 35–44; and 4,475 for ages 45 and over.

Source: TTM data, Wave 1, all cohorts, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

The highest proportion of those experiencing moderate or severe symptoms of depression was among males aged 18–24 years, further indicating that this group is particularly vulnerable. Over 40% of young men in this age bracket experienced at least mild symptoms of depression.

As the experience of depression is not homogenous (i.e. different people experience different combinations of symptoms), it is important to consider symptom patterns in addition to overall severity. This helps to enhance understanding of how certain symptoms of depression may be more commonly experienced in some age groups, which can inform identification and prevention efforts.

The most commonly reported depressive symptoms among Australian males in 2013/14 differed slightly by age (Table 1.5). Boys reported that at least half of the time they have experienced trouble with sleep (18.5%). Similarly, young men reported trouble with sleep as the most common symptom (20.6%), followed by poor appetite or overeating (18.2%). Among adults, the most commonly reported symptom was feeling tired or having little energy (20%), closely followed by trouble with sleep (18.3%).

Table 1.5: Depressive symptoms among boys, young men and adults in the past two weeks in 2013/14

Depressive symptoms	% who said 'more than half of days'		
	Boys	Young Men	Adults
Feeling depressed/down/hopeless (irritable) ^a	4.4	11.8	9.6
Little interest or pleasure doing things	13.0	8.0	10.8
Trouble with sleep	18.5	20.6	18.3
Tired or little energy	12.7	9.2	20.0
Poor appetite or overeating (weight loss) ^a	6.6	18.2	13.6
Feeling bad about self	4.6	12.6	10.8
Trouble with concentration	14.4	16.9	7.2
Moving or speaking slowly, or fidgety and restless	6.1	5.2	3.9
Thoughts better off dead or hurting yourself	1.3	2.9	2.9
Total, n	1,091	1,004	13,602

Notes: ^a Item wording differed slightly by age group questionnaires; differences are included in parentheses.

Source: TTM data, Wave 1, all cohorts, weighted

Most who experience some or mild symptoms usually start to get better on their own; however, some continue to feel poorly over time or even get worse (Richards, 2011). Changes in depression severity over time were explored from 2013/14 to 2015/16 to identify how many men continued to experience depression over longer periods of time, or potentially relapsed in a two-year period.

Changes in the severity of depression over time

While the majority of those who were categorised as having no depression in 2013/14 still were not experiencing depression in 2015/16, more movement was observed in the mild, moderate and severe categories (Table 1.6). Less than 5% of those with mild depression in 2013/14 progressed to severe depression, though 10% moved to moderate depression. Importantly, over one-third of those who experienced severe depression in 2013/14 were still experiencing severe depression in 2015/16.

Overall, these results indicate that those who experience no or only mild depression continue to experience only low-level symptoms two years later. However, the majority of those who experience severe depression also continue to do so over time, highlighting the need for further treatment/intervention to reduce the likelihood of chronic or recurrent depression among males.

Table 1.6: Transitions in depression severity among all males between 2013/14 and 2015/16

	Transitions in depression severity Depressive symptoms 2015/16				Total	
	None %	Mild %	Moderate %	Severe %	<i>n</i>	%
Depressive symptoms 2013/14						
None	81.3	14.1	3.0	1.7	7,389	100.0
Mild	43.3	41.2	11.1	4.4	2,598	100.0
Moderate	26.6	35.2	26.3	11.9	853	100.0
Severe	12.3	25.6	26.0	36.1	498	100.0
Total	65.0	22.5	7.7	4.7	11,338	100.0

Note: *N* = 11,338.

Source: TTM data, Waves 1 and 2, all cohorts, weighted

Although there were some changes in the severity of depressive symptoms among males (e.g. from mild to moderate or from severe to moderate) not all changes were considered clinically meaningful; that is, indicating improvement or worsening in the individual's health and wellbeing (Box 1.3). Among TTM males, the majority did not have clinically meaningful change in the severity of depressive symptoms over two years (Table 1.7). Around 80% of boys and adult males and 72% of young adults experienced less than five points change or no change in symptom severity over time. Across different ages, around 10% of males experienced clinically meaningful improvement.

Box 1.3: Clinically meaningful change in depressive symptoms

Clinically meaningful change refers to an observable change in depressive symptoms that indicates an improvement or worsening in the individual's health and wellbeing (Dvir, 2015). Positive scores indicate an increase and negative scores indicate a decrease in symptoms. On the PHQ-9, a change of five points or more is considered clinically meaningful change (Kroenke, Spitzer, Williams, & Lowe, 2010):

- a reduction in overall symptoms by five points or more is an improvement
- an increase in symptoms by five points or more is worsening.

For each TTM respondent clinically meaningful change in depressive symptoms from 2013/14 to 2015/16 was calculated by taking the difference in depression scores, regardless of what severity category they were in.

Table 1.7: Proportions of meaningful change on past two-week depression from 2013/14 to 2015/16

	Boys		Young men		Adults	
	%	95%CI	%	95%CI	%	95%CI
No change	81.1	[76.9, 84.7]	72.7	[66.3, 78.2]	80.3	[79.0, 81.6]
Clinically meaningful worsening	8.4	[6.0, 11.7]	15.8	[11.4, 21.5]	9.3	[8.4, 10.2]
Clinically meaningful improvement	10.5	[7.8, 13.8]	11.5	[8.0, 16.3]	10.5	[9.5, 11.5]
Total, %	100.0		100.0		100.0	
Total, <i>n</i>	846		706		10,066	

Notes: Clinically meaningful change was categorised as a change score on depressive severity of '5' points or more. CI = Confidence Interval.

Source: TTM data, Waves 1 and 2, all cohorts, weighted

The worsening of symptoms was greater among young men compared to boys and adult men. One in seven young men (15%) experienced clinically meaningful worsening over time, compared to a tenth of adults and boys (9% and 8%, respectively). Future research needs to explore these trajectories over a longer period to assess factors associated with worsening/improvement in symptoms.

One key symptom of depression is suicidality, which includes thoughts and behaviours around self-harm. Suicidality is more commonly experienced by those with severe depression (Li, Page, Martin, & Taylor, 2011), and can progress from thoughts about hurting or killing oneself to self-injury and attempting suicide. While most of those with depression do not experience suicidality, those who do often face great additional burden and risk to their lives. Given that a significant proportion of adults experienced severe depression, and 3% reported at least having thought about suicide in the past two weeks, it's important to explore past and recent suicidality among adult men, and how it may escalate over time. Therefore, suicidality, including thoughts and behaviours, is examined in greater depth.

Suicidality: prevalence, correlates and escalation

Suicide among men continues to be a paramount mental health issue. Recent statistics show that suicide continues to be more common among Australian men than women (AIHW, 2019a), with men making up more than three-quarters of suicidal deaths. On average, there are six male suicides every day. Research has also indicated that the rate of suicide increases over time (AIHW, 2019a; Conejero, Olié, Courtet, & Calati, 2018) for men, with the highest rate of suicide among those aged 30–59 years. In Australia, suicide results in the highest rate of years of potential life lost, with a total of 105,730 years lost every year.

To understand prevalence, patterns of change and escalation of suicidality over time, all TTM respondents were asked about their lifetime experience of suicidality at two time points, 2013/14 and 2015/16. In addition, adult males were asked about their experiences of suicidal thoughts and behaviours in the past 12 months in 2015/16 (Box 1.4).

Box 1.4: Suicidality

Suicidality (lifetime and in the past 12 months) was assessed using the following questions with binary response option (Yes/No):

- *Ideation*: Have you seriously thought about killing yourself?
- *Plan*: Have you made a plan about how you would kill yourself?
- *Attempt*: Have you tried to kill yourself?

These questions were asked of all TTM respondents 14 years old and older in 2015/16.

Note: Among all boys, only 14-year-old boys were asked questions about suicidality. Due to very small numbers, they were excluded from these analyses.

Prevalence of suicidality

Lifetime suicidal ideation was high, with around a fifth of young men and a quarter of adults reporting they had thought about hurting or killing themselves at some point in their lives (Table 1.8). Around a tenth of young men and adults had made a suicide plan in their lifetime.

Table 1.8: Suicidality among males across age groups in 2015/16

	Young men		Adults	
	%	95% CI	%	95% CI
Lifetime				
Suicidal ideation	21.1	[16.4, 26.6]	26.4	[24.9, 27.9]
Plan	13.5	[9.7, 18.5]	14.8	[13.5, 15.9]
Suicide attempt	6.8	[4.3, 10.6]	5.9	[5.1, 6.7]
Total, n	608		10,540	
12-months				
Suicidal ideation	9.5	[6.3, 14.0]	7.7	[6.9, 8.6]
Plan	6.0	[3.7, 9.5]	3.9	[3.3, 4.5]
Suicide attempt	2.3	[1.0, 5.4]	1.0	[0.7, 1.4]
Total, n	604		10,502	

Source: TTM data, Wave 2, young men and adult cohorts, weighted

Between 5–7% of young men and adult men had made a suicide attempt in the past. Among adults, those suicide attempts ranged from very recent (the same year of survey completion) to up to 43 years ago, with an average time of 9.13 years since the last suicide attempt. Suicidal ideation in the past 12 months was elevated among young men, with about one-tenth reporting having thought about suicide.

Given a much bigger sample of adult men than young men, and therefore greater power to conduct further analyses, the following analyses focus on adult men only.

Socio-demographic correlates of suicidality

Risk factors associated with suicide are varied, and the strength of these associations vary across the lifespan (Fazel & Runeson, 2020). Some of the most robust risk factors include low socio-economic status and disadvantage (Pirkis et al., 2017), depressive symptoms (Li et al., 2011), unemployment (Blakely, Collings, & Atkinson, 2003), and identifying as non-heterosexual (Batejan, Jarvi, & Swenson, 2015; King et al., 2008). Previous findings using TTM data have shown that certain factors and experiences are associated with increased risk for suicidal ideation among men, including stressful life events and harmful alcohol use (Currier, Spittal, Patton, & Pirkis, 2016), job stress (Milner, Currier, LaMontagne, Spittal, & Pirkis, 2017), masculinity norms (Pirkis, Spittal, Keogh, Mousaferiadis, & Currier, 2016), and identifying as Indigenous Australian (Armstrong et al., 2017). Being able to identify those at risk of experiencing suicidality is an important step in preventing suicide in the community.

In the TTM sample, the socio-demographic characteristics associated with elevated risk for suicidal ideation for adult males were similar to those associated with depression (Table 1.9). Identifying as non-heterosexual was also associated with a significantly increased risk of suicidal ideation. Interestingly, among adult men, having a CALD background was associated with a reduced risk of suicidal ideation. Severe depressive symptoms were most strongly associated with suicidal ideation, above and beyond other socio-demographics.

Table 1.9: Socio-demographic factors associated with 12-month suicidal ideation among adult men in 2015/16

	aOR	SE
Age	1.00	-0.01
Non-heterosexuality	1.48**	-0.23
Aboriginal and/or Torres Strait Islander	0.88	-0.26
CALD background	0.31***	-0.09
Highest level of education achieved (ref. = completed Year 12)		
<Year 12	1.12	-0.15
Certificate/diploma	0.95	-0.12
University degree	1.25	-0.31
Employment status (ref. = employed)		
Unemployed, looking for work	1.01	-0.16
Out of labour force	1.16	-0.17
Marital Status (ref. = single)		
Widowed	0.85	-0.51
Divorced	0.81	-0.20
Separated but not divorced	1.71**	-0.37
Married/de facto	0.90	-0.11
SEIFA (ref. = low disadvantage)		
High disadvantage	1.25*	-0.17
Middle disadvantage	1.32**	-0.16

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	aOR	SE
ASGS (ref. = inner city)		
Inner regional areas	1.05	-0.11
Outer regional areas	0.97	-0.12
Remote/very remote	1.33	-0.92
Depressive severity (ref. = none)		
Mild	5.93***	-0.71
Moderate	16.42***	-2.17
Severe	51.37***	-7.31
Total, n	9,791	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. SEIFA = Socio-Economic Indexes for Areas; ASGS = Australian Statistical Geography Standard; CALD = Culturally and Linguistically Diverse. (ref.) is the reference category to which the other categories are compared. aOR = Adjusted Odds Ratio. SE = Standard Error.

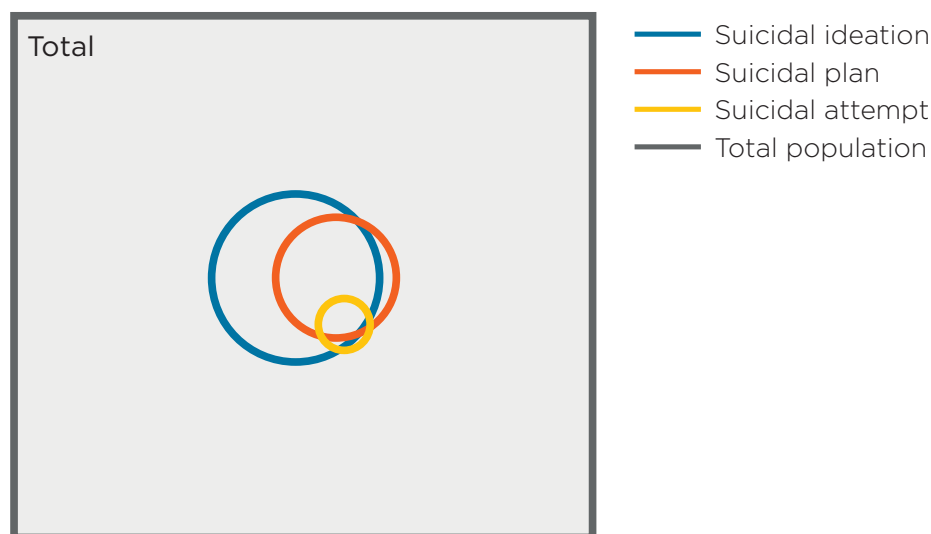
Source: TTM data, Wave 2, adult cohort

Overlap of suicidal thoughts and behaviours

Most who think about suicide at some point in their life do not actually attempt suicide, and not all who attempt suicide display preceding ideation or planning. While it's well-established that ideation, planning and self-harm are related, there is a lot of variation in individual experiences of these. One important consideration is how suicidal thoughts and behaviours can occur independently or together, and how to get a better understanding of how people move from thinking about suicide to suicidal behaviours. Ideation, planning and actual attempts do not follow a straight path of escalation, and can occur simultaneously, consecutively or in isolation. Given this, it is vital to leverage and maximise insights drawn from longitudinal data to investigate suicide among Australian males as an important first step towards understanding how and why Australian men escalate to attempting suicide.

Studying escalation to suicide over time is crucial for identifying those at risk, as well as identifying those who may continue to hurt themselves, and to inform early prevention/intervention efforts. In particular, there are certain patterns indicating increased risk, such as where an individual has previously attempted suicide and attempts again, sometimes multiple times. Having made a previous suicide attempt significantly increases the likelihood that another will be made, and the chances of dying by suicide increase with repeated attempts (Christiansen & Jensen, 2007; Owens, Horrocks, & House, 2002).

While the majority of those who made a suicide plan also reported suicidal ideation, about 13% of those who made a plan did so in the absence of ideation (Figure 1.3). Further, not all who made an attempt in the past 12 months had planned an attempt in that time frame; about 12% of those who made a suicide attempt did so without having made a plan. Most who attempted suicide also reported suicidal ideation (87%).

Figure 1.3: Overlap of suicidal thoughts and behaviours in the past 12 months among adult men in 2015/16

Note: $N = 10,124$

Source: TTM data, Wave 2, adult cohort, unweighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Almost half of those who reported suicidal ideation also made a suicide plan, and just over one-tenth had attempted suicide (Table 1.10). Only in a few cases did adult men appear to have made a suicide attempt in the absence of ideation or a plan.

Table 1.10: Prevalence rates of suicidal behaviour among those who reported suicidal ideation and a suicide attempt in the past 12 months among adult men in 2015/16

	Adults	
	%	95% CI
Among those who reported suicidal ideation:	$n = 776$	
Proportion who made a suicide plan	44.0	[37.7, 50.5]
Proportion who attempted suicide	10.9	[7.6, 15.4]
Among those who reported a suicide attempt:	$n = 78$	
Proportion who made a suicide plan	88.2	[76.2, 94.5]

Notes: Overlap of suicidal thoughts and behaviours among adult men. CI = Confidence Interval.

Source: TTM data, Wave 2, adult cohort, weighted

Given the clear overlap and relationship between ideation, planning and making an attempt, it is imperative to investigate how, and how many, men escalate from suicidal thought and plans to suicide over time. This is the first step to identifying for who and why this escalation occurs, allowing for early identification of high risk to target prevention and intervention.

Escalation over time

Between 2013/14 and 2015/16, a small proportion of men escalated to a first suicide attempt (Table 1.11). Specifically, 0.6% of those who in 2013/14 said they had never attempted suicide had made an attempt by 2015/16; the majority of these were young men of whom 2.7% had escalated from no previous attempt to having made at least one attempt by 2015/16 (Table 1.11). Among those who had reported suicidal ideation in 2013/14, but no previous attempt, 0.4% had escalated to making a first attempt by 2015/16; this constituted 1.8% of all young men and 0.3% of all adult men.

Table 1.11: Escalation to suicide attempt by age group from 2013/14 to 2015/16 among Australian males aged over 15

	Young men		Adults	
	%	95% CI	%	95% CI
Escalation from no previous attempt to a first attempt	2.7	[1.0, 5.9]	0.4	[0.3, 0.7]
Escalation from previous ideation to first attempt	1.8	[0.6, 4.2]	0.3	[0.1, 0.5]
Repeat attempters	0.2	[0.1, 0.9]	0.5	[0.3, 0.9]
Total, <i>n</i>	694		9,821	

Notes: Escalation was calculated using lifetime suicide data at Wave 1 and 12-month suicide data at Wave 2. Repeat attempts were those who had reported at least one suicide attempt in their lifetime at Wave 1 and had made at least one suicide attempt in the past year at Wave 2.

Source: TTM data, Waves 1 and 2, young men and adult cohort, weighted

Among those who made at least one lifetime attempt in 2013/14, there was a small group of repeat attempters who reported at least one attempt in the past 12 months in 2015/16. Around 0.5% of adult men had made at least two suicide attempts in their life. At a population level, this translates to over 26,000 adult men in Australia who are making repeated suicide attempts (not including those who potentially dying by suicide).

These findings highlight that while early suicidal ideation is associated with a greater likelihood of escalating to an attempt over time, there is still a significant amount of variation that suicidal ideation alone does not account for. However, given that the number of those who escalated to a suicide attempt was very small, it was not possible to conduct more in-depth analyses of risk factors associated with escalation.

Loneliness and mental health

Humans thrive on social connection; they feel and do better when they feel supported and part of a group. Loneliness involves experiencing distress or being upset because of feeling separated from others (AIHW, 2019b; Australian Psychological Society, 2018). It can be seen as a feeling of involuntary social isolation, and people can feel lonely even if surrounded by others. In Australia, one in four adults reported being lonely, and those who felt lonely had significantly worse physical and mental health (AIHW, 2019b). Loneliness and social disconnection are becoming a major mental and public health crisis as more and more Australians feel lonely (Relationships Australia, 2018). Men appear to be particularly vulnerable to experiencing loneliness in their lifetime (Australian Psychological Society, 2018), and this can have a significant impact on their mental health.

Men who are socially well-connected tend to have better health outcomes and lower mortality (Holt-Lunstad, Smith, & Layton, 2010). Similarly, evidence suggests that married men have longer life expectancies and lower disease burden compared to unmarried men (Kaplan & Kronick, 2006; Rendall, Weden, Favreault, & Waldron, 2011), with various theories suggesting why this may be. For example, it may be that married men are actively encouraged by partners to engage with health care services (Norcross, Ramirez, & Palinkas, 1996; Schlichthorst, Sanci, Pirkis, Spittal, & Hocking, 2016), or that those who are unmarried are more likely to engage in risky or unhealthy behaviours that may lead to poorer health outcomes or even early death (Kaplan & Kronick, 2006).

However, very little research to date has explored how loneliness may affect mental health outcomes above and beyond many socio-demographics associated with poorer mental health. Therefore, loneliness as a risk factor for poor mental health (including depression, anxiety and suicidality) is examined in consideration of the well-established socio-demographic characteristics. Loneliness among adult males was assessed based on having close friendships, as well as social support in general (see Box 1.5).

Box 1.5: Loneliness and social support

All adult men were asked about close friendships and overall social support in 2015/16.

Loneliness was classified according to how many close friends a respondent reported having. The question was: 'About how many close friends and close relatives do you have (people you feel at ease with and can talk to about what is on your mind)?' and respondents could indicate any number. This was recoded as a binary variable: no close friend (0), or at least 1 close friend (>1).

Social support was assessed using the Emotional/Informational Support subscale from the Medical Outcomes Scale (Sherbourne & Stewart, 1991). It includes eight items (listed below), each rated from 1 'none of the time' to 5 'all of the time'. Scores are transformed to be from 0 to 100, where higher scores indicate more/higher social support. Further, a categorical variable was created for each item to look at how many men experienced very low social support. Ratings '1' and '2' were recoded as 'low support', rating '3' was recoded as 'some support', while ratings '4' and '5' were recoded as 'high support'.

Four per cent of Australian men reported having no close friend, suggesting these men are lonely (Table 1.12). At the population level, this would indicate that, in 2015/16, over 200,000 Australian men felt they didn't have a single close friend.

Table 1.12: Loneliness among adult men in 2015/16

Number of close friends	%	95% CI
No close friend	4.0	[3.4, 4.6]
At least one close friend	96.0	[95.4, 96.6]
Total, n	9,992	

Source: TTM data, Wave 2, adult cohort, weighted

Average overall social support among men was moderately high; although between 10% and 20% seem to lack social support in some areas. This is comparable to previous findings that around 1 in 10 Australians report lacking social support (Relationships Australia, 2018). Around 5% indicated 'low support' on all items, suggesting a general lack of any support. Around a quarter reported that they never – or almost never – had someone to share private worries and fears with (Table 1.13).

Further, self-reported social support was significantly lower among lonely adults compared to not lonely adults (based on having no close friend). For example, while around 10% of not lonely men said they had none or very little support in terms of having someone they can count on to listen, 66% of lonely men indicated that they had very little support in that regard. Overall, social support was also significantly lower among lonely adults compared to not lonely adults, highlighting that not having a single close friend is strongly associated with not having someone to share thoughts and feelings with, get advice from others or feel understood.

Table 1.13: Social support and loneliness among adult men in 2015/16

Social support and connectedness	Lonely adults	Not lonely adults
Emotional/Informational support	% 'Low support'	% 'Low support'
Someone you can count on to listen to you when you need to talk	65.7	9.6
Someone to give you information to help you understand a situation	67.9	10.0
Someone to give you good advice about a crisis	69.0	10.7
Someone to confide in or talk to about yourself or your problems	74.2	12.9
Someone whose advice you really want	74.3	14.8
Someone to share your most private worries and fears with	78.6	20.8
Someone to turn to for suggestions about how to deal with a personal problem	75.4	16.1
Someone who understands your problems	75.6	15.7
Mean (SD)	23.7 (25.2)	71.4 (25.0)
Total, n	398	9,478

Notes: Being lonely was determined using the indicator above of number of close friends. Medical Outcomes Scale – Emotional Support Subscale Total scores range from 0 to 100, with higher scores indicating more social support. M = Mean; SD = Standard Deviation.

Source: TTM data, Wave 2, adult cohort, weighted

Loneliness, indicated here by having no close friends, was explored as a risk factor for poor mental health above and beyond the established socio-demographics often associated with depression, anxiety and suicidality. Over and above all these socio-demographic factors, loneliness was significantly associated with depression, suicidal ideation and planning (Table 1.14).

Table 1.14: Loneliness as a risk factor for mental health outcomes among adult men in 2015/16

	Depression aOR (SE)	Suicidal ideation aOR (SE)	Suicidal planning aOR (SE)	Suicide attempt aOR (SE)
Loneliness	1.40** (0.21)	1.97*** (0.32)	2.23*** (0.43)	1.40 (0.50)
Observations	9,410	9,347	9,350	9,319

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. aOR = adjusted Odds Ratio; SE = Standard Error. Loneliness as a risk factor was assessed at the same time point as the outcome. For these multivariate logistic regressions, loneliness was added as a risk factor to all previously assessed socio-demographic characteristics to determine its role over and above socio-demographics. For depression, loneliness was added as an additional risk factor above and beyond socio-demographics at Wave 2; which showed a consistent pattern with the socio-demographics assessed as risk factors for depression at Wave 1 presented earlier in the chapter.

Source: TTM data, Wave 2, adult cohort

Loneliness experienced at the same time point (2015/16) was a significant risk factor for suicidal ideation and suicidal planning but not for attempts. That means that men who reported being lonely were around twice as likely to have thought about suicide or made a suicide plan in the past year. The statistically non-significant finding for suicide attempts may be due to the relatively small number of cases that attempted suicide in the past 12 months, limiting the statistical power to conduct multivariate analysis.

Given the high prevalence of mental health concerns among men, and the finding that some are experiencing either chronic mental health problems or relapsing, it is also important to investigate if these men are engaging with the appropriate health care services.

Health care use among males with mental health concerns

To address mental health concerns and associated outcomes among this group, it is imperative that males with mental ill-health engage with appropriate health care services and providers. However, use of health care services for mental health is especially low among men (ABS, 2007; Pepin, Segal, & Coolidge, 2009). Research has shown that men often do not seek treatment or support for mental ill-health for a variety of reasons, including stigma, lack of mental health literacy, and feeling able to deal with it alone (Affleck, Carmichael, & Whitley, 2018). To improve understanding of enablers and barriers to professional support for males with mental ill-health, this section explores engagement with services among those aged 15–60 with high depressive and/or anxiety symptoms, or with any suicidality, in the past 12 months.

A key step is identifying who men primarily turn to for help with an emotional issue, as well as their patterns of engagement – or lack of engagement – with health care services – when they are experiencing poor mental health such as depression, anxiety and suicidality.

Help seeking for emotional problems

When dealing with a problem or an emotional challenge, help can be sought from sources ranging from friends and family to professional health care providers and services. Participants were asked to indicate how likely they would be to seek help for an emotional problem (Box 1.6).

Box 1.6: Help-seeking behaviour

Help-seeking behaviour was measured by the following question:

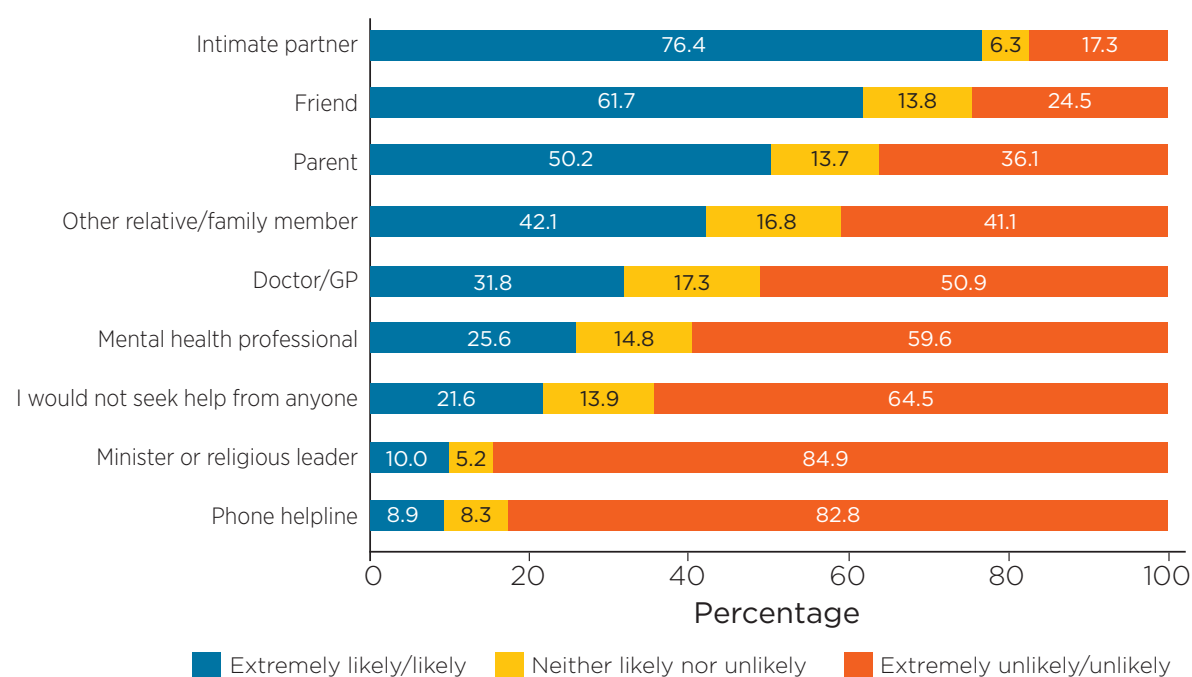
'If you were having a personal or emotional problem, how likely is it you would seek help from the following people?'

Using a scale of 1 to 7 where '1' is 'extremely unlikely', and '7' is 'extremely likely', all young men and adult men were asked to indicate how likely they would be to seek help from a range of sources (e.g. friend, partner, relative, etc.).

Responses were further categorised into three groups: '1' 'extremely unlikely or unlikely', '2' 'neither likely nor unlikely', and '3' 'extremely likely or likely' to seek help from that source.

To seek help for emotional problems, both young and adult men (ages 15–60 years) said they would most likely go to a partner or friend, respectively. In contrast, the least likely sources of help for emotional problems were religious leaders and phone helplines. Just over one-fifth would not seek help from anyone.

Over half of Australian males aged 15–60 years would be unlikely or very unlikely to seek help from a mental health professional in relation to an emotional problem (Figure 1.4), and even less would seek help from a phone helpline.

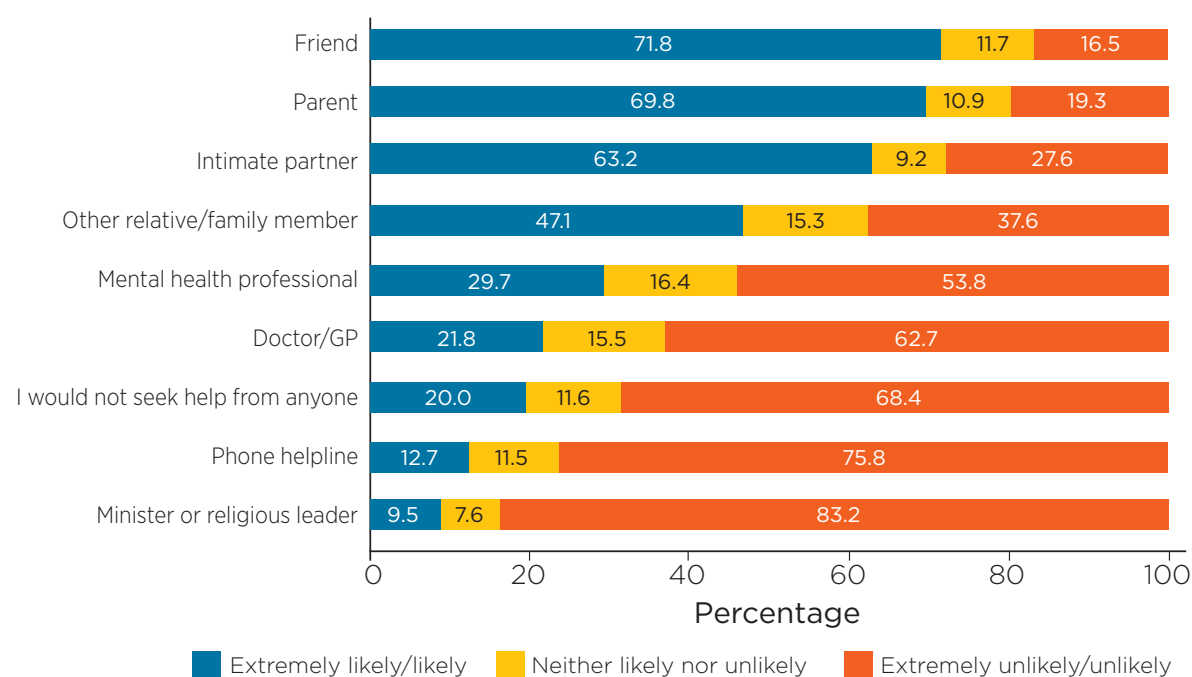
Figure 1.4: Percentage of adult men who said they would be likely or unlikely to seek emotional support from various personal and professional sources, 2015/16

Note: $N > 10,253$ for different items.

Source: TTM data, Wave 2, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Adult men were somewhat more likely to say they would seek help from a doctor or GP, compared to young men; indeed, around one-third (32%) of men aged 18 years and over would seek help from a doctor or GP about emotional problems (Figure 1.4), compared to 22% of those aged 15–17 years (Figure 1.5).

Figure 1.5: Percentage of young men who said they would be likely or unlikely to seek emotional support from various personal and professional sources, 2015/16

Note: $N > 594$ for different items.

Source: TTM data, Wave 2, young men cohort, weighted

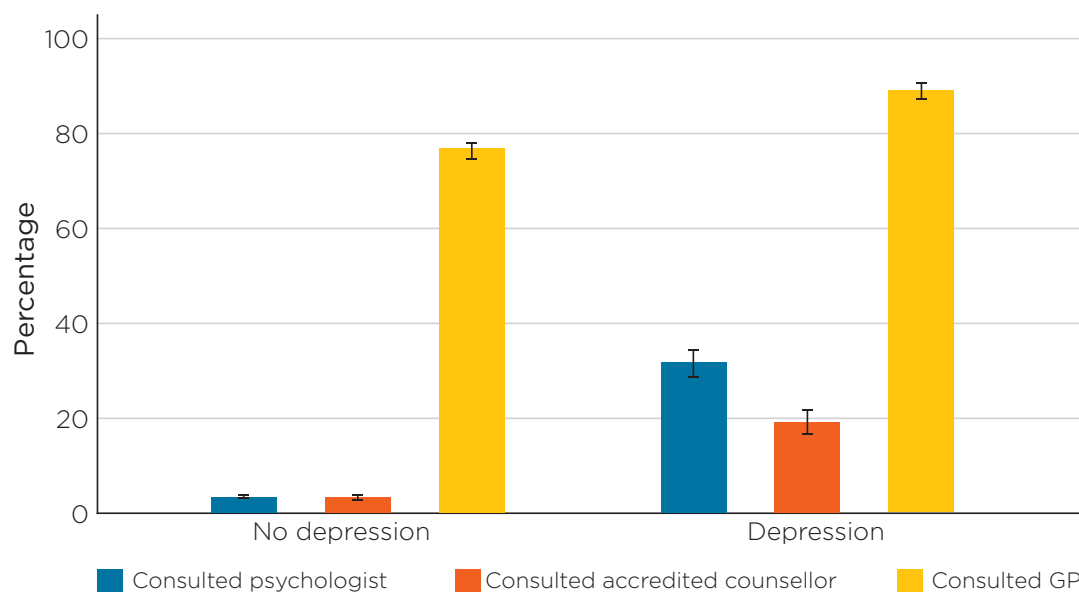
Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Those with a recent experience of mental health concerns (i.e. those with depression, anxiety or any suicidality in the past 12 months in 2015/16) were more likely to seek help from certain sources. Specifically, significantly more of those with depression indicated they would be likely or very likely to seek help from a mental health professional (47%) compared to those without depression (23%). The same was true for those with anxiety (51%) compared to those without (23%). However, there was no difference in how many with depression indicated they would be likely to seek help from a phone helpline (10%), compared to those without depression (9%). Again, the same was true for those with and without anxiety (11% vs 9%, respectively).

Contact with health care professionals among men with mental health problems

Men who experience mental health issues are more likely to have contact with some services compared to those without mental health issues.² In 2015/16, although the majority of Australian males aged 18–60 had accessed a GP in the past year, more males with depression (89%) had visited a GP compared to those without (77%) (Figure 1.6). Adult men who had experienced depression in the past year were significantly more likely to have also seen a psychologist and accredited counsellor in the past 12 months than those without depression.

Figure 1.6: Health care use in the past 12 months by adult men with depression in 2015/16



Notes: $N = 10,501$. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 2, adult cohort, weighted

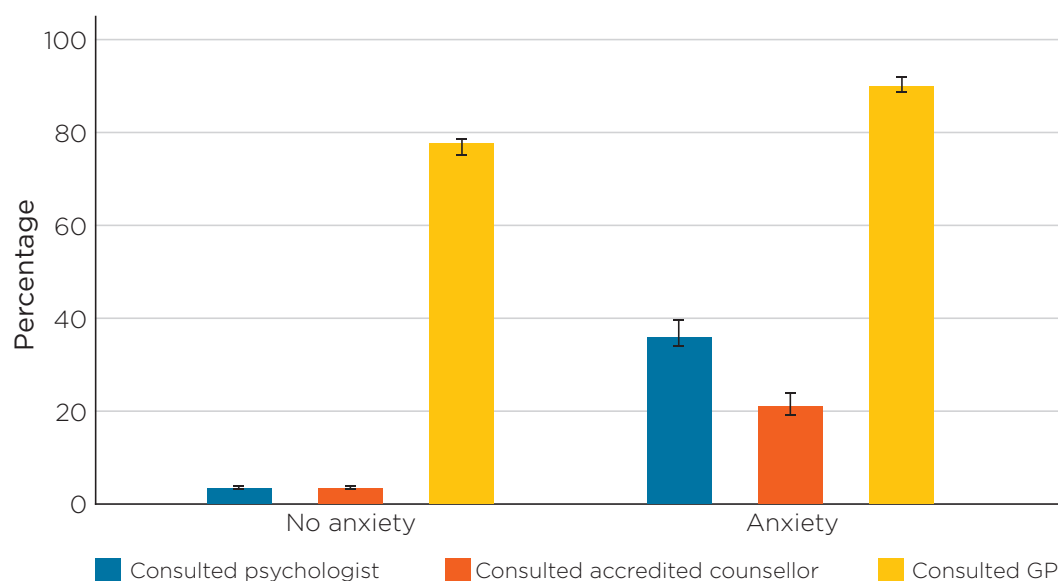
Credit: Ten to Men 2020 (creativecommons.org/licenses/by/4.0/)

However, a significant proportion of men with mental health issues do not seem to be accessing professional support. Despite the higher uptake of mental health services among those with depression, only 40% of men with depression reported having seen a psychologist and/or counsellor.

The same pattern emerged in relation to anxiety: adult men who had experienced anxiety in the past year were more likely to have seen a counsellor or psychologist during that time than those without anxiety (Figure 1.7). Among those with anxiety, less than 40% had engaged with a psychologist and less than 25% with a counsellor in the past year.

² Young men were only asked about a limited range of health care professionals they had contact with, and numbers were generally very small, and therefore not included in these analyses.

Figure 1.7: Health care use in the past 12 months by adult men with self-reported diagnoses of anxiety in 2015/16



Notes: $N = 10,495$. Brackets above/below bars represent 95% Confidence Intervals.

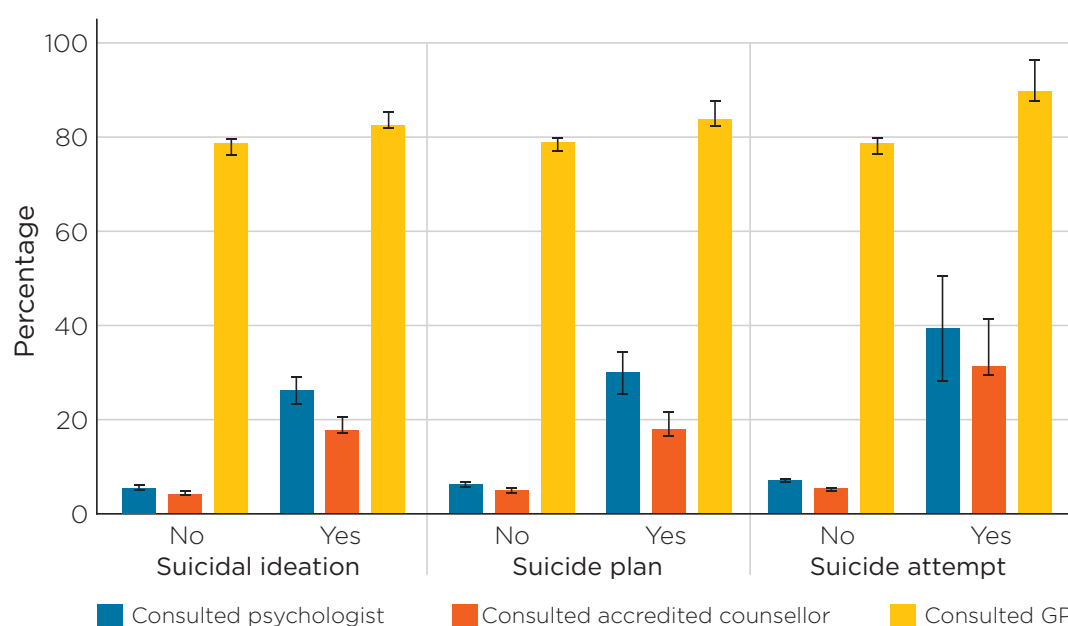
Source: TTM data, Wave 2, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Health care engagement among adult men with any suicidality (thoughts and/or behaviours) was also explored. Similar patterns of health care use emerged for those with suicidality as with depression and anxiety (Figure 1.8).

While most adult men, regardless of suicidality, had engaged with a GP in the past year, there was significantly higher use of psychologists and counsellors among those who experienced suicidal ideation, suicidal planning or an actual attempt. However, only 40% of those who had made a suicide attempt in the past year had seen a psychologist during that time. Stated another way, over half of the men who had made a suicide attempt in the past year had not engaged with a mental health professional before or after the attempt.

Figure 1.8: Health care use among adult men by suicidality in the past 12 months in 2015/16



Notes: $N = 10,479$ for suicidal ideation, $N = 10,489$ for suicide plan, $N = 10,506$ for suicide attempt. GP = General Practitioner. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 2, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Conclusion

This chapter explored the significant burden of poor mental health among men and the gaps in men's help-seeking behaviour.

Poor mental health remains a significant public health concern among males. Up to a quarter of males experience diagnosable poor mental health in their lifetime, the most common of which is depression (20% of adult men). At any given point, around 15% of men of all ages reported experiencing symptoms or being treated for a mental health disorder in the past 12 months. Boys were more likely to have experienced anxiety (6%) than depression (4%), while young men and adult men were more likely to have experienced depression (7% and 12%, respectively) than anxiety (6% and 8%, respectively).

Experiences of poor mental health also appeared to be persistent over time. Over one-third of those adult males who experienced severe depression in 2013/14 were still experiencing this in 2015/16. This suggests that some men with severe depression are either not engaging with health care or mental health care services, the treatment they are receiving is not adequate, or they have had a relapse in that time (which is common (Hardeveld, Spijker, De Graaf, Nolen, & Beekman, 2010)).

Suicidal thoughts, plans and attempts were reported by a notable proportion of men and appear to be more common among young men than older men. A small but significant group escalated or continued to make repeated suicide attempts within two years. This highlights the importance of understanding suicidal thoughts, plans and attempts, rather than only death by suicide, as previously identified in the priorities for suicide prevention and research (Reifels et al., 2017).

To inform where mental health promotion and suicide prevention efforts are needed as a matter of priority, it is important to identify men who may be at increased risk. Several socio-demographic factors were associated with poor mental health (depression, anxiety and suicidal ideation), such as higher area-level disadvantage, unemployment, being divorced or separated, identifying as non-heterosexual and/or identifying as Indigenous Australian. While several mechanisms are likely to play a role in these associations, there is a clear need to direct resources and support to those who may be experiencing several risks simultaneously.

The current suicide prevention research priorities include the need to develop and evaluate selective and indicated interventions³ for groups who may be at elevated risk of suicide (Reifels et al., 2017). Based on the findings of this chapter, suicide interventions are particularly needed for men living in disadvantaged areas, those who are experiencing a relationship breakup and separation (not divorce), and those displaying any degree of depressive symptoms.

Men experiencing loneliness were also at higher risk of developing poor mental health. While only 4% of men reported being lonely (not having a single close friend), the risk for depression, anxiety and suicidality among these men was almost doubled compared to those who had at least one close friend. As, in general, men are at increased risk of prolonged loneliness and find it difficult to talk about it with others (Franklin et al., 2018), it is imperative that loneliness among men is identified, de-stigmatised and mitigated through public health campaigns.

With appropriate care, mental health concerns are manageable and treatable through a range of psychological and pharmacological interventions, so accessing mental health care is an important step to getting better (Cuijpers & Dekker, 2005; Cuijpers et al., 2014). However, among men with diagnosable mental health concerns, less than half reported engaging with mental health care professionals. This highlights the extent of unmet needs and lack of engagement with the mental health care system among males.

Encouragingly, the majority of those with mental health problems (including a past year suicide attempt) reported seeing a GP in that time. This presents an opportunity for GPs to identify, treat or/and refer these men on to dedicated health care services and resources. Already, since the introduction of GP-specific mental health services billable under Medicare, this GP activity is increasing (AIHW, 2020). In addition to this initiative, public health campaigns that de-stigmatise mental health disorders, improve understanding of mental ill-health, and raise awareness about mental health care services and resources may encourage men to actively seek professional help sooner rather than later.

³ In the suicide prevention model, preventions are classified as universal, selective and indicated. Universal preventions can be applied to everyone, selective preventions to those who may be experiencing some risk, and indicated to those who are at high risk (Life in Mind Australia, 2007).

References

- Affleck, W., Carmichael, V., & Whitley, R. (2018). Men's mental health: Social determinants and implications for services. *Canadian Journal Of Psychiatry. Revue Canadienne De Psychiatrie*, 63(9), 581–589. doi:10.1177/0706743718762388
- Amato, P. (2014). Marriage, cohabitation and mental health. *Family Matters*, 96(5). Retrieved from aifs.gov.au/sites/default/files/fm96-pa.pdf
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, D.C.: American Psychiatric Association.
- Armstrong, G., Pirkis, J., Arabena, K., Currier, D., Spittal, M. J., & Jorm, A. F. (2017). Suicidal behaviour in Indigenous compared to non-Indigenous males in urban and regional Australia: Prevalence data suggest disparities increase across age groups. *Australian & New Zealand Journal of Psychiatry*, 51(12), 1240–1248. doi:10.1177/0004867417704059
- Australian Bureau of Statistics (ABS). (2007). National Survey of Mental Health and Wellbeing: Summary of results. Canberra: ABS.
- Australian Bureau of Statistics. (2019). *ABS Causes of Death 2018*. Canberra: ABS. Retrieved from www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/3303.0Main+Features12018?OpenDocument
- Australian Institute of Health and Welfare (AIHW). (2016). *Australian Burden of Disease Study: Impact and causes of illness and death in Australia 2011*. Canberra: AIHW.
- Australian Institute of Health and Welfare. (2019a). *Deaths in Australia: Leading causes of death*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/life-expectancy-death/deaths-in-australia/contents/leading-causes-of-death
- Australian Institute of Health and Welfare. (2019b). *Social isolation and loneliness*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/australias-welfare/social-isolation-and-loneliness
- Australian Institute of Health and Welfare. (2020). *Mental health services in Australia*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/mental-health-services/mental-health-services-in-australia
- Australian Psychological Society (APS). (2018). *Australian loneliness report*. Melbourne: APS. Retrieved from psychweek.org.au/wp/wp-content/uploads/2018/11/Psychology-Week-2018-Australian-Loneliness-Report.pdf
- Bailey, R. K., Mokonoogho, J., & Kumar, A. (2019). Racial and ethnic differences in depression: Current perspectives. *Neuropsychiatric Disease and Treatment*, 15, 603–609. doi:10.2147/NDT.S128584
- Batejan, K. L., Jarvi, S. M., & Swenson, L. P. (2015). Sexual orientation and non-suicidal self-injury: a meta-analytic review. *Archives of Suicide Research*, 19(2), 131–150. doi:10.1080/13811118.2014.957450
- Blakely, T. A., Collings, S. C. D., & Atkinson, J. (2003). Unemployment and suicide: Evidence for a causal association? *Journal of Epidemiology and Community Health*, 57(8), 594–600. doi:10.1136/jech.57.8.594
- Bulloch, A. G. M., Williams, J. V. A., Lavorato, D. H., & Patten, S. B. (2017). The depression and marital status relationship is modified by both age and gender. *Journal of Affective Disorders*, 223, 65–68.
- Christiansen, E., & Jensen, B. F. (2007). Risk of repetition of suicide attempt, suicide or all deaths after an episode of attempted suicide: A register-based survival analysis. *Australian and New Zealand Journal of Psychiatry*, 41(3), 257–265.
- Conejero, I., Olié, E., Courtet, P., & Calati, R. (2018). Suicide in older adults: Current perspectives. *Clinical Interventions in Aging*, 13, 691–699. doi:10.2147/CIA.S130670
- Cook, L. (2019). *Mental health in Australia: A quick guide*. Canberra: Parliament of Australia. Retrieved from www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1819/Quick_Guides/MentalHealth
- Cuijpers, P., & Dekker, J. (2005). [Psychological treatment of depression; a systematic review of meta-analyses]. *Nederlands Tijdschrift Voor Geneeskunde*, 149(34), 1892–1897.
- Cuijpers, P., Sijbrandij, M., Koole, S., Huibers, M., Berking, M., & Andersson, G. (2014). Psychological treatment of generalized anxiety disorder: A meta-analysis. *Clinical Psychology Review*, 34. doi:10.1016/j.cpr.2014.01.002
- Currier, D., Spittal, M. J., Patton, G., & Pirkis, J. (2016). Life stress and suicidal ideation in Australian men – cross-sectional analysis of the Australian longitudinal study on male health baseline data. *BMC Public Health*, 16(3), 1031. doi:10.1186/s12889-016-3702-9
- Doran, C. M., & Kinchin, I. (2019). A review of the economic impact of mental illness. *Australian Health Review*, 43(1), 43–48.
- Dvir, Z. (2015). Difference, significant difference and clinically meaningful difference: The meaning of change in rehabilitation. *Journal of Exercise Rehabilitation*, 11(2), 67–73. doi:10.12965/jer.150199
- Evans, S., Banerjee, S., Leese, M., & Huxley, P. (2007). The impact of mental illness on quality of life: A comparison of severe mental illness, common mental disorder and healthy population samples. *Quality of Life Research*, 16(1), 17–29. doi:10.1007/s11136-006-9002-6
- Fazel, S., & Runeson, B. (2020). Suicide. *New England Journal of Medicine*, 382(3), 266–274. doi:10.1056/NEJMr1902944
- Franklin, A., Barbosa Neves, B., Hookway, N., Patulny, R., Tranter, B., & Jaworski, K. (2018). Towards an understanding of loneliness among Australian men: Gender cultures, embodied expression and the social bases of belonging. *Journal of Sociology*, 55(1), 124–143. doi:10.1177/1440783318777309

- Hardeveld, F., Spijker, J., De Graaf, R., Nolen, W. A., & Beekman, A. T. F. (2010). Prevalence and predictors of recurrence of major depressive disorder in the adult population. *Acta Psychiatrica Scandinavica*, 122(3), 184–191. doi:10.1111/j.1600-0447.2009.01519.x
- Hinz, A., Mehnert, A., Kocalevent, R.-D., Brähler, E., Forkmann, T., Singer, S., & Schulte, T. (2016). Assessment of depression severity with the PHQ-9 in cancer patients and in the general population. *BMC Psychiatry*, 16(1), 22. doi:10.1186/s12888-016-0728-6
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLOS Medicine*, 7(7), e1000316. doi:10.1371/journal.pmed.1000316
- Kaplan, R. M., & Kronick, R. G. (2006). Marital status and longevity in the United States population. *Journal of Epidemiology and Community Health*, 60(9), 760–765. doi:10.1136/jech.2005.037606
- Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustun, T. B. (2007). Age on onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry*, 20(4) 359–364.
- Kessler, R. C., Berglund, P., Demler, O., Walters, E. E., & Jin, R. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6):593–602.
- King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008). A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people. *BMC Psychiatry*, 8(1), 70. doi:10.1186/1471-244X-8-70
- Kocalevent, R.-D., Hinz, A., & Brähler, E. (2013). Standardization of the depression screener Patient Health Questionnaire (PHQ-9) in the general population. *General Hospital Psychiatry*, 35(5), 551–555. doi:10.1016/j.genhosppsych.2013.04.006
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16. doi:10.1046/j.1525-1497.2001.016009606.x
- Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Lowe, B. (2010). The Patient Health Questionnaire Somatic, Anxiety, and Depressive Symptom Scales: A systematic review. *General Hospital Psychiatry*, 4, 345.
- Krueger, R. F., Chentsova-Dutton, Y. E., Markon, K. E., Goldberg, D., & Ormel, J. (2003). A Cross-Cultural Study of the Structure of Comorbidity Among Common Psychopathological Syndromes in the General Health Care Setting. *Journal of Abnormal Psychology*, 112(3), 437–447
- Li, Z., Page, A., Martin, G., & Taylor, R. (2011). Attributable risk of psychiatric and socio-economic factors for suicide from individual-level, population-based studies: A systematic review. *Social Science & Medicine*, 72(4), 608–616. doi.org/10.1016/j.socscimed.2010.11.008
- Life in Mind Australia. (2007). *Living Is for Everyone: A Framework for Prevention of Suicide in Australia*. Australia: Life in Mind Australia. Retrieved from lifeinmindaustralia.com.au/splash-page/docs/LIFE-framework-web.pdf
- Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: A meta-analysis. *American Journal of Epidemiology*, 157(2), 98–112. doi:10.1093/aje/kwf182
- Milner, A., Currier, D., LaMontagne, A. D., Spittal, M. J., & Pirkis, J. (2017). Psychosocial job stressors and thoughts about suicide among males: A cross-sectional study from the first wave of the Ten to Men cohort. *Public Health*, 147, 72–76. doi:10.1016/j.puhe.2017.02.003
- Norcross, W., Ramirez, C., & Palinkas, L. (1996). The influence of women on the health care-seeking behavior of men. *The Journal of Family Practice*, 43, 475–480.
- Owens, D., Horrocks, J., & House, A. (2002). Fatal and non-fatal repetition of self-harm. Systematic review. *The British Journal of Psychiatry*, 181(3), 193–199
- Pepin, R., Segal, D., & Coolidge, F. (2009). Intrinsic and extrinsic barriers to mental health care among community-dwelling younger and older adults. *Aging & Mental Health*, 13, 769–777. doi:10.1080/13607860902918231
- Pirkis, J., Currier, D., Butterworth, P., Milner, A., Kavanagh, A., Tibble, H. et al. (2017). Socio-economic position and suicidal ideation in men. *International Journal of Environmental Research and Public Health*, 14(4). doi:10.3390/ijerph14040365
- Pirkis, J., Spittal, M. J., Keogh, L., Mousaferiadis, T., & Currier, D. (2016). *Masculinity and suicidal thinking*. Springer Heidelberg.
- Reifels, L., Ftanou, M., Krysinika, K., Machlin, A., Robinson, J., & Pirkis, J. (2017). Research priorities in suicide prevention. Melbourne: University of Melbourne. Retrieved from www.suicidepreventionaust.org/wp-content/uploads/2019/05/Research-priorities-Report-FINAL_2017-11-03_0.pdf
- Relationships Australia. (2018). *Is Australia experiencing an epidemic of loneliness? Findings from 16 waves of the Household Income and Labour Dynamics of Australia Survey*. Canberra: Relationships Australia.
- Rendall, M., Weden, M., Favreault, M., & Waldron, H. (2011). The protective effect of marriage for survival: A review and update. *Demography*, 48(2), 481–506. doi:10.1007/s13524-011-0032-5
- Richards, D. (2011). Prevalence and clinical course of depression: A review. *Clinical Psychology Review*, 31(7), 1117–1125. doi:10.1016/j.cpr.2011.07.004
- Schlichthorst, M., Sanci, L. A., Pirkis, J., Spittal, M. J., & Hocking, J. S. (2016). Why do men go to the doctor? Socio-demographic and lifestyle factors associated with healthcare utilisation among a cohort of Australian men. *BMC Public Health*, 16(3), 1028. doi:10.1186/s12889-016-3706-5

- Scott, R. L., Lasiuk, G., & Norris, C. (2016). The relationship between sexual orientation and depression in a national population sample. *Journal of Clinical Nursing*, 23–24, 3522. doi:10.1111/jocn.13286
- Sherbourne, C. D., & Stewart, A. L. (1991). The Mos Social Support Survey. *Social Science & Medicine*, 32(6), 705–714. doi:10.1016/0277-9536(91)90150-B
- Williams, L. J., Jacka, F. N., Pasco, J. A., Coulson, C. E., Quirk, S. E., Stuart, A. L., & Berk, M. (2015). The prevalence and age of onset of psychiatric disorders in Australian men. *Australian & New Zealand Journal of Psychiatry*, 50(7), 678–684. doi:10.1177/0004867415614105

Chapter 2

Alcohol use among Australian males

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Key messages

- Around one-fifth of Australian boys aged 10–14 years have consumed alcohol. Those who have are more likely to also have friends who have drunk alcohol in the past year.



- Young men (15–17 years old) who have drunk more than a sip or taste of alcohol underage are more likely to engage in frequent and riskier alcohol consumption patterns from the age of 18.
- The majority of adult Australian men have recently drunk alcohol (88%), of which only a minority – one-third – drink at moderate-to-high risk levels.



- Younger adult males typically drink at riskier levels than their older counterparts.



- Many adult males engaging in moderate-to-high-risk alcohol consumption do not transition to low-risk patterns over time.

Overview

The following services offer support, counselling and information for anyone seeking help or information regarding their own or another person's harmful alcohol or other substance use:¹

- In an emergency, call 000
- National Alcohol and Other Drugs Hotline ph. 1800 250 015
- Counselling online www.counsellingonline.org.au
- Family Drug Support ph. 1300 368 186
- Hello Sunday Morning hellosundaymorning.org

It is well-established that the use of alcohol is associated with copious personal and interpersonal harms, including a range of diverse health-related consequences (Global Burden of Diseases Injuries and Risk Factors Study [GBD] Alcohol Collaborators, 2018). Specific harms – resulting particularly from more frequent and heavy alcohol use patterns – include numerous types of cancer (e.g. cancers of the liver, oral cavity, oesophagus, rectum and colon) (Boffetta, Hashibe, La Vecchia, Zatonski, & Rehm, 2006), infertility (Sansone et al., 2018), dementia (Koch et al., 2019), mental health issues (Boden & Fergusson, 2011), violence (Wilkinson, Livingston, & Room, 2016), damage to bodily organs such as the brain and liver (Lackner & Tiniakos, 2019; Oscar-Berman & Marinkovic, 2003), and incurring injuries while intoxicated (Caamano-Isorna et al., 2017). It is estimated that 4.5% of the total burden of disease and injury in Australia is attributable to the consumption of alcohol (Australian Institute of Health and Welfare [AIHW], 2020).

Compared to females, males are more commonly affected by alcohol-related harms due, at least in part, to typically higher rates of alcohol use. In 2016, 12.2% of male deaths among the global population aged 15–49 years were attributable to alcohol use, compared to 3.8% of female deaths (GBD Alcohol Collaborators, 2018). According to Australia's National Drug Strategy Household Survey (AIHW, 2020),² males were much more likely to drink alcohol on a daily basis and consume greater volumes than females. Alcohol use disorders, and suicide and self-inflicted injuries are the two leading causes of health burden among Australian males aged 15–24 years (AIHW, 2018). Among those aged 25–44 years, alcohol use disorders are one of the top three leading causes of the total burden of disease (and fatal burden). The other two are suicide and self-inflicted injuries and back problems.

The estimated 'societal' consequences of alcohol consumption in Australia are also substantial. In 2010 alone, the cumulative amount of alcohol-related costs to the country's criminal justice and health care systems, Australian productivity and traffic accidents was estimated to be around \$14.4 billion (Manning, Smith, & Mazerolle, 2013).

This chapter uses data from Waves 1 and 2 of *Ten to Men* (TTM) to explore lifetime and 'recent' (past year) consumption of alcohol among Australian males aged 10 and older. As there is a greater number of adult males in the TTM cohort compared to boys and young men, and also because of their older age, more detailed information is supplied for this group regarding frequency of alcohol use, experience of alcohol-related consequences, and factors associated with more harmful patterns of use. Among young males (those aged 15–17 years), this section briefly investigates whether those who drink 'underage' subsequently engage in different alcohol use patterns after they turn 18 (the legal drinking age in Australia).

The overall aim of this chapter is to improve understanding of alcohol use patterns among boys and young and adult men in Australia, including age of initiation, experiences of related harms, and factors associated with engaging in riskier consumption behaviours. Such information is vital for developing and implementing timely, targeted and evidence-based policy and practice to prevent and reduce the associated adverse consequences experienced by individuals, families and communities nationwide.

¹ These and additional services are listed at: www.health.gov.au/health-topics/alcohol/alcohol-contacts

² The National Drug Strategy Household Survey, undertaken triennially, provides estimates of alcohol and other substance use among Australians aged 14 years and over (AIHW, 2020). The Australian Secondary Students' Alcohol and Drug Survey (ASSAD), also undertaken on a triennial basis, provides estimates of alcohol and other substance use among current students in Years 7–12 in Australia (Guerin & White, 2018). Although there are similarities in the types of information on substance use collected across these studies and *Ten to Men*, the collection of data on the diverse characteristics and behaviours of *Ten to Men* participants allows more nuanced examinations of factors associated with certain drug consumption patterns among Australian males aged 10 years and over.

Alcohol use

Alcoholic beverages are served and consumed in different sizes, and some are stronger than others. Standard drinks help to measure how much alcohol a person consumes. In Australia, **a standard drink is always equivalent to 10 g of alcohol** (Box 2.1).³

Box 2.1: What is a 'standard drink'?

Listed below are some examples of how many standard drinks are in different amounts and types of alcohol:

- a 'pot' (285 ml) of full strength beer: 1.1 standard drinks
- a 'stubby' (375 ml) of full strength beer: 1.4 standard drinks
- a can (375 ml) of low strength beer: 0.8 standard drinks
- a 'slab' or case of full strength beer (24 x 375 ml): 34 standard drinks
- 100 ml of red wine: 1.0 standard drinks
- 100 ml of white wine: 0.9 standard drinks
- a can (375 ml) of pre-mixed spirits: 1.5 standard drinks.



**can
pre-mixed spirits**
(375 ml)

1.5
standard drinks



**'pot'
full strength beer**
(285 ml)

1.1
standard drinks



**glass
red wine**
(100 ml)

1.0
standard drink

Source: Department of Health, 2019

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

To reduce the risk of harm from alcohol-related disease or injury for healthy men and women, Australia's National Health and Medical Research Council (NHMRC) recommends consuming no more than four standard drinks on any one day, and no more than 10 standard drinks in a week (note that, at the time of publication, these guidelines were currently in draft format and under expert and public consultation). The risk of injury and dying from alcohol-related disease is below one in 100 if these guidelines are adhered to (NHMRC, 2019).

In the TTM survey, 'alcohol use' is defined as 'more than a sip or taste of an alcoholic drink'. Mentions of 'recent' alcohol use throughout this chapter refer to alcohol consumption in the 12 months prior to interview.

³ The definition of a standard drink can vary by country; e.g. in the United States (US) a standard drink is 14 g of alcohol, compared to 10 g in Australia (Mellinger, 2019).

Alcohol use among Australian boys

Understanding patterns of alcohol use among children and young people is important. Compared to adults, young people might be at greater risk of experiencing certain alcohol-related harms; for example, given the extent of brain development and maturation that occurs during adolescence, research suggests that young alcohol consumers are at risk of reduced neurocognitive functioning (Bava & Tapert, 2010). However, there is limited information on the use of alcohol among Australians aged less than 12 in particular (AIHW, 2020; Guerin & White, 2018). To address this gap, brief findings are presented here on the prevalence of alcohol use among Australian boys aged 10–14 years. Given their young age, boys in the TTM cohort were only asked a handful of questions about their use of alcohol.

Among TTM boys aged 10–14 years in 2013/14, just over one-fifth (21%) reported having had more than a sip or taste of an alcoholic drink in their lifetime (Table 2.1). Among this group, the average age of first alcohol consumption was 10.4 years. A smaller percentage (around 11%) of boys aged 10–14 years were estimated to have consumed alcohol recently (in the past year). Approximately 7% of boys aged 10–11 years had recently drunk alcohol, compared to around 20% of those aged 14 years.

Overall, the extent of lifetime alcohol use among TTM boys in 2013/14 remained at less than one-fifth (20%) between the ages of 10 and 12 years, before increasing to around one-quarter at 13 years and one-third at 14 years. The prevalence of recent alcohol use among boys aged 10–12 remained at less than 10%, before increasing as they hit their teenage years; in 2013/14 an estimated one-fifth of Australian boys aged 14 years had drunk more than a sip or taste of alcohol at least once in the past 12 months.

Table 2.1: Estimated prevalence of lifetime and recent/past year alcohol consumption among boys in 2013/14, by age

Age (years)	<i>n</i>	Lifetime %	Past year %
10	202	16.6	8.7
11	212	18.3	6.0
12	229	15.7	5.9
13	245	24.1	12.2
14	206	33.0	20.0
Total	1,094	21.4	10.6

Notes: *n* = 1,094 boys with valid responses to alcohol prevalence questions; 95% Confidence Intervals provided in the supplementary materials.

Source: TTM data, Wave 1, boys cohort, weighted

Recent alcohol use among Australian boys was typically infrequent in 2013/14 (Table 2.2); half of those who had ever drunk alcohol had not consumed any in the previous year, and approximately 44% had drunk alcohol on a monthly basis or less frequently during that time. Nevertheless, around 6% of boys who had ever consumed alcohol had drunk more frequently than this in the past year. This equates to an estimated 1.3% of all males aged 10–14 years in Australia.

No TTM participants aged 10 years in 2013/14 reported drinking alcohol more frequently than 2–4 times per month (i.e. more than weekly).

Table 2.2: Alcohol use frequency in the last 12 months among boys who have ever consumed alcohol in 2013/14

Alcohol use frequency	%
Never	50.1
Monthly	43.9
2–4 times/month ^a	4.5
More than weekly ^a	1.5

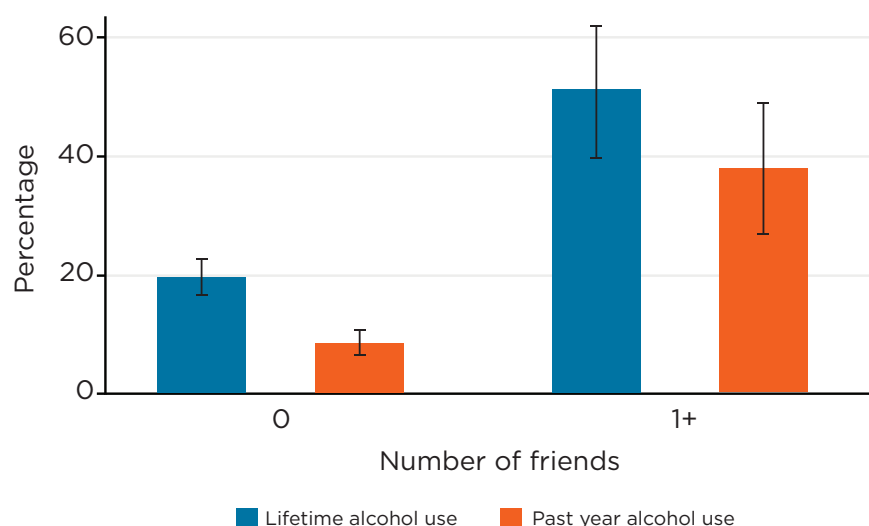
Notes: $n = 211$ boys who reported lifetime alcohol consumption (of $n = 1,094$ boys with valid responses to alcohol prevalence questions).

^a Estimate not reliable (cell count < 10). 95% Confidence Intervals provided in the supplementary materials.

Source: TTM data, Wave 1, boys cohort, weighted

Peer influence on alcohol use among boys

In 2013/14, TTM boys aged 12–14 years were asked how many of their four best friends had ‘drunk alcohol when their parents did not know about it’ in the past 12 months. Significant associations were observed between alcohol consumption (ever or recently) and the number of peers who had recently drunk alcohol (Figure 2.1). Overall, peers’ alcohol use was important; significantly more boys with one or more friends who had consumed alcohol without their parents’ knowledge in the past year had drunk alcohol in their lifetime (52%). By comparison, out of boys with no friends who had drunk alcohol without their parents’ knowledge, 20% had ever tried alcohol. Similarly, boys who had at least one close friend who had consumed alcohol without their parents’ knowledge in the past year were more likely to have recently used alcohol in 2013/14, compared to those who did not have friends who had done so (39% vs 9%, respectively).

Figure 2.1: Prevalence of alcohol use among boys aged 12–14 in 2013/14 by the number of close friends who had ever consumed alcohol without their parents knowing

Notes: $n = 672$ boys aged 12–14 years with valid responses to alcohol use questions. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 1, boys cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Alcohol use among Australian young men

Ten to Men findings indicate that, as Australian boys get older and enter adolescence, a greater proportion report drinking 'more than a sip or taste' of alcohol (see Table 2.1). It is important to monitor alcohol consumption among young men, including lifetime and recent patterns of use and age of initiation. The legal drinking age in Australia is 18, and research points to poorer outcomes later in life as a result of an earlier onset of alcohol use, such as the development of alcohol use disorders and an increased likelihood of engaging in other risk behaviours such as unprotected sex (Hingson & Zha, 2009; Stueve & O'Donnell, 2005).

Lifetime alcohol use

Based on TTM data, in 2013/14 less than half (approximately 45%) of Australian males aged 15–17 years were estimated to have ever consumed alcohol at least once. The average age of initiation among this group was 14.41 years. Young men who had ever consumed alcohol were significantly more likely to be older (an estimated 64% of 17 year olds had ever drunk alcohol, compared to 43% and 30% of young men aged 16 and 15, respectively). There were no significant differences in lifetime use of alcohol among young men in 2013/14 according to country of birth (Australia vs other), residential location (major cities vs inner regional vs outer regional areas), or socio-economic advantage according to the Socio-Economic Indexes for Areas (SEIFA); however, young men who reported lifetime alcohol use were significantly more likely to have ever had sex⁴ compared to those who had never drunk alcohol (37% vs 4%, respectively).

Past year alcohol use

In 2013/14, around two-fifths (41%) of Australian males aged 15–17 years were estimated to have consumed alcohol in the past 12 months. Close to half (52%) of this group consumed alcohol less frequently than monthly in the past year. In comparison, 31% drank on a monthly basis, and approximately 17% drank alcohol weekly or more often.

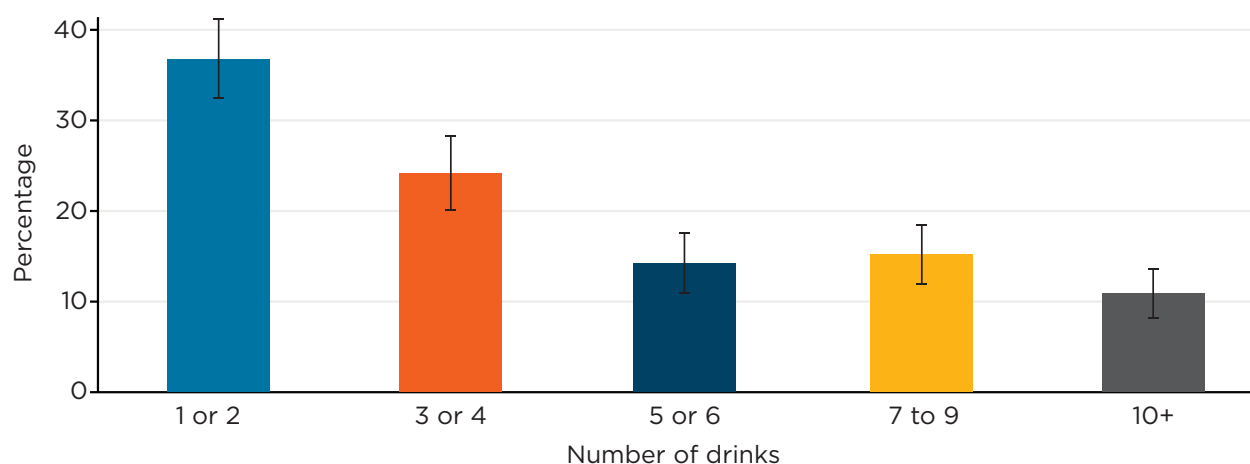
Figure 2.2 details the number of standard alcoholic drinks consumed by this group in a 'typical' or 'usual' drinking session during both periods (see Box 2.1 for a definition of a 'standard' drink in Australia). Overall, in 2013/14, around two in five (39%) Australian males aged 15–17 years who had drunk alcohol in the past year usually engaged in 'binge' drinking (i.e. consuming more than four standard drinks in a single session). In comparison, over one-third (37%) typically consumed 1–2 beverages in a drinking session in the past year, and around one-quarter (24%) usually had 3–4 drinks. Of young men who had drunk alcohol in the past year, around one in 10 consumed 10 or more standard drinks in a typical session.

Levels of binge drinking increased significantly with age: 50% of 17 year olds who had consumed alcohol in the past year reported typically binge drinking, compared to 37% and 17% of 16 and 15 year olds, respectively. Among young males who had consumed alcohol in the past year, there were no significant differences in the likelihood of binge drinking according to Indigenous status, place of birth (Australia vs elsewhere), type of residential location (major cities vs inner and outer regional areas), or level of disadvantage according to the SEIFA.

Importantly, the young men who typically engaged in binge drinking behaviours in the past year were significantly more likely to have experienced certain types of alcohol-related harms, as per the Alcohol Use Disorders Identification Test (AUDIT; see Box 2.2). For example, among young men who reported past year alcohol consumption, significantly more of those who typically binge drank had experienced guilt or regret after alcohol use compared to those who did not usually binge drink (46% vs 9%, respectively). A significantly higher proportion of binge drinkers had also forgotten at least some of what happened the night before due to alcohol use (55% vs 13%, respectively), and more of this group had incurred an alcohol-related injury compared to those who did not usually binge drink (21% vs 7%, respectively).

⁴ 'Ever had sex' included sex with partners of any gender. At Wave 1, 193 15–17-year-old *Ten to Men* participants reported ever having sex with girls, six reported ever having sex with guys, and a further six participants reported ever having had sex with both girls and guys.

Figure 2.2: Number of standard alcoholic drinks consumed by young males aged 15–17 years in a ‘typical’ drinking session during the past year in 2013/14



Notes: $n = 423$ young men who reported past year alcohol consumption and number of drinks typically consumed. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 1, young men cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

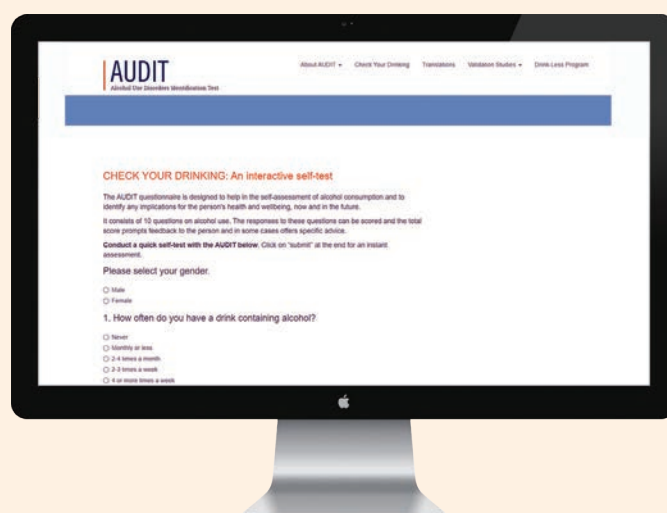
Box 2.2: Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT is a 10-item questionnaire used to screen for excessive drinking practices. It is used widely by health workers and researchers. Items assess various components or outcomes of alcohol use including:

- hazardous consumption levels (e.g. ‘How often do you have six or more drinks on one occasion?’)
- alcohol dependence (e.g. ‘How often during the last year have you found that you were not able to stop drinking once you had started?’)
- experience of related harms (e.g. ‘Have you or someone else been injured as a result of your drinking?’).

Each question has a set of responses to choose from, with total scores ranging from 0 to 40. Higher scores indicate an enhanced likelihood of harmful alcohol consumption patterns and greater severity of alcohol problems, and possibly a need for treatment:

- A score in the 0–7 range indicates a low risk of related harm; 8–15 indicates moderate risk; and scores of 16 and above indicate a high risk of experiencing alcohol-related harm, including dependence (Babor et al., 2001).



Underage drinking linked to riskier drinking later on

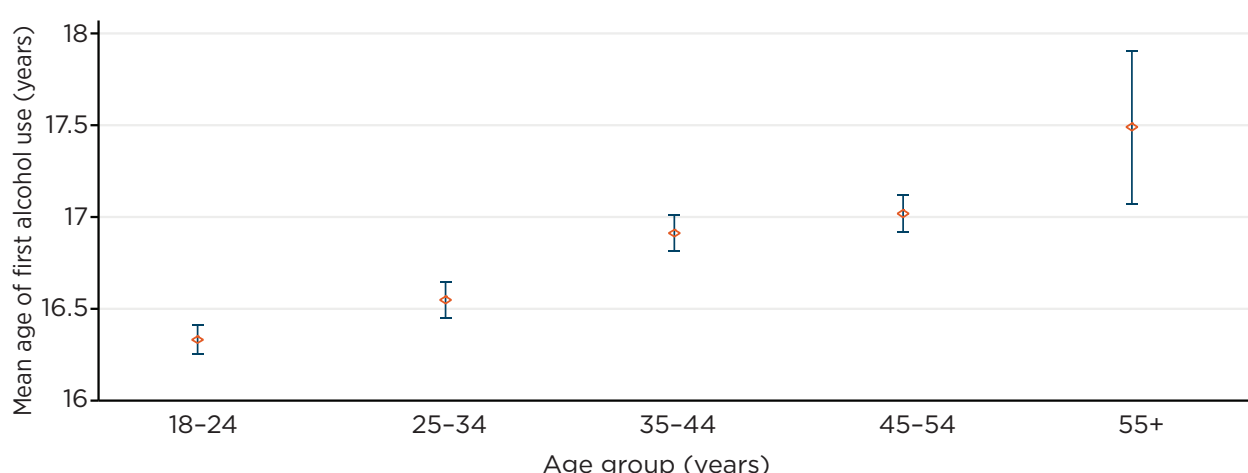
In the TTM study, 45% of young men reported lifetime alcohol consumption in 2013/14. As the legal drinking age in Australia is 18 years, this group of males could be classified as 'underage' drinkers. To prevent and reduce the adverse consequences of alcohol and other drug use, it is important to identify the characteristics of individuals and population subgroups who are more likely to engage in harmful patterns of substance use, and to understand different trajectories of use. In this context, analyses were conducted to determine if young male participants who reported underage drinking in 2013/14 of TTM, and had subsequently turned 18 by 2015/16, reported different alcohol use outcomes in 2015/16 when compared to those who had not reported underage drinking in 2013/14.

Four hundred and twenty-four (41%) participants who were in the young male cohort (15–17 year olds) in 2013/14 were re-interviewed when they were of legal drinking age (i.e. aged 18 years or over) in 2015/16. Young men who had engaged in underage drinking prior to 2013/14 were significantly more likely to have consumed alcohol in the past year in 2015/16 (97% vs 77%, respectively). Underage drinkers who had recently used alcohol in 2013/14 were significantly more likely to be consuming alcohol more frequently in 2015/16; specifically, 57% of underage drinkers in 2013/14 were consuming alcohol on at least a weekly basis in 2015/16, compared to 36% of those who had not drunk underage. Additionally, 47% of the underage drinking group were consuming alcohol at moderate-to-high-risk levels in 2015/16, according to the AUDIT (see Box 2.2), compared to only 20% of the underage non-drinkers.

Alcohol use among adult males in Australia

In 2013/14, the vast majority – approximately 92% – of Australian males aged 18–55 had consumed at least one alcoholic drink throughout their lives, with an average age of initiation of 16.75 years. Notably, the average age Australian men first drink alcohol appears to be gradually decreasing across generations (Figure 2.3). For example, in 2013/14, adult males aged 45–54 years had first consumed alcohol at an average age of around 17.5 years, whereas those aged less than 35 years had started drinking around the age of 16.5 years (on average). Although this difference might not seem particularly large, it is important due to the potential for this trend to continue, and especially because of harms associated with alcohol consumption at a younger age (Bava & Tapert, 2010).

Figure 2.3: Mean age (years) of initiation of alcohol use among adult males 2013/14



Notes: $n = 12,609$ adult males who reported lifetime alcohol consumption and provided a valid response regarding age of alcohol initiation. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 1, adult cohort, weighted

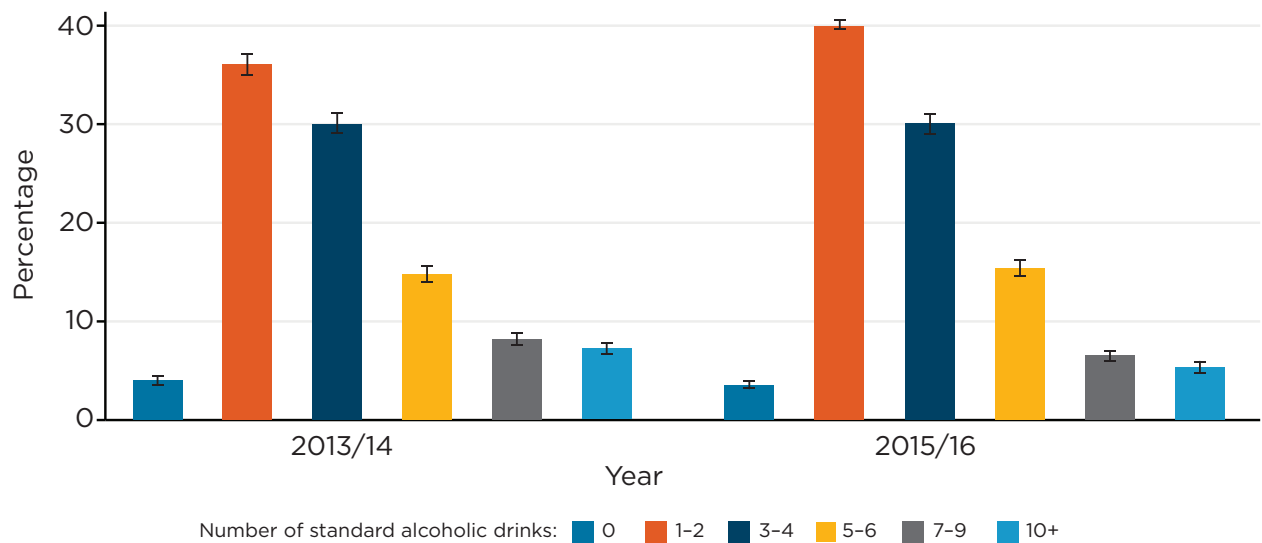
Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Past year alcohol use

In both 2013/14 and 2015/16, the majority of Australian males aged 18 years and over (approximately 88%) had consumed alcohol in the past 12 months. Figure 2.4 details the amount of standard alcoholic drinks consumed by this group in a ‘typical’ or ‘usual’ drinking session during both periods (see Box 2.1 for a definition of a ‘standard’ drink in Australia). Overall, adult men most commonly reported typically drinking a small number of alcoholic beverages per session; during both 2013/14 and 2015/16, around 70–73% of this group usually consumed four drinks or less in one sitting. The majority – over two-thirds – of recent adult male drinkers were consuming alcohol within the current (draft) NHMRC guidelines to reduce the risk of harm from alcohol-related disease (NHMRC, 2019). But over one-quarter of adult males who had engaged in past year alcohol use were drinking at levels defined as ‘risky’ by the NHMRC; specifically, in 2013/14 and 2015/16, around 15% typically consumed five or six drinks in a usual session, 6–8% had seven to nine drinks, and 5–7% consumed at least 10 alcoholic beverages in a typical drinking session. Australian males engaging in such patterns of alcohol use are likely to experience associated harms (AIHW, 2020).

Slight changes in the quantity of alcohol typically consumed by adult males were observed between 2013/14 and 2015/16. A significant increase in adult males drinking 1–2 standard drinks was observed (36% in 2013/14 to 40% in 2015/16), which appeared to be driven by fewer men drinking 7–9 drinks (8% to 6%, respectively) and 10 or more drinks (7% to 5%, respectively).

Figure 2.4: Number of standard alcoholic drinks consumed by adult males in a 'typical' drinking session during the past year in 2013/14 and 2015/16



Notes: $n = 8,137$ males aged >18 at both waves who reported past year alcohol consumption and number of drinks typically consumed. Brackets above/below bars represent 95% Confidence Intervals.

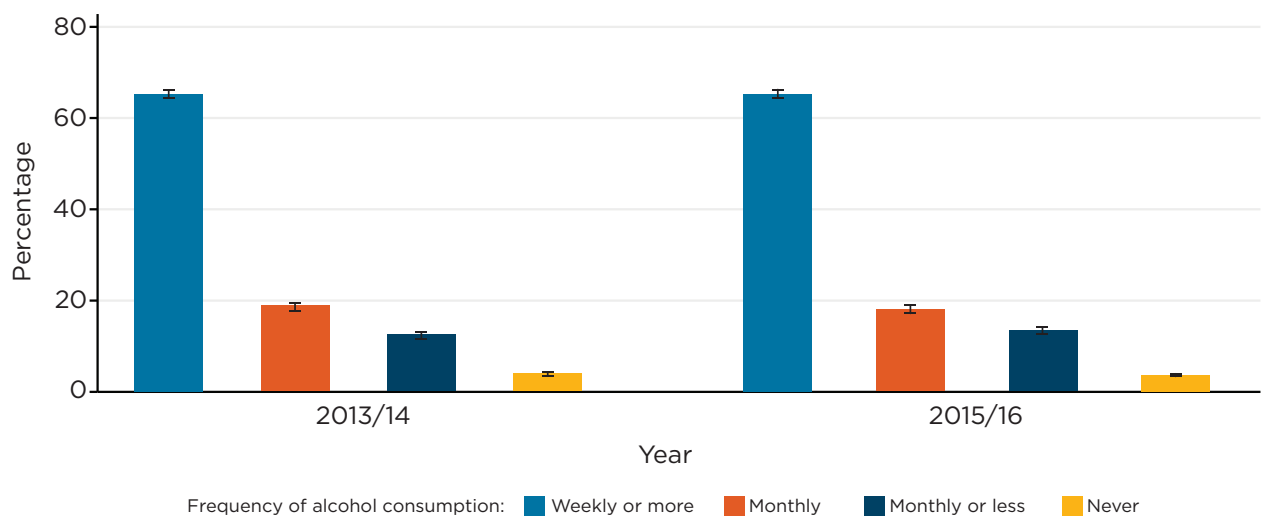
Source: TTM data, Waves 1 and 2, adult cohort, balanced sample, weighted

Credit: Ten to Men 2020 (creativecommons.org/licenses/by/4.0/)

Between 2013/14 and 2015/16, there were minimal changes in the frequency of alcohol use among adult males (Figure 2.5). At both time points, about two-thirds of this group reported drinking weekly or more often in the past year.

Importantly, Australian men who drank alcohol more frequently were significantly more likely to typically drink greater volumes; for example, in 2013/14, approximately one-third of adult males who drank alcohol at least weekly usually consumed five or more drinks in a typical session, compared to around one-quarter of those who drank alcohol less than weekly in the past year.

Figure 2.5: Frequency of alcohol consumption among adult males during the past year in 2013/14 and 2015/16



Notes: $n = 8,119$ males aged >18 years at both waves who reported past year alcohol consumption and number of drinks typically consumed. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Waves 1 and 2, adult cohort, balanced sample, weighted

Credit: Ten to Men 2020 (creativecommons.org/licenses/by/4.0/)

Regret and ‘blackouts’ relatively common

In 2013/14 and 2015/16, adult TTM participants were administered the AUDIT (see Box 2.2) to classify the risk level of their alcohol consumption and understand their experience of some associated harms. Of the alcohol-related harms covered in the AUDIT, the one most commonly experienced by adult males in the past year in both 2013/14 and 2015/16 (see Tables 2.3 and 2.4, respectively) was a feeling of guilt or regret after a session of drinking; around 28% of men had experienced this at least once in the last year, with 3% experiencing it at least weekly at both time points. Around 28–29% of men had been unable to remember what happened the night before due to alcohol consumption at least once in the last year, and around one-fifth had failed to do what was normally expected from them due to drinking during that period.

Less common but indicative of more harmful use, 10% of adult males had a relative, friend and/or health worker (e.g. doctor) indicate concern or suggest cutting down drinking in the past year at both time points, and 2–3% had injured themselves and/or someone else in the past year due to alcohol use.

AUDIT scores are also used to classify respondents’ alcohol use according to level of risk of experiencing related harms. Higher total scores are indicative of a greater risk of experiencing alcohol harms (see Figure S2.1 in the supplementary material for the distribution of AUDIT scores among adult TTM participants at Wave 1). According to the AUDIT scores of TTM participants, in 2013/14 and 2015/16, most adult males (66% at Wave 1 and 69% at Wave 2) were engaging in alcohol use patterns categorised as ‘low’ risk (Figure 2.6). A minority (8–9% across both time points) were consuming alcohol at levels considered to be of ‘high’ risk of experiencing associated harms.

There was little movement out of these risk categories between 2013/14 and 2015/16; specifically, 85% of all adult males stayed within their respective risk groups. However, of males classified as engaging in moderate-to-high-risk alcohol use in 2013/14, 26% had become low-risk drinkers by 2015/16, whereas of those classified as low-risk drinkers in 2013/14, 9% were moderate-to-high-risk alcohol consumers in 2015/16.

Table 2.3: AUDIT results (items 3–10): Alcohol use patterns, outcomes and harms among adult males aged 18–55 years in 2013/14 who had consumed alcohol in the past 12 months

AUDIT items	Never %	Less than monthly %	Monthly %	Weekly or more often %	Yes, but not in the last year %	Yes, in the last year %	Total, <i>n</i>
Frequency of consuming six or more drinks per drinking occasion	21.2	35.6	18.8	24.4	–	–	11,430
Frequency of being unable to stop drinking once started	78.7	11.3	4.9	5.2	–	–	12,062
Frequency of failing to do what was normally expected of you due to your drinking	78.6	16.0	3.3	2.1	–	–	12,040
Frequency of needing an alcoholic drink in the morning to get going following a heavy drinking session	95.5	3.0	0.7	0.8	–	–	12,039
Frequency of feeling guilt or regret after drinking	71.9	20.3	4.7	3.1	–	–	12,039
Frequency of being unable to remember what happened the night before due to alcohol consumption	71.5	22.2	4.3	2.1	–	–	11,955
Have you or someone else ever been injured as a result of your drinking?	84.2	–	–	–	13.0	2.8	11,989
Has a relative, friend, doctor or other health worker been concerned about your drinking or suggested you cut down?	82.1	–	–	–	7.8	10.2	11,955

Notes: Adult males who reported past year alcohol consumption and provided valid responses to the AUDIT items. Percentages might not add to 100.0% because figures were rounded to one decimal place.

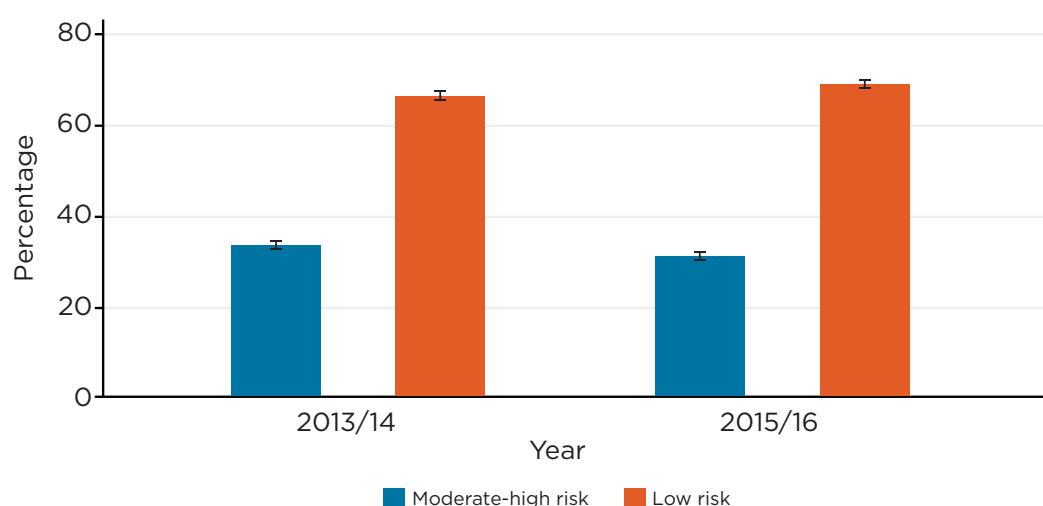
Source: TTM Wave 1, adult cohort, weighted

Table 2.4: AUDIT results (items 3–10): Alcohol use, outcomes and experience of associated harms among males aged 18–60 years in 2015/16 who had consumed alcohol in the past 12 months

AUDIT items	Never %	Less than monthly %	Monthly %	Weekly or more often %	Yes, but not in the last year %	Yes, in the last year %	Total, <i>n</i>
Frequency of consuming six or more drinks per drinking occasion	24.0	35.4	18.3	22.4	–	–	9,537
Frequency of being unable to stop drinking once started	78.9	11.4	4.4	5.3	–	–	9,534
Frequency of failing to do what was normally expected of you due to your drinking	80.3	14.7	3.0	2.0	–	–	9,529
Frequency of needing an alcohol drink in the morning to get going following a heavy drinking session	96.5	2.2	0.8	0.6	–	–	9,530
Frequency of feeling guilt or regret after drinking	71.8	20.7	4.8	2.8	–	–	9,532
Frequency of being unable to remember what happened the night before due to alcohol consumption	74.9	19.4	4.1	1.6	–	–	9,529
Have you or someone else ever been injured as a result of your drinking?	89.3	–	–	–	8.9	1.9	9,540
Has a relative, friend, doctor or other health worker been concerned about your drinking or suggested you cut down?	83.3	–	–	–	7.1	9.6	9,539

Notes: Adult males who reported past year alcohol consumption and provided valid responses to the AUDIT items. Percentages might not add to 100.0% because figures were rounded to one decimal place.

Source: TTM data, Wave 2, adult cohort, weighted

Figure 2.6: Prevalence of low vs moderate-high risk alcohol use (as per AUDIT scores) among adult males in 2013/14 and 2015/16

Notes: *n* = 8,586 males aged ≥18 years at both waves who provided valid responses to AUDIT items. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Waves 1 and 2, adult cohort, balanced sample, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Characteristics associated with more harmful use of alcohol among adult males

Although only a minority – around one-third – of Australian men engage in alcohol consumption at levels associated with medium or high risk of experiencing associated harms (see Figure 2.6), identifying the characteristics of those who do consume alcohol at riskier levels is important for preventing and reducing the adverse consequences of alcohol use in Australia on individual, familial and societal levels. This can be achieved through the development and implementation of targeted, timely and evidence-based education, prevention and harm reduction initiatives.

Using TTM data collected in 2013/14 and 2015/16, Table 2.5 shows that, after taking various socio-demographic, socio-economic and health factors into account, older men, aged 45 and above, were significantly less likely to be engaging in medium- or high-risk (henceforth ‘riskier’) levels of alcohol use compared to those aged 18–24 years. For males aged 25–34 and 34–44, there was no significant difference to men aged 18–24 years (after taking other factors into account).

Lower socio-economic status was associated with less risky alcohol use patterns among adult males. For example, living in low or moderate disadvantage areas (i.e. SEIFA classifications) was associated with a higher likelihood of riskier alcohol use compared to highly disadvantaged areas. Being out of the labour force was associated with a lower likelihood of engaging in riskier alcohol use.

Residing in outer regional areas was associated with a significantly greater likelihood of engaging in riskier alcohol use compared to living in a major city.

Lastly, poorer mental health and overall wellbeing (as indicated by recent experience of depression and/or anxiety and a lower Personal Wellbeing Index score) were associated with an increased likelihood of engaging in riskier alcohol use.

Table 2.5: Characteristics associated with ‘medium’ or ‘high’ risk of experiencing alcohol-related harms (vs ‘low’, by AUDIT scores) among males aged >18 years at Waves 1 and 2

Characteristics	aOR	SE
Age group (years) (ref. = 18–24 age group)		
25–34	1.34	0.31
35–44	0.76	0.18
45–54	0.40***	0.10
55–60	0.31***	0.09
Employment status (ref. = employed)		
Unemployed, looking for work	0.89	0.18
Out of labour force	0.40***	0.09
Highest level of education achieved (ref. = Year 12)		
Certificate/diploma	0.92	0.12
University degree	0.22***	0.04
Aboriginal and/or Torres Strait Islander	1.92	1.11
SEIFA Index (level of disadvantage) (ref. = high)		
Middle	1.35*	0.19
Low	1.61**	0.28
ASGS (ref. = major cities)		
Inner regional areas	1.20	0.19
Outer regional areas	1.99***	0.36
Recent/past year depression and/or anxiety	1.52*	0.22
CALD	0.02***	0.00
Married or de facto	0.44***	0.07
Personal Wellbeing Index score >73 (median = 73)	0.50***	0.05

Notes: $n = 12,411$ observations. **** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. aOR = adjusted Odds Ratio; ASGS = Australian Statistical Geography Standard; CALD = Culturally and Linguistically Diverse; SE = standard error; multivariable random effects logistic regression. Depression and anxiety were classified according to self-report.

Source: TTM data, Waves 1 and 2, adult cohort, unweighted

Conclusion

Less than half of the boys and young men in Australia have lifetime or recent (past year) experience of alcohol consumption. A growing body of research – including TTM – suggests that any alcohol use by young people is problematic. For example, TTM found that underage drinking by young men was associated with more frequent alcohol consumption following the age of 18. These findings reflect those of other studies indicating that earlier initiation of alcohol use is associated with an increased likelihood of engaging in more harmful alcohol use patterns at an older age, in addition to a greater likelihood of experiencing certain harms such as the development of an alcohol use disorder (Hingson & Zha, 2009; Plenty et al., 2019).

Recent research has indicated that harm minimisation policies targeting adolescents may be less effective at reducing alcohol-related problems compared to stricter zero tolerance approaches (Epstein, Bailey, Furlong, Catalano, & Toumbourou, 2020). This accords with current Australian policy on underage alcohol use as per the Australian *National Alcohol Strategy 2019–2026*⁵ and the NHMRC's (draft) *Australian guidelines to reduce health risks from drinking alcohol*.⁶ Both of these highlight the numerous dangers of youth alcohol consumption and indicate that there is no level of safe alcohol use for Australians aged less than 18 years.

Initiatives designed to delay the onset of alcohol consumption among boys and young men could therefore be beneficial for preventing serious alcohol-related consequences among both young and older males in Australia. Such measures will need to consider factors associated with a greater likelihood of underage alcohol consumption, including peer influence (as indicated by TTM findings) and parental approval and provision of alcohol (Ryan, Jorm, & Lubman, 2010).

Although use of alcohol is prevalent among adult males in Australia, most typically drink at levels considered to be 'low risk' (i.e. infrequently and consumption of low volumes). Nevertheless, there is a significant minority of Australian men who engage in moderate-to-high risk alcohol use, including frequent consumption of high volumes of alcohol. Younger cohorts of adult males in particular were shown to be consuming alcohol at riskier levels than their older counterparts.

Some Australian men were more likely to be classified as moderate-to-high risk alcohol consumers. Lower socio-economic status was associated with less risky alcohol use patterns compared to people of higher socio-economic status. However, those of lower socio-economic status experience a disproportionate amount of alcohol-related harms due to various moderating factors including race, ethnicity and unstable accommodation (Collins, 2016). Researchers have suggested that multi-level public health interventions are needed to address not only harmful alcohol use and its consequences among diverse population subgroups, but also the factors that contribute to marginalisation and disenfranchisement in general (Collins, 2016).

Australian males residing in outer regional areas were also shown to be significantly more likely to engage in riskier alcohol use compared to those living in major cities. This reflects Australian Bureau of Statistics (ABS, 2018) findings that those in more remote residential locations are associated with exceeding alcohol use guidelines. Further research points to barriers to service use outside of major cities for people who use alcohol and other substances (e.g. Berends, 2010; Brown, Rice, Rickwood, & Parker, 2016; Deans & Soar, 2005). Given lower rates of service access among Australians living in rural and regional areas in general (AIHW, 2019), there is an ongoing need for tailored initiatives to address risky alcohol use and related harms among males in such areas of the country.

Poorer mental health and overall wellbeing (as indicated by recent experience of depression and/or anxiety and a lower Personal Wellbeing Index score) were associated with increased odds of engaging in riskier alcohol use. This highlights well-documented associations between excessive alcohol consumption and poor mental and general health (Burns & Teesson, 2002; Verdurmen, Monshouwer, van Dorsselaer, ter Bogt, & Vollebergh, 2005), and a continued need for holistic approaches to addressing substance use and mental health ('dual diagnosis') in Australia.

5 See www.health.gov.au/sites/default/files/documents/2020/01/national-alcohol-strategy-2019-2028.pdf

6 See www.nhmrc.gov.au/health-advice/alcohol

Importantly, among adult males, there was little movement out of alcohol risk categorisations between 2013/14 and 2015/16; 85% stayed within their respective risk groups, and only around one-quarter of those classified as engaging in moderate-to-high-risk alcohol use in 2013/14 had become low-risk drinkers by 2015/16. This reflects findings presented in other chapters of this report, in the sense that many Australian males experiencing adverse health conditions and/or engaging in certain risk behaviours cannot – or are not willing – to make the required changes to improve their health and lifestyles. Translational research is needed to understand how to initiate positive change among this group.

In this context, data collected in future waves of TTM will further help improve understanding of trajectories of alcohol use among Australian males.

References

- Australian Bureau of Statistics (ABS). (2018). *National Health Survey: First results (2017-18)*. Canberra: ABS. Retrieved from www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0012017-18?OpenDocument
- Australian Government Department of Health. (2019). *Standard drinks guide*. Canberra: Commonwealth of Australia. Retrieved from www.health.gov.au/health-topics/alcohol/about-alcohol/standard-drinks-guide
- Australian Institute of Health and Welfare. (2018). *Australia's Health 2018*. Canberra: AIHW. Retrieved from www.aihw.gov.au/getmedia/7c42913d-295f-4bc9-9c24-4e44eff4a04a/aihw-aus-221.pdf
- Australian Institute of Health and Welfare. (2019). *Alcohol and other drug use in regional and remote Australia: Consumption, harms and access to treatment, 2016-17*. Canberra: AIHW. Retrieved from www.aihw.gov.au/getmedia/78ea0b3d-4478-4a1f-a02a-3e3b5175e5d8/aihw-hse-212.pdf.aspx
- Australian Institute of Health and Welfare. (2020). *Alcohol, tobacco & other drugs in Australia*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/contents/introduction
- Australian Institute of Health and Welfare (AIHW). (2020). *National Drug Strategy Household Survey 2019*. Canberra: AIHW. Retrieved from www.aihw.gov.au/getmedia/3564474e-f7ad-461c-b918-7f8de03d1294/aihw-phe-270-NDSHS-2019.pdf.aspx?inline=true
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test (AUDIT): Guidelines for Use in Primary Care*. Department of Mental Health and Substance Dependence, World Health Organization. Retrieved from www.who.int/substance_abuse/publications/audit/en/
- Bava, S., & Tapert, S. F. (2010). Adolescent brain development and the risk for alcohol and other drug problems. *Neuropsychology Review*, 20(4), 398-413. doi:10.1007/s11065-010-9146-6
- Berends, L. (2010). The emergence of a specialist role in rural alcohol and drug service delivery: Lessons from a review in rural Victoria, Australia. *Drugs: Education, Prevention and Policy*, 17(5), 603-617.
- Boden, J. M., & Fergusson, D. M. (2011). Alcohol and depression. *Addiction*, 106(5), 906-914. doi:10.1111/j.1360-0443.2010.03351.x
- Boffetta, P., Hashibe, M., La Vecchia, C., Zatonski, W., & Rehm, J. (2006). The burden of cancer attributable to alcohol drinking. *International Journal of Cancer*, 119(4), 884-887. doi:10.1002/ijc.21903
- Brown, A., Rice, S. M., Rickwood, D. J., & Parker, A. G. (2016). Systematic review of barriers and facilitators to accessing and engaging with mental health care among at-risk young people. *Asia-Pacific Psychiatry*, 8(1), 3-22. doi:10.1111/appy.12199
- Burns, L., & Teesson, M. (2002). Alcohol use disorders comorbid with anxiety, depression and drug use disorders. Findings from the Australian National Survey of Mental Health and Well Being. *Drug and Alcohol Dependence*, 68(3), 299-307. doi:10.1016/s0376-8716(02)00220-x
- Caamano-Isorna, F., Moure-Rodriguez, L., Doallo, S., Corral, M., Rodriguez Holguin, S., & Cadaveira, F. (2017). Heavy episodic drinking and alcohol-related injuries: An open cohort study among college students. *Accident Analysis and Prevention*, 100, 23-29. doi:10.1016/j.aap.2016.12.012
- Collins, S. E. (2016). Associations between socioeconomic factors and alcohol outcomes. *Alcohol Research: Current Reviews*, 38(1), 83-94.
- Deans, C., & Soar, R. (2005). Caring for clients with dual diagnosis in rural communities in Australia: The experience of mental health professionals. *Journal of Psychiatric and Mental Health Nursing*, 12(3), 268-274. doi:10.1111/j.1365-2850.2005.00830.x
- Epstein, M., Bailey, J. A., Furlong, M., Catalano, R. F., & Toumbourou, J. W. (2020). Does adolescent alcohol harm minimization policy exposure reduce adult alcohol problems? A cross-national comparison. *Journal of Adolescent Health*, 66(6), 713-718. doi:10.1016/j.jadohealth.2019.08.019
- Global Burden of Diseases Injuries and Risk Factors Study (GBD) Alcohol Collaborators. (2018). Alcohol use and burden for 195 countries and territories, 1990-2016: A systematic analysis for the Global Burden of Disease Study 2016. *Lancet*, 392(10152), 1015-1035. doi:10.1016/S0140-6736(18)31310-2
- Guerin, N., & White, V. (2018). *ASSAD 2017 statistics & trends: Australian secondary students' use of tobacco, alcohol, over-the-counter drugs, and illicit substances*. Melbourne: Cancer Council Victoria. Retrieved from www.health.gov.au/resources/collections/australian-secondary-school-students-alcohol-and-drug-assad-survey-2017
- Hingson, R. W., & Zha, W. (2009). Age of drinking onset, alcohol use disorders, frequent heavy drinking, and unintentionally injuring oneself and others after drinking. *Pediatrics*, 123(6), 1477-1484.
- Koch, M., Fitzpatrick, A. L., Rapp, S. R., Nahin, R. L., Williamson, J. D., Lopez, O. L. et al. (2019). Alcohol consumption and risk of dementia and cognitive decline among older adults with or without mild cognitive impairment. *JAMA Network Open*, 2(9), e1910319. doi:10.1001/jamanetworkopen.2019.10319
- Lackner, C., & Tiniakos, D. (2019). Fibrosis and alcohol-related liver disease. *Journal of Hepatology*, 70(2), 294-304. doi:10.1016/j.jhep.2018.12.003
- Manning, M., Smith, C., & Mazerolle, P. (2013). *The societal costs of alcohol misuse in Australia*. Canberra: Australian Institute of Criminology. Retrieved from: aic.gov.au/publications/tandi/tandi454

- Mellinger, J. L. (2019). Epidemiology of alcohol use and alcoholic liver disease. *Clinical Liver Disease (Hoboken)*, 13(5), 136–139. doi:10.1002/cld.806
- National Health and Medical Research Council (NHMRC). (2019). *Draft Australian guidelines to reduce health risks from drinking alcohol*. Canberra: NHMRC. Retrieved from www.nhmrc.gov.au/sites/default/files/documents/attachments/draft-aus-guidelines-reduce-health-risks-alcohol.pdf
- Oscar-Berman, M., & Marinkovic, K. (2003). Alcoholism and the brain: an overview. *Alcohol Research and Health*, 27(2), 125–133.
- Plenty, S. M., Evans-Whipp, T. J., Chan, G. C. K., Kelly, A. B., Toumbourou, J. W., Patton, G. C. et al. (2019). Predicting alcohol misuse among Australian 19-year-olds from adolescent drinking trajectories. *Substance Use & Misuse*, 54(2), 247–256. doi:10.1080/10826084.2018.1517172
- Ryan, S. M., Jorm, A. F., & Lubman, D. I. (2010). Parenting factors associated with reduced adolescent alcohol use: A systematic review of longitudinal studies. *Australian and New Zealand Journal of Psychiatry*, 44(9), 774–783. doi:10.1080/00048674.2010.501759
- Sansone, A., Di Dato, C., de Angelis, C., Menafrà, D., Pozza, C., Pivonello, R. et al. (2018). Smoke, alcohol and drug addiction and male fertility. *Reproductive Biology and Endocrinology*, 16(1), 3. doi:10.1186/s12958-018-0320-7
- Stueve, A., & O'Donnell, L. N. (2005). Early alcohol initiation and subsequent sexual and alcohol risk behaviors among urban youths. *American Journal of Public Health*, 95(5), 887–893. doi:10.2105/AJPH.2003.026567
- Verdurmen, J., Monshouwer, K., van Dorsselaer, S., ter Bogt, T., & Vollebergh, W. (2005). Alcohol use and mental health in adolescents: Interactions with age and gender-findings from the Dutch 2001 Health Behaviour in School-Aged Children survey. *Journal of Studies on Alcohol*, 66(5), 605–609. doi:10.15288/jsa.2005.66.605
- Wilkinson, C., Livingston, M., & Room, R. (2016). Impacts of changes to trading hours of liquor licences on alcohol-related harm: A systematic review 2005–2015. *Public Health Research and Practice*, 26(4). doi:10.17061/phrp2641644

Chapter 3

Overweight and obesity among Australian males

Neha Swami, Brendan Quinn, Sonia Terhaag
and Galina Daraganova



Key messages

- The proportion of Australian males who are classified as overweight or obese increases with age; in 2013/14 around 20% of boys aged 10–14, 60% of men aged 25–34, and more than 70% of men aged 35–57 were overweight or obese.



7 in 10
men **aged 35–57** are either
OVERWEIGHT OR OBESE

*based on BMI data

- Among boys and young males (10–17 years), low physical activity was a key risk factor for being overweight or obese.
- Among adult Australian men (18+), low physical activity, frequent medication use, poor diet, smoking, drinking and lower overall life satisfaction were all associated with greater risk of being overweight or obese.



HEAVY SMOKING & HEAVY DRINKING

are **key risk factors** for **overweight and obesity**
among adult men

- With age, it was harder to sustain a ‘normal’ or healthy weight:
 - Among those at a healthy weight, 91% of 10–14 year olds were still at a healthy weight two years later, compared to 82% of 18–24 year olds and 77% of 45–57 year olds.
- Across a two-year period, once overweight or obese, very few males lost weight to become a healthy weight:
 - Around 9 in 10 men aged 35–57 who were overweight or obese, remained so two years later.
- The longer that men were overweight or obese, the more likely they were to develop several chronic health conditions. Compared to men of a healthy weight, those who were overweight or obese in 2013/14 and 2015/16 had:
 - almost triple the likelihood of having symptoms of, or being treated for, cardiovascular conditions in the past 12 months prior to 2015/16
 - triple the likelihood of having symptoms of, or being treated for, diabetes in the past 12 months
 - 1.4 times more likely to have symptoms of, or being treated for, a respiratory condition and/or arthritis in the past 12 months.



Persistent or ongoing
overweight and obesity
increases the chances of experiencing a range of other

CHRONIC HEALTH CONDITIONS

such as **arthritis**, **diabetes** and **cardiovascular** disease

Overview

Overweight and obesity are generally preventable and modifiable – yet complex – conditions that come with heightened risk of many other health conditions including cardiovascular disease and diabetes (Australian Institute of Health and Welfare [AIHW], 2017b; World Health Organization [WHO], 2000a). In addition to considerable personal costs, the economic burden of these conditions is significant; in 2011/12, for example, the combined cost of obesity in Australia was estimated to be around \$8.6 billion. This included costs associated with health care, absenteeism from work, disability payments, forgone earnings and taxes, unemployment, and loss of productivity due to illness and premature death (Goettler, Grosse, & Sonntag, 2017; PricewaterhouseCoopers, 2015).

In 2018, Australia ranked ninth out of 23 Organisation for Economic Co-operation and Development (OECD) countries on overweight and obesity (AIHW, 2018; OECD, 2019). Australia had the third highest proportion of overweight and obese males (71%), only behind the United States and Chile (both 74%) (AIHW, 2018). Enhancing understanding of overweight and obesity among Australian males is vital for identifying those most at risk of developing these chronic health conditions, implementing preventive measures, and addressing associated health outcomes and their effects on the wider health care system.

This chapter uses *Ten to Men* (TTM) data to assess the prevalence and some risk factors for overweight and obesity among Australian boys and men. Using data collected in 2013/14 and 2015/16, it also examines persistence and changes in weight status, and the possible effects of overweight and obesity on certain physical health outcomes among adult men.

Prevalence of overweight and obesity among males

Box 3.1: Measuring overweight and obesity

Body mass index (BMI) is defined as weight (kg) divided by height (m²).

Respondents were divided into three categories for weight status: ^a

- underweight/normal/healthy weight ^b (adult BMI of less than 25)
- overweight (adult BMI from 25 to less than 30)
- obese (adult BMI of 30 or above).

For TTM respondents, underweight, 'normal' or healthy weight, overweight and obese were classified according to the International Obesity Task Force BMI cut-off points (Cole & Lobstein, 2012), which account for age and sex. In the TTM study, weight and height were self-reported.

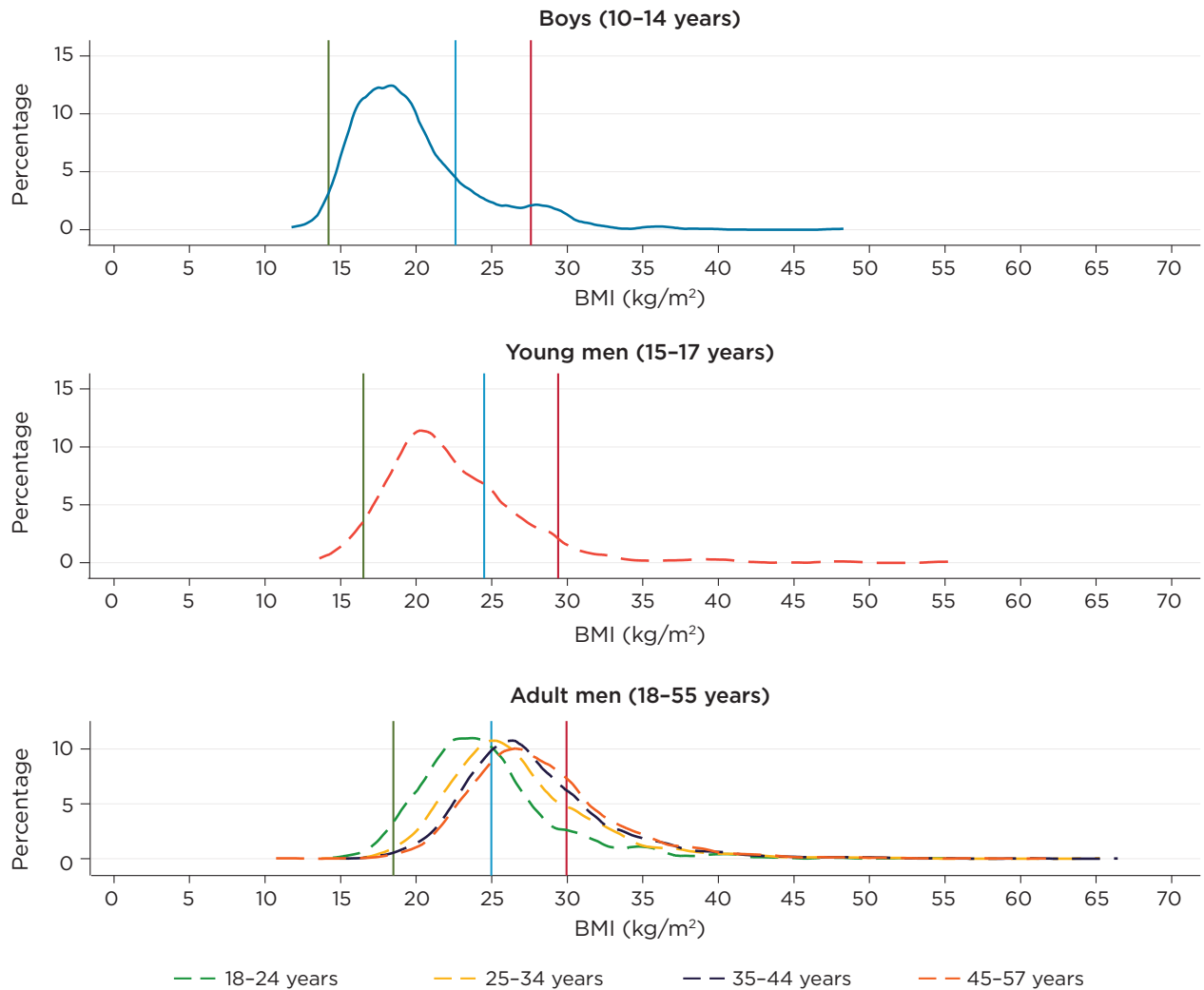
Although BMI is a practical and commonly used method of classifying overweight and obesity in population surveys, it has its limitations. In particular, it does not distinguish between weight associated with muscle and with fat; as a result it might not indicate an accurate body fat percentage among some individuals and populations with varying body build and proportion (WHO, 2000b). The findings of this chapter should therefore be viewed cautiously with a caveat that they reflect a simplistic relationship between BMI and obesity.

Notes: ^a For males younger than 18 years, a series of age-specific BMI ranges were used in line with the appropriate growth reference for each age as suggested by WHO (Cole & Lobstein, 2012). ^b For analysis purposes, TTM respondents classified as being underweight (adult BMI less than 18.5) were combined with those classified as healthy weight. The proportion of those classified as underweight was 5% among 10–14 year olds, 7% among 15–17 year olds, 4% among 18–24 year olds, and less than 1% among 25–57 year olds.

In 2013/14, the BMI scores of Australian males varied considerably by age; overall, the average BMI was higher among older males compared to those who were younger (Figure 3.1). For 10–14 year olds, the average BMI score was around 20. This increased to a score of 23 for young men aged 15–17. For adult men aged 18–24, the average BMI was around 25 (on the border of being overweight). By the age of 45–57, the average BMI was around 28, which is greater than the threshold for being overweight.

Aligning with the patterns in BMI scores outlined above, the prevalence for being overweight and obese was significantly higher among older versus younger Australian males (Figure 3.2). Around one in five boys aged 10–14 (20%), and around one in three young men aged 15–17 (29%), were classified as overweight or obese. In comparison, approximately two in five men aged 18–24 (40%) were either overweight or obese. In older groups, this percentage was consistently higher. Among men aged 35–57, more than seven in 10 were overweight or obese, with around 5–7% classified as severely obese (BMI scores of 35–39) and 2.5% as morbidly obese (BMI 40 or greater). This equates to around half a million males aged between 35 and 57 being classified as severely obese (406,126 males) or morbidly obese (145,045 men) at that point in time.

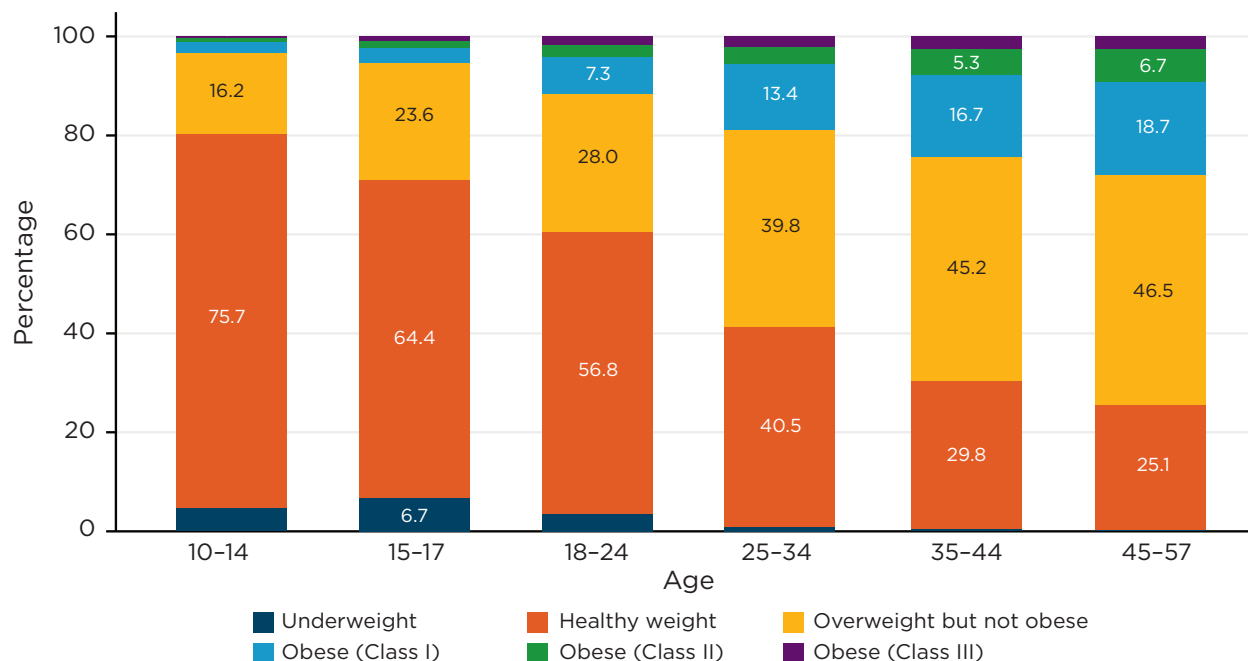
In contrast, the proportion of TTM males classified as being underweight in 2013/14 decreased with age: specifically, 4% of 10–14 year olds, 5% of 15–17 year olds, 3% of 18–24 year olds, 1% of 25–35 year olds, and less than 1% of those aged 36 years and older were underweight at this point.

Figure 3.1: Distribution of BMI scores for Australian males aged 10–57 years, by age group (years), 2013/14

Notes: The green vertical line indicates a BMI underweight cut-off point; the blue vertical line indicates a BMI overweight cut-off point; the red vertical line indicates a BMI obese cut-off point. $n = 1,035$ (10–14 years); $n = 816$ (15–17 years); $n = 1,612$ (18–24 years); $n = 2,743$ (25–34 years); $n = 3,810$ (35–44 years); $n = 4,194$ (45–57 years).

Source: TTM data, Wave 1, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Figure 3.2: Weight classification of Australian males aged 10–57 years, by age group (years), 2013/14

Notes: $n = 969$ (10–14 years); $n = 816$ (15–17 years); $n = 1,612$ (18–24 years); $n = 2,743$ (25–34 years); $n = 3,810$ (35–44 years); $n = 4,194$ (45–57 years). Percentages <5% not displayed here.

Source: TTM data, Wave 1, all cohorts, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Rates of overweight and obesity among these age groups did not change much over time. Similar proportions were observed in 2015/16, with the only difference being a slightly higher prevalence of overweight and obesity among boys (29%) compared to young men (25%).

These estimates are comparable to those of other Australian research (AIHW, 2017b; Australian Bureau of Statistics [ABS], 2015), and indicate that overweight and obesity remain serious public health challenges for males nationwide.

Risk factors for being overweight/obese

Research has shown that being overweight or obese is associated with a number of risk factors. These risk factors often coexist and interact, making it challenging to holistically address these conditions and their associated consequences (AIHW, 2019). Evidence shows that nutrient-poor diets, reduced levels of physical activity and a rise in sedentary behaviours are consistently key risks for overweight and obesity among the Australian population (AIHW, 2017c; Brown & Siahpush, 2007; National Health and Medical Research Council [NHMRC], 2013).

Building on such research, this section examines associations between being overweight or obese and a number of behavioural risk factors such as fruit and vegetable intake, physical activity,¹ smoking, drinking and medication use. It is crucial to improve understanding of the relationships between these factors and overweight and obesity to inform appropriate health promotion programs and interventions. A number of socio-demographic characteristics including age, Indigenous status, language background and neighbourhood disadvantage are also investigated in an attempt to identify male subgroups who are at high risk of developing overweight/obesity and experiencing associated adverse health consequences.²

Among boys and young men, low physical activity was a key factor in contributing to the risk of being overweight or obese (Table 3.1). Compared to boys and young men who were active (i.e. doing 150 minutes or more of moderate-intensity physical activity per week), those who were not sufficiently active (i.e. doing some but less than 150 minutes of moderate-intensity physical activity per week) had 1.6 times higher likelihood of being overweight or obese. Indeed, the likelihood of being overweight or obese almost tripled for boys and young men who were sedentary (i.e. doing no moderate-intensity physical activity per week).

In contrast, fruit and vegetable intake, having ever smoked a cigarette, and lifetime alcohol consumption were not found to be significantly associated with being overweight or obese among younger males.

Among adult men, several health and lifestyle factors were linked to the risk of being overweight and obese (Table 3.1). Consistent with the above findings, men who were sedentary (i.e. doing no moderate-intensity physical activity per week) or not sufficiently active (i.e. doing some activity but either not enough in total time or not enough sessions per week to obtain a health benefit) had significantly higher likelihood of being overweight or obese compared to physically active men (i.e. doing at least 150 minutes of activity over at least five sessions per week). The odds of being overweight or obese was also around 20% higher for men who were taking over-the-counter non-steroidal anti-inflammatory medications (e.g. ibuprofen, aspirin) on at least a weekly basis compared to those taking it less frequently.

In contrast, eating the recommended number of serves of vegetables per day (i.e. five or more) decreased the likelihood of being overweight or obese among adult men by 24%.

Health risks such as heavy smoking and drinking also had significant effects on the likelihood of adult men being overweight or obese. Compared to men who were heavy smokers (25+ cigarettes per day), those who were non-smokers had 40% lower likelihood of being overweight or obese. Similarly, compared to heavy drinkers, men who were non-drinkers had 28% lower odds of being overweight or obese, and those who drank at low-risk levels had 20% lower odds of being overweight or obese.

Factors such as overall satisfaction with life across domains including standard of living, health, life achievements, relationships, safety and community connectedness also had significant associations with weight among men. Those who reported lower overall satisfaction on these domains had around 20% higher likelihood of being overweight or obese.

¹ For boys aged 10–14 and young males aged 15–17, they were asked about total minutes of physical activity each day of the week (examples given were moderate intensity activities such as running, fast walking, riding a bike, dancing, skateboarding, swimming, playing soccer, basketball, gym, football and surfing). Based on the total time of physical activity in last seven days, boys and young males were classified as: 'sufficiently active for health' if doing 150 minutes or more of physical activity per week; 'insufficiently active' if doing some but less than 150 minutes of physical activity per week; and 'sedentary' if doing no physical activity per week.

For adults, physical activity classifications are based on the Active Australia Survey (AIHW, 2003), which captures total sessions and hours/time of vigorous and moderate physical activities in the last seven days. Doing at least 150 minutes of activity over at least five sessions are classed as 'sufficient'. The males were classed as 'insufficient' if they are participating in some activity but either not enough in total (time) or not regularly enough (sessions) to obtain a health benefit. Males doing no physical activity at all during the week were classified as 'sedentary'.

² This chapter does not examine the psychological and mental health impacts of obesity, an important but broad topic that was out of the scope of this chapter. Having more waves of data in the future would allow for in-depth and appropriate investigation of this complex relationship.

Table 3.1: Risk factors associated with overweight/obesity among boys/young men and adult men, 2013/14

Variables	Boys and young men		Adult men	
	aOR	SE	aOR	SE
Health behaviours and wellbeing				
Meeting fruit intake recommendation	0.94	0.11	0.96	0.05
Meeting vegetable intake recommendation	1.47*	0.33	0.76**	0.10
Level of physical activity (ref. = sufficiently active for health)				
Sedentary	2.80***	1.11	1.28***	0.10
Insufficiently active	1.60***	0.19	1.12**	0.06
Smoking behaviour (ref. = heavy smoker – 25+ cigarettes per day)				
Medium smoker – 15–24 cigarettes	–	–	0.99	0.16
Light smoker – 1–14 cigarettes	–	–	0.72*	0.13
Non-smoker	–	–	0.61***	0.11
Smoking behaviour – ever smoked	1.44	0.42	–	–
Drinking behaviour (ref. = heavy drinker)				
Medium risk drinker	–	–	0.93	0.09
Low risk drinker	–	–	0.79***	0.07
Non-drinker	–	–	0.72***	0.08
Drinking behaviour (ref. = have never had alcohol)				
Have had alcohol (age first drank ≤15 years)	0.94	0.14	–	–
Have had alcohol (age first drank >15 years)	0.78	0.20	–	–
Life satisfaction (ref. = medium/high life satisfaction)				
Low general life satisfaction	–	–	1.18***	0.07
Medication (Taking NSAIDs weekly or daily)	–	–	1.17**	0.08
Socio-demographics				
Age	0.98	0.03	1.04***	0.00
CALD	1.21	0.26	0.58***	0.05
Aboriginal and Torres Strait Islander	1.94***	0.49	1.38*	0.26
Married/de facto (ref. = single/separated/widowed)	–	–	1.44***	0.08
Employed (ref. = unemployed/out of labour force)	–	–	0.92*	0.04
University degree (ref. = certificate/diploma or less)	–	–	0.64***	0.03
Neighbourhood characteristics				
SEIFA Index: level of relative disadvantaged (ref. = Low disadvantage)				
High disadvantage	2.50***	0.42	1.37***	0.09
Middle disadvantage	1.62***	0.24	1.21***	0.07
ASGS region of residence (ref. = Metro)				
Inner regional	0.87	0.13	0.99	0.06
Outer regional	0.81	0.12	1.17**	0.09
Constant	0.26***	0.11	0.45***	0.10
Total, n	1,620		9,460	

Notes: (a) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; SE = robust standard error. (b) Recommended intake of fruit and vegetables were based on Department of Health age- and gender-specific Australian dietary guidelines (NHMRC, 2013). See eatforhealth.govcms.gov.au/sites/default/files/content/n55_australian_dietary_guidelines.pdf (c) Classification of boys and young male respondents into sedentary, insufficiently active and sufficiently active categories for health was based on questions about their physical activity on each day of the week (time only), including for leisure and travel. Classification of adult male respondents into sedentary, insufficiently active and sufficiently active categories for health was derived using Active Australia Survey (AIHW, 2003), which captures total sessions and hours/time of vigorous and moderate physical activities in the last seven days. (d) Drinking behaviours were assessed according to the Alcohol Use Disorders Identification Test (AUDIT), developed by WHO (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). It is a 10-item questionnaire used to screen for excessive drinking practices. More details on the AUDIT are provided in Chapter 3. (e) Wellbeing was measured using the Personal Wellbeing Index. (f) NSAID = Nonsteroidal anti-inflammatory drug, e.g. ibuprofen and aspirin

Source: TTM data, Wave 1, all cohorts, unweighted

Some socio-demographic factors were also shown to have a strong impact on the risk of being overweight or obese among younger males. Aboriginal and Torres Strait Islander boys and young men were almost twice as likely to be overweight or obese compared to non-Indigenous boys and young men. Similarly, boys who lived in areas of greater social and economic disadvantage (based on the SEIFA Index) had 2.5 times higher likelihood of being overweight or obese. In contrast, socio-demographic factors such as age, being from a culturally and linguistically diverse (CALD) background, and living in inner or outer regional (vs metropolitan) areas of the country did not have significant effects on the risk of being of overweight or obese among boys and young men.

Among adult men, many socio-demographic factors were found to be associated with being overweight or obese. Aboriginal and Torres Strait Islander adult men were almost 1.4 times more likely to be overweight or obese compared to non-Indigenous adult men, although the estimate was only marginally significant. Similarly, adult men who lived in areas of greater social and economic disadvantage (based on SEIFA Index) were 1.4 times more likely to be overweight or obese.

As opposed to boys and younger males, for adult men, factors such as age, cultural background and region of residence all had a significant impact on the risk of being overweight and obese. Adult men who lived in outer regional areas were significantly more likely to be overweight or obese, whereas men from CALD backgrounds had significantly lower likelihood of being overweight or obese. Moreover, married men and those in in a de facto relationship had 1.4 times higher likelihood of being overweight or obese, while men with a university degree and those who were employed were less likely to be overweight or obese.

Persistence and change in weight status over time

Understanding transitions in and out of weight classifications, and the maintenance or persistence of overweight and obesity, is important for identifying males who are more at risk of experiencing associated adverse consequences over the long term. It can also help to inform programs aimed at achieving and maintaining a healthy weight.

Sustaining a healthy weight appears to be more achievable among younger Australian males. Among those who were classified as being of healthy weight in 2013/14, 91% of 10–14 year olds were still of a healthy weight in 2015/16, compared to 82% of 18–24 year olds and 77% of 45–57 year olds (Table 3.2).

Age also appears to affect the ability of males to return to a healthy weight after weight gain. Around four in 10 boys and young men who were overweight or obese in 2013/14 had transitioned to a healthy weight by 2015/16, compared to around one in 10 of those aged 35–57 years.

Among older men, a larger proportion of those who were overweight in 2013/14 were either still overweight or had become obese by 2015/16. For instance, among men age aged 35–57 who were overweight in 2013/14, around nine in 10 either remained overweight or had become obese in 2015/16, compared to around seven in 10 boys and young men (10–17 year olds).

These findings suggest that as men age, the likelihood of transitioning from overweight or obese to a healthy weight is reduced.

Table 3.2: Transitions in weight status among all males between 2013/14 and 2015/16

Weight status, 2013/14	Weight status, 2015/16			Total %	Total <i>n</i>
	Healthy weight %	Overweight %	Obese %		
10-14 year olds (<i>n</i> = 747)					
Healthy weight	91.0	8.0	0.0	100.0	548
Overweight	31.0	53.0	16.0	100.0	134
Obese	10.0	37.0	54.0	100.0	65
15-17 year olds (<i>n</i> = 511)					
Healthy weight	88.0	12.0	1.0	100.0	361
Overweight	28.0	56.0	17.0	100.0	106
Obese	10.0	28.0	62.0	100.0	44
18-24 year olds (<i>n</i> = 905)					
Healthy weight	82.0	17.0	1.0	100.0	556
Overweight	21.0	68.0	11.0	100.0	255
Obese	0.4	16.0	83.0	100.0	94
25-34 year olds (<i>n</i> = 1,822)					
Healthy weight	80.0	19.0	1.0	100.0	708
Overweight	12.0	74.0	13.0	100.0	738
Obese	1.0	14.0	85.0	100.0	376
35-44 year olds (<i>n</i> = 2,819)					
Healthy weight	75.0	25.0	0.0	100.0	796
Overweight	9.0	77.0	14.0	100.0	1,308
Obese	1.0	12.0	88.0	100.0	715
45-57 year olds (<i>n</i> = 3,284)					
Healthy weight	77.0	22.0	1.0	100.0	776
Overweight	8.0	78.0	14.0	100.0	1,533
Obese	1.0	13.0	85.0	100.0	975

Note: Percentages may not total exactly 100.0% due to rounding.

Source: TTM data, Waves 1 and 2, all cohorts, weighted

Physical health effects of overweight and obesity

Experience of overweight and obesity over the long term can have substantial adverse effects on health. Previous evidence suggests that overweight and obese people are more likely to experience certain chronic conditions such as cardiovascular disease, diabetes, arthritis and asthma (AIHW, 2017a, 2017b; WHO, 2000a). An evidence review by the International Agency for Research on Cancer also found that being overweight or obese increased the risk for several types of cancer, including breast and colon cancer (Lauby-Secretan et al., 2016). The Australian National Men's Health Strategy 2020–2030 recognises chronic conditions such as diabetes, heart disease and cancer as key priority health issues for men (Department of Health, 2019).

Overweight and obese people experience a range of health conditions that can reduce their physical functioning and quality of life (AIHW, 2019). In 2011, 7% of the total burden of disease and injuries in Australia was due to overweight and obesity (AIHW, 2017a). Further, Australian males were likely to experience a greater burden of disease and injury due to being overweight or obese than females, particularly from the age of 25 (AIHW, 2017a).

This section builds on current evidence and provides some new information on how the longer experience – as well as movement in and out – of overweight and obesity relates to the risk of developing certain physical health conditions among adult men in Australia (see Box 3.2 for a list of these conditions). Analyses used data from participants who responded to both waves of the survey (a 'balanced' sample). The focus here is on four groups of adult men according to changes in their weight classification between 2013/14 and 2015/16, as per their BMI results.³

The four groups included those who (Figure 3.3):

- were classified as being of healthy weight in both 2013/14 and 2015/16
- were classified as being overweight or obese in both 2013/14 and 2015/16
- transitioned from a healthy weight in 2013/14 to being overweight/obese in 2015/16
- transitioned from being overweight/obese in 2013/14 to a healthy weight in 2015/16.

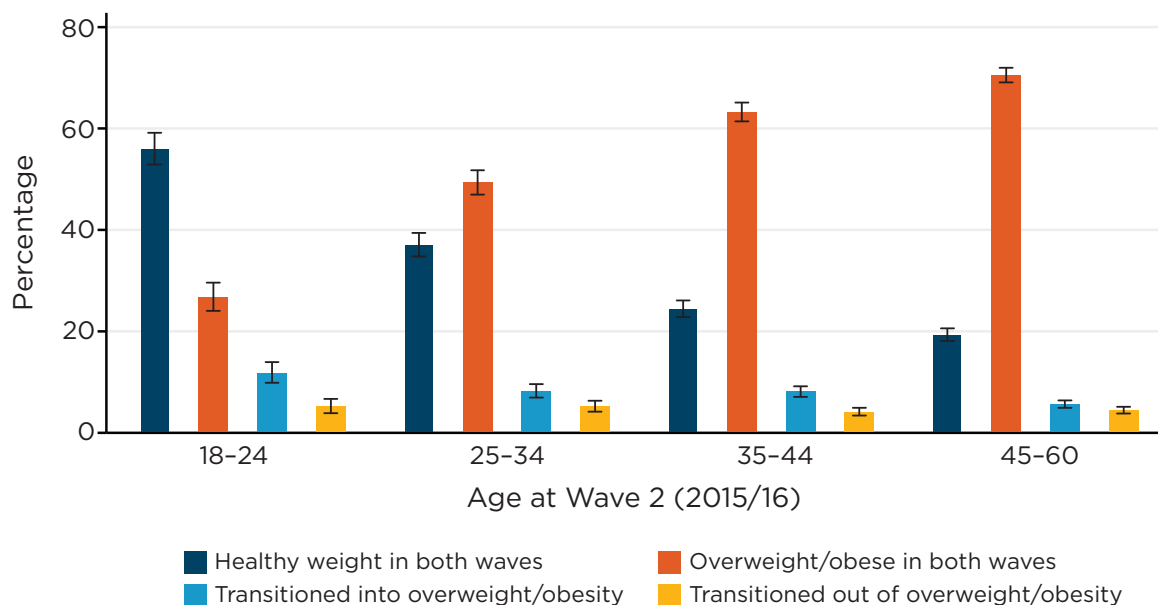
Box 3.2: Physical health conditions

Ten to Men adult males (18–57 years old) were asked about a range of physical health conditions: 'Have you been treated for or had any symptoms of this condition in the past 12 months? Yes/No'.

The list of physical health conditions and relevant proportions in 2015/16 among the TTM sample included:

- any cardiovascular condition (15.8%): heart attack, heart failure, high blood pressure, high cholesterol, stroke
- any respiratory condition (9.3%): asthma, chronic bronchitis and COPD
- diabetes (3.8%)
- cancer [any] (1.4%)
- arthritis (7%).

³ A limitation of this analysis is that given we only observe weight status at two discrete time points, there is a possibility that we might have missed some spells of changes in weight status between two Waves.

Figure 3.3: Patterns of weight change between 2013/14 and 2015/16, by age group

Notes: $n = 977$ (18–24 years); $n = 1,671$ (25–34 years); $n = 2,630$ (35–44 years); $n = 3,862$ (45–57 years). Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 1 and 2, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Only key results related to weight change patterns (the main independent variable) are presented in this section (see the Appendices for comprehensive results, including estimates for socio-demographic variables).

Overall, being overweight or obese at all, either at one time point or two, was associated with a significantly increased risk of developing cardiovascular disease, even after adjusting for the influence of key socio-demographic characteristics (Table 3.3). Men who were classified as being overweight or obese at either 2013/14 or 2015/16 were 1.5 times more likely to have had symptoms or had been treated for cardiovascular conditions in the 12 months prior to 2015/16, compared to men who were of a healthy weight at both time points. For men who were overweight or obese over the two time periods, the risk was almost tripled (2.8 times) that of men who were of a healthy weight in both 2013/14 and 2015/16 for symptoms or needing treatment for cardiovascular conditions in the 12 months prior to 2015/16 (Table 3.3).

Table 3.3: Associations between specific chronic conditions and overweight and obesity patterns among adult Australian men

	Cardiovascular condition	Respiratory condition	Diabetes	Cancer	Arthritis
Experience of health condition in the past 12 months prior to 2015/16					
	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)
Weight (ref. = Healthy weight in 2013/14 & 2015/16)					
Overweight or obese in 2013/14 and 2015/16	2.80*** (0.27)	1.42*** (0.14)	3.40*** (0.69)	0.90 (0.22)	1.38*** (0.17)
Transitioned into overweight or obesity from 2013/14 to 2015/16	1.57*** (0.26)	1.13 (0.19)	1.40 (0.51)	1.10 (0.46)	1.23 (0.26)
Transitioned out of overweight and obesity from 2013/14 to 2015/16	1.49** (0.29)	0.92 (0.20)	1.49 (0.61)	2.25** (0.85)	1.15 (0.28)
Total, n	8,562	8,588	8,553	8,418	8,552

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. aOR = adjusted Odds Ratio; SE = Robust standard error. All health conditions are self-reported (see Box 3.2). Socio-demographic variables controlled for the regression models were: Wave 2 – age, area disadvantage, region of residence, highest education, employment status, marital status; Wave 1 – sexual orientation, Aboriginal and Torres Strait Islander status and CALD background.

Source: TTM data, Waves 1 and 2, adult cohort, unweighted, balanced sample

A heightened risk of developing other chronic conditions such as respiratory problems, diabetes and arthritis was only found in men who were overweight or obese for longer periods (i.e. in both 2013/14 and 2015/16), not in men who were only overweight or obese at one time point. For instance, compared to men who were of a healthy weight at two time points, those who were overweight or obese at both time periods had around a 1.4 times higher likelihood of having symptoms of – or being treated for – any respiratory conditions in the past 12 months, in addition to a 3.4 times higher likelihood of having symptoms or being treated for diabetes during that time. This group also had a significantly greater risk (1.4 times) of having symptoms or being treated for arthritis in the last 12 months. Again, no such risks were found for men who were overweight or obese at only one wave of data collection.

Weight loss was associated with being diagnosed or treated with cancer. Men who moved from being overweight or obese at Wave 1 to a normal/healthy weight at Wave 2 had a significantly higher likelihood of having symptoms or being treated for cancer in the past 12 months. One reason for this association could be that cancer and its treatments can lead to reduced appetite and changes to metabolism, which can result in weight loss (Huhmann & Cunningham, 2005; Tchekmedyan, Zahyna, Halpert, & Heber, 1992).

Use of key health care service by weight status

As shown in the previous section, overweight and obesity is associated with a broad range of comorbidities (i.e. co-existing conditions) including cardiovascular disease, diabetes, arthritis and respiratory conditions. Managing these can be associated with increased expenditure on medication and more contact with health care services (Sturm, 2002). This section looks at the use of key health care services among overweight or obese men and those classified as being of healthy weight in 2013/14. This information about the use of certain services does not provide details about the value, benefits or effectiveness of these services. It does, however, outline opportunities for introducing and tracking the effectiveness of potential interventions and measures.

Compared to men of a healthy weight classification, those classified as overweight or obese were significantly more likely to have gone to a GP in the past 12 months (approximately 79% vs 84%, respectively). They were also more likely to have had seen a specialist during that time (23% vs 28%, respectively).

Even though the proportion of men consulting a dietitian was low overall, men classified as being overweight or obese were significantly more likely to have consulted a dietitian in the past 12 months compared to those of healthy weight (3% vs 2%). Similarly, overweight or obese men were more likely to have consulted a diabetes educator in the past 12 months.

Table 3.4: Service use among adult men by weight status, 2013/14

Consulted the following health professional in past 12 months	Healthy weight %	Overweight/obese %	chi ² p-value
General practitioner	78.5	83.5	***
Specialist doctor	23.1	28.1	***
Dietitian/Nutritionist	2.1	2.9	*
Diabetes educator	1.0	2.0	***
Total, n	4,068	8,287	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: TTM data, adult cohort, Wave 1, weighted

Conclusion

Overweight and obesity are major public health concerns in Australia. These conditions can result in considerable personal burden and lowered quality of life, in addition to substantial costs to health care systems. This chapter examined the prevalence of overweight and obesity among Australian males. It identified some modifiable and non-modifiable risk factors for these conditions, as well as the persistence or maintenance of overweight and obesity over time and the possible effects of this on certain health outcomes.

Overall, the prevalence of overweight and obesity among Australian males in recent years has been high. In 2013/14, around 20% of boys aged 10–14 were either overweight or obese (a slight decline from 22% in 1995), whereas almost 29% of adolescents aged 15–17 were overweight or obese (a 5% increase from 1995 levels). These findings point to some fluctuation in the prevalence of overweight and obesity over time that may be partially age-dependent. Regardless of this, the issue requires ongoing monitoring (Parliament of Australia, 2006).

Among adult men, the prevalence of overweight and obesity was very high, and levels appear to have remained relatively stable over the past two decades (AIHW, 2002). Six in 10 men aged 25–34 were overweight or obese at Wave 1 of TTM in 2013/14. More than 7 in 10 men aged 35–57 were overweight or obese at both waves of the study (similar to levels recorded in 2000).

Several socio-demographic factors were associated with a heightened risk of being overweight and obese, including age, neighbourhood disadvantage, living in a regional area, and lower levels of education. Although these factors are more difficult to modify, these findings do provide critical information regarding certain subgroups of men who can be at higher risk of developing unhealthy weight conditions. Prevention strategies can be targeted to these groups and relevant medical services could be localised.

Among the risk factors examined in this chapter, several were significantly associated with an increased likelihood of being overweight or obese. These included poor physical activity, heavy smoking, harmful levels of alcohol consumption and lower life satisfaction. This reflects previous research that has pointed to numerous personal, social and environmental determinants of overweight and obesity (e.g. Loring & Robertson, 2014; Newman, 2014).

Some of these factors can be modified at individual, community and even population levels through improved self-management and initiatives promoting healthy diets and increased physical activity. However, a growing body of research suggests that holistic, innovative and longer-term approaches are necessary to combat overweight and obesity (and associated conditions) comprehensively and on a larger and more sustainable scale. For example, Newman (2014) referenced an approach adopted by the South Australian Government that involved participation from agencies other than just the Department of Health. Changing public housing conditions to address overweight and obesity, for instance, could involve landscaping properties to incorporate fruit trees and vegetable gardens. Such initiatives could form the dual purpose of encouraging healthier diets while promoting social connection. Further investigation is warranted to identify additional novel and cost-effective approaches to combat overweight and obesity across all levels of society and especially among high-risk groups (e.g. older males).

The findings presented here suggest that experiencing ongoing or persistent overweight and obesity is associated with a much higher likelihood of experiencing a range of other chronic health conditions such as cardiovascular and respiratory conditions, diabetes and arthritis. This suggests that initiatives to help Australian males achieve *and maintain* a healthy weight could be highly beneficial. Importantly, males who were overweight or obese were significantly more likely to have consulted all health care services examined here (including GPs, dietitians and specialist doctors). This highlights the increased levels of engagement with the health care system in general among those classified as overweight or obese, but also points to possible opportunities for health interventions.

Effective monitoring and management of overweight and obesity in the population is important to contribute to efforts to reduce the burden on both individuals and the health care system. Moving forward, future waves of TTM data collection will allow much more comprehensive investigations of trajectories in weight status over time (including transitions between healthy and overweight and obese weight classifications), and more nuanced examinations of the diverse risk factors including mental health and health consequences associated with changes in weight status, in addition to maintaining overweight and obesity over long periods.

References

- Australian Bureau of Statistics (ABS). (2015). *National Health Survey: First Results*. (Cat. no. 4364.0.55.001). Canberra: ABS. Retrieved from [www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/CDA852A349B4CEE6CA257F150009FC53/\\$File/national%20health%20survey%20first%20results,%202014-15.pdf](http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/CDA852A349B4CEE6CA257F150009FC53/$File/national%20health%20survey%20first%20results,%202014-15.pdf)
- Australian Institute of Health and Welfare (AIHW). (2002). *Australia's health 2002*. Canberra: AIHW. Retrieved from www.aihw.gov.au/getmedia/656f6d35-a7e6-49ee-8130-ebe34f1a3fb6/ah02.pdf.aspx?inline=true
- Australian Institute of Health and Welfare. (2003). *The Active Australia Survey: A guide and manual for implementation, analysis and reporting*. Canberra: AIHW.
- Australian Institute of Health and Welfare. (2017a). *Impact of overweight and obesity as a risk factor for chronic conditions: Australian Burden of Disease Study*. (Australian Burden of Disease Study series no.11). (Cat. no. BOD 12. BOD). Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/burden-of-disease/impact-of-overweight-and-obesity-as-a-risk-factor-for-chronic-conditions/contents/table-of-contents
- Australian Institute of Health and Welfare. (2017b). *A picture of overweight and obesity in Australia*. Canberra: AIHW. Retrieved from www.aihw.gov.au/getmedia/172fba28-785e-4a08-ab37-2da3bbae40b8/aihw-phe-216.pdf.aspx?inline=true
- Australian Institute of Health and Welfare. (2017c). *Risk factors to health*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/risk-factors/risk-factors-to-health
- Australian Institute of Health and Welfare. (2018). *International health data comparisons, 2018*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/international-comparisons/international-health-data-comparisons-2018
- Australian Institute of Health and Welfare. (2019). *Data sources for monitoring overweight and obesity in Australia*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/overweight-obesity/data-sources-for-monitoring-overweight-and-obesity
- Brown, A., & Siahpush, M. (2007). Risk factors for overweight and obesity: results from the 2001 National Health Survey. *Public Health*, 121(8), 603–613.
- Cole, T. J., & Lobstein, T. (2012). Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity. *Pediatric Obesity*, 7(4), 284–294.
- Department of Health. (2019). *National Men's Health Strategy 2020-2030*. Canberra: Department of Health. Retrieved from [www1.health.gov.au/internet/main/publishing.nsf/content/86BBADC780E6058CCA257BF000191627/\\$File/19-0320%20National%20Mens%20Health%20Strategy%20Print%20ready%20accessible1.pdf](http://www1.health.gov.au/internet/main/publishing.nsf/content/86BBADC780E6058CCA257BF000191627/$File/19-0320%20National%20Mens%20Health%20Strategy%20Print%20ready%20accessible1.pdf)
- Goettler, A., Grosse, A., & Sonntag, D. (2017). Productivity loss due to overweight and obesity: A systematic review of indirect costs. *BMJ Open*, 7(10), e014632. doi:10.1136/bmjopen-2016-014632
- Huhmann, M. B., & Cunningham, R. S. (2005). Importance of nutritional screening in treatment of cancer-related weight loss. *The Lancet Oncology*, 6(5), 334–343.
- Lauby-Secretan, B., Scoccianti, C., Loomis, D., Grosse, Y., Bianchini, F., & Straif, K. (2016). Body fatness and cancer – viewpoint of the IARC Working Group. *New England Journal of Medicine*, 375(8), 794–798.
- Loring, B., & Robertson, A. (2014). *Obesity and inequities: Guidance for addressing inequities in overweight and obesity*. Geneva: World Health Organization. http://www.euro.who.int/__data/assets/pdf_file/0003/247638/obesity-090514.pdf?ua=1
- National Health and Medical Research Council (NHMRC). (2013). *Australian dietary guidelines*. Canberra: NHMRC. Retrieved from eatforhealth.govcms.gov.au/sites/default/files/content/n55_australian_dietary_guidelines.pdf
- Newman, L. (2014). More than a health issue: addressing the social determinants of obesity. *The Conversation*. Retrieved from <https://theconversation.com/more-than-a-health-issue-addressing-the-social-determinants-of-obesity-29945>
- Organisation for Economic Cooperation and Development (OECD). (2019). *Health at a Glance 2019: OECD Indicators*. Paris: OECD Publishing. Retrieved from www.oecd.org/australia/health-at-a-glance-australia-EN.pdf
- Parliament of Australia. (2006). *Overweight and obesity in Australia*. Canberra: Parliament of Australia. Retrieved from www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/archive/obesity
- PricewaterhouseCoopers. (2015). *Weighing the cost of obesity: A case for action. A study on the additional costs of obesity and benefits of intervention in Australia*. Retrieved from www.pwc.com.au/pdf/weighing-the-cost-of-obesity-final.pdf
- Saunders, J. B., Aasland, O. G., Babor, T. F., De la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88(6), 791–804.
- Sturm, R. (2002). The effects of obesity, smoking, and drinking on medical problems and costs. *Health Affairs*, 21(2), 245–253.
- Tchekmedyian, S., Zahyna, D., Halpert, C., & Heber, D. (1992). Clinical aspects of nutrition in advanced cancer. *Oncology*, 49(Suppl. 2), 3–7.
- World Health Organization (WHO). (2000a). *Obesity: Preventing and managing the global epidemic*. Geneva: WHO.
- World Health Organization. (2000b). *WHO Consultation on Obesity: preventing and managing the global epidemic: Report of a WHO consultation*. Geneva: WHO. Retrieved from www.who.int/nutrition/publications/obesity/WHO_TRS_894/en/

Chapter 4

Health literacy and health service use among Australian men

Neha Swami, Sonia Terhaag, Brendan Quinn and Galina Daraganova



Key messages

- The vast majority of Australian men – 95% in 2013/14 – considered their health to be important. Despite this, only around two-thirds actively looked after their health.



95% of Australian men considered their **health** to be **IMPORTANT**

- Informal sources for obtaining health-related information regarding health concerns were preferred to engaging with professionals in the first instance.
- A general practitioner (GP) was the most commonly accessed health service among adult Australian males in 2015/16
 - However, around 30% do not get regular (annual) check-ups.
- Less than half of adult Australian males had recently visited the dentist. In 2015/16, only around one-third of those aged 18–44 had visited a dentist in the past year.



Less than half of adult Australian males had **recently VISITED THE DENTIST**

- A minority of Australian men – around 7% in 2015/16 – reported being unable to access health care when they needed it.
 - Common barriers included cost (52%) and high waiting times (35%).



A **minority** of Australian men were **UNABLE TO ACCESS HEALTH CARE** when they needed it

- Men who identified as Indigenous Australian had around 70% higher odds of experiencing barriers to health service use than non-Indigenous men. Further, only 25% of Indigenous men had private health insurance, compared to over half – 59% – of non-Indigenous men.

Overview

The health of men in Australia is an ongoing concern. Adult males have a heightened risk of mortality and an increased likelihood of experiencing numerous adverse health issues such as cardiovascular disease, some types of cancer (e.g. bowel, skin), and diabetes (Department of Health, 2019). A key contributor to these poorer outcomes is less contact with health care services among males compared to females. Men are more likely to think that their health is fine or that they are able to independently manage health concerns, possibly as a result of conforming to masculine norms (Milner, Shields, & King, 2019). In Western countries, men are less inclined to take certain actions to maintain their health and wellbeing than females, such as annual check-ups, and they also typically use health services less frequently (Mansfield, Addis, & Mahalik, 2003; Smith, Braunack-Mayer, & Wittert, 2006).

A number of factors influence why people do – and do not – interact with the health care system, including differing health beliefs, perceptions and preferences regarding the use and benefits of accessing professional support (Courtenay, 2002; Smith et al., 2006). Health service use is also influenced by ‘health literacy’, which is the ability to obtain, understand and use information for achieving optimal health outcomes (World Health Organization [WHO], 2016). Crucially, levels of health literacy among the Australian population appear to be low – Australian Bureau of Statistics (ABS) estimates indicate that only around one-third of Australians have sufficient ability to actively engage with health care providers, and just over one-quarter (26%) of the population find it ‘always easy’ to navigate the country’s health care system (ABS, 2018b). This means that many Australians who would benefit from engaging with health services might be unable to do so.

Limited empirical research has investigated how different factors, such as health literacy, play a role in how men perceive and engage with professional support. There is also limited research on why Australian men are less likely to engage in help-seeking behaviours and access services when needed; for example, what are common barriers or impediments to health service use for males in Australia?

This chapter investigates patterns of health care use among Australian men. It focuses on beliefs about and preferences of health and service engagement, common health information sources, and types of services accessed. Barriers to professional support and factors associated with lower engagement with – and support from – the health care system among adult Australian males, are also explored. An improved understanding of these areas can help address gaps in service utilisation and provision and promote better health outcomes among Australian men.

Health care beliefs, preferences and information seeking

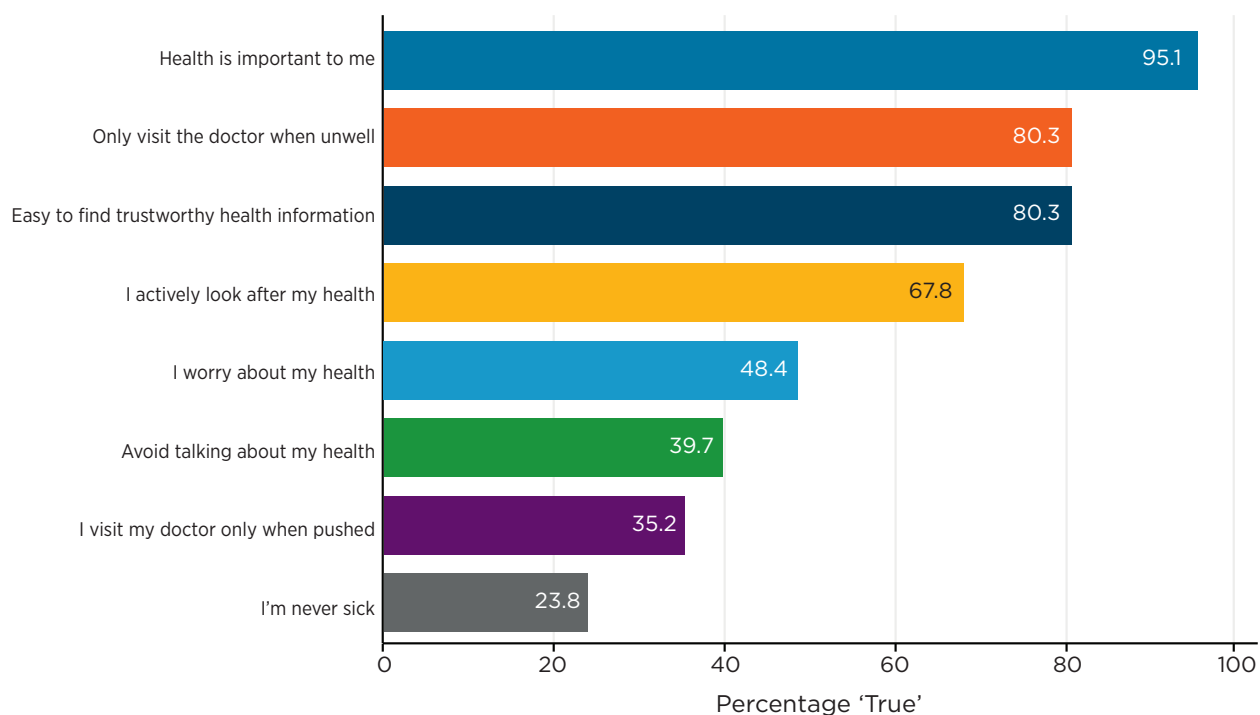
A better sense of how Australian men value and perceive their own health, and how, why and when they access available services, could inform targeted health promotion activities and policy to improve health literacy and enhance access to appropriate information and health care for those who need it.

To examine health beliefs and information seeking among men, in 2013/14, adult *Ten to Men* (TTM) participants were asked whether they agreed or disagreed with certain statements about their health, and from who or where they typically sourced health information. While the vast majority of Australian men (95%) considered health to be important (Figure 4.1), not all were taking steps to optimise health outcomes. Only around two-thirds of adult Australian males reported actively looking after their health. Further, around 8 in 10 men only visited the doctor when unwell, and approximately 4 in 10 avoided talking about their health.

There were some differences in the health beliefs, perspectives and values of Australian men by age. For example, compared to those in the 18–24 age group, a higher proportion of men aged 35–57 worried about their health (39% vs 50–53%, respectively). Similarly, visiting a doctor only when unwell was more common among men aged 18–24 years (82–85%) than older men aged 45–57 (73%). A greater proportion of younger men aged 18–24 were more likely to visit the doctor only when pushed (41%) compared to those aged 35–57 (29–34%).

There were minimal variations in health care beliefs and preferences among Australian men by other key socio-demographic characteristics such as marital status and area-level disadvantage. For example, married men (38%) were slightly less likely to say that they avoided talking about health compared to divorced (45%) or separated men (51%).

Figure 4.1: Health beliefs of Australian men aged 18–57 years, 2013/14



Notes: $n = 13,085$. Percentages are those who agreed with each statement.

Source: TTM data, Wave 1, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

In terms of other health care preferences, most men (76%) did not have a preference regarding the gender of their doctor. However, 14% preferred a male doctor for 'certain things' (i.e. it was not vital to always have a male doctor), 8% always preferred a male doctor, and a small minority – 2% – always preferred a female doctor.

Around 77% of adult Australian males typically made their own medical appointments. Partners organised medical appointments for around 17% of men.

Key health-related information sources

In 2013/14, TTM participants commented on where they typically first sought health-related information from when they had a health concern (Table 4.1).

Adult males most commonly sought health-related information from someone related to them when they had a health concern – more than 4 in 10 men in any age group reported seeking health information from family members (including a partner/spouse) in the first instance.

The internet was the second most common source of health-related information among men aged 18–34 years (one-quarter reported first accessing the internet in relation to a health concern), while for those aged 35–44 and 45–57 years, a doctor or nurse was the second most common source of health-related information (24% and 34% respectively).

Highlighting generational differences in technological preferences, the internet was not a popular primary source of health-related information among older males in 2013/14 – only around 15% of those aged 45–57 first went online for health information over other options.

Table 4.1: Primary source for health-related information regarding a health concern among Australian men, by age, 2013/14

Source	Overall %	18–24 years %	25–34 years %	35–44 years %	45–57 years %
Family members	45.2	48.9	44.2	46.2	42.9
Internet	20.7	24.7	25.0	20.2	15.0
Doctor or nurse	23.1	12.0	17.1	24.3	34.0
Friend	3.8	6.7	5.5	2.5	1.7
Other	1.3	1.7	1.6	1.4	0.8
I don't seek any information	3.5	2.5	3.6	3.5	3.9
I never have health concerns	2.5	3.6	2.9	2.0	1.8
Total, n	12,890	1,798	2,842	3,889	4,361

Notes: Percentages are those who said yes to each source option. 'Family members' include partners and spouses. 95% Confidence Intervals provided in supplementary materials.

Source: TTM data, Wave 1, adult cohort, weighted

Health literacy among Australian men

Health literacy is an important predictor for access of different types of health services such as health screenings, vaccinations, medication use and hospitalisations (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). Given low levels of health literacy among the Australian population in general (ABS, 2018b; Australian Institute of Health and Welfare [AIHW], 2018), an improved understanding of health literacy among certain population subgroups could inform targeted programs and strategies to improve help-seeking behaviours and access to appropriate health care when needed (ABS, 2018b; Oliffe et al., 2019). Relevant research involving men's health literacy has largely focused on assessing health literacy related to specific diseases or conditions, as opposed to general health-related decision making, service engagement and help-seeking behaviours (Oliffe et al., 2019).

This section aims to fill some of these information gaps by examining TTM participants' responses to three scales from the Health Literacy Questionnaire (HLQ) (Osborne, Batterham, Elsworth, Hawkins, & Buchbinder, 2013; see Box 4.1):

1. Ability to find good health information
2. Ability to actively engage with health care providers
3. Feeling understood and supported by health care providers.

These scales assess how people understand, communicate and engage with the health care system in relation to changing health circumstances.

Box 4.1: Health Literacy Questionnaire (HLQ)

The HLQ is a self-report measure comprising a number of subscales that cover the full construct of health literacy.

One of the subscales is the ability to find good health information. Its items include:

- Find information about health problems
- Find health information from several different places
- Get information about health so you are up-to-date with the best information
- Get health information in words you understand
- Get health information by yourself.

There are five response options for each item, with response values ranging from 0 to 4: 0 = 'cannot do', 1 = 'very difficult', 2 = 'quite difficult', 3 = 'easy', and 4 = 'very easy'. A higher score on this subscale (total range: 0–20) indicates better ability to access reliable, diverse and up-to-date health information.

A second subscale is the ability to actively engage with health care providers. Its items include:

How easy or difficult are the following tasks for you to do now?

- Make sure that health care providers understand your problems properly
- Feel able to discuss your health concerns with a health care provider
- Have a good discussion about your health with doctors
- Discuss things with health care providers until you understand all you need to
- Ask health care providers questions to get the health information you need.

As above, there are five response options for each item, with response values ranging from 0 to 4: 0 = 'cannot do', 1 = 'very difficult', 2 = 'quite difficult', 3 = 'easy', and 4 = 'very easy'. A higher score on this subscale (total range: 0–20) indicates better engagement with health care providers and feeling empowered about client-provider relations.

A third subscale is feeling understood and supported by health care providers. The items are:

How strongly do you agree or disagree with the following statements?

- I have at least one health care provider who knows me well

- I have at least one health care provider I can discuss my health problems with
- I have the health care providers I need to help me work out what I need to do
- I can rely on at least one health care provider.

There are five response options for each item, with response values ranging from 0 to 3: 0 = 'strongly disagree', 1 = 'disagree', 2 = 'agree', and 3 = 'strongly agree'. A higher score on this subscale (total range 0-12) indicates more trust in health care providers for advice, and feeling more supported by – and engaged with – them.

In 2015/16, the majority of Australian men (85% of 18–60 year olds) found it 'quite' or 'very easy' to find information about health problems (Table 4.2). Most could get it by themselves and from several different sources. More than 8 in 10 men also found it easy to remain up-to-date with the best health information, and to get it in an easily understandable language. Notably, there were no variations in the abilities of Australian men to independently identify reliable and current sources of health information by age.

Table 4.2: Ability to access health information among Australian men aged 18–60 years, 2015/16

Health information items	18–60 years %
Ability to access health information ('quite' or 'very easy' to achieve the following tasks)	
Find information about health problems	85.6
Find health information from several different places	81.0
Get information about health so you are up-to-date with the best information	80.3
Get health information in words you understand	84.9
Get health information by yourself	82.9
Combined scale score (total range 0–20)	Score
Mean (SE)	14.9 (.05)
Total, n	10,365

Notes: Percentages are those who said 'quite easy' or 'very easy' for each statement. 95% Confidence Intervals provided in supplementary materials.

Source: TTM data, Wave 2, adult cohort, weighted

Successfully engaging with and navigating the health care system can be facilitated by health care professionals who are supportive and trustworthy, and who provide useful and timely advice.

In 2015/16, most Australian men felt engaged with health care providers. Around 8 in 10 Australian men aged 18–60 years could 'quite' or 'very easily' make health care providers understand their problems, have good discussions about their health with doctors, and ask health care providers questions to get more health information (Table 4.3). Similarly, 8 in 10 men found it easy to discuss their health concerns with health care providers, and to clarify what they did not understand.

In terms of feeling supported, in 2015/16, around 7 in 10 men had at least one health care provider who they could rely on, discuss their health problems with, and who could help them understand information and make good decisions about their health. Just over half of Australian men (55%) had at least one health care provider who knew them well (Table 4.3).

While most adult males aged 18–60 felt engaged and in control of their relationships with health care providers, a small proportion did not feel this way. Around 2 in 10 men reported not proactively seeking and clarifying information (Table 4.2), being unable to share health concerns, and not seeking clarification from health care providers (Table 4.3). Moreover, 3 in 10 men did not have a reliable health care provider they could discuss their health concerns with or use as a source of health advice (Table 4.3). These findings are important: indicating that, although most adult males have sufficient health literacy to access appropriate and timely health care, a significant minority of Australian men are not able to effectively engage with health care services and access and understand health-related information.

Table 4.3: Ability to engage with, and get support from, health care providers among Australian men aged 18–60 years, 2015/16

Items	18–60 years %
Ability to engage with health care providers ('quite' or 'very easy' to do achieve the following tasks)	
Make sure that health care providers understand your problems properly	79.8
Feel able to discuss your health concerns with a health care provider	80.7
Have a good discussion about your health with doctors	80.7
Discuss things with health care providers until you understand	79.9
Ask health care providers questions to get the health information you need	82.0
Combined scale score (total range 0–20)	Score
Mean (SE)	14.6 (.06)
Total, n	10,365
Feeling supported and understood by health care providers ('agree' or 'strongly agree' with the following statements)	
I have at least one health care provider who knows me well	55.2
I have at least one health care provider I can discuss my health problems with	70.4
I have the health care providers I need to help me work out what I need to do	70.1
I can rely on at least one health care provider	75.9
Combined scale score (total range 0–12)	Score
Mean (SE)	6.8 (.05)
Total, n	10,425

Notes: Percentages in the top panel are those who said 'quite easy' or 'very easy' for each statement; and percentages in the bottom panel are those who said 'agree' or 'strongly agree' for each statement. 95% Confidence Intervals provided in supplementary materials.

Source: TTM data, Wave 2, adult cohort, weighted

Factors associated with low service engagement and support

To understand the factors that impede men's ability to engage with, and feel supported by, health care providers in Australia, this section details associations between various socio-demographic and psychosocial characteristics of Australian males (18–60 years) and the continuous scores of two HLQ subscales (Table 4.4):

- *Ability to actively engage with health care providers* (a lower score indicates poorer abilities to engage)
- *Feeling understood and supported by health care providers* (a lower score indicates reduced levels of support/understanding).

A number of factors were associated with reduced levels of engagement with, and of feeling understood and supported by, health care providers among Australian men. Younger age, residing in outer regional areas (vs major cities), having only a high school education or less (vs university degree), having a greater number of financial hardships, and having middle-to-high conformity to masculine norms were each associated with both a reduced ability to actively engage with health care providers and lower levels of feeling understood and supported by health care providers.

In contrast, men from CALD backgrounds reported feeling better supported by the health care system compared to those from English-speaking backgrounds. Compared to employed men, those who were unemployed and those out of the labour force were also significantly more likely to report having health care providers who they felt supported by and trusted for advice.

Non-heterosexual men were significantly more likely to say they were unable to engage with health care providers than heterosexual men.

Having private health cover was associated with higher levels of engagement and of feeling understood and supported by health care providers. Further, compared to men with no physical health conditions, those with one or more chronic physical health condition were also more likely to feel engaged with, and supported by, health care providers, which possibly reflects greater involvement with the health care system due to health concerns.

Table 4.4: Factors associated with health care engagement and feeling supported among Australian men aged 18–60 years, 2015/16

	HLQ score: Active engagement		HLQ score: Feeling understood and supported	
	Coefficient ^a	SE	Coefficient ^a	SE
Socio-demographic characteristics				
Age	0.01***	0.00	0.03***	0.00
Aboriginal and Torres Strait Islander	-0.16	0.32	-0.13	0.24
CALD background	-0.17	0.16	0.30**	0.13
Non-heterosexual	-0.33*	0.19	-0.10	0.15
Highest level of education achieved (ref. = university degree)				
Year 12 or less	-0.54***	0.11	-0.24***	0.09
Certificate/diploma	-0.40***	0.09	-0.09	0.08
Employment status (ref. = employed)				
Unemployed and looking for work	-0.18	0.19	0.34**	0.14
Out of labour force	0.08	0.18	0.80***	0.14
Married or in a de-facto relationship (ref. = single/separated/widowed)	0.06	0.10	-0.15*	0.08
Number of financial hardships (ref. = no financial hardship) ^b				
One	-0.57***	0.13	-0.27***	0.11
Two	-0.86***	0.18	-0.38***	0.13
Three or more	-1.60***	0.16	-0.86***	0.12
Neighbourhood characteristics				
ASGS Region of residence (ref. = major cities)				
Inner regional	-0.14	0.10	0.06	0.08
Outer regional	-0.33***	0.11	-0.18**	0.09
Remote/Very remote	-0.57	1.46	0.06	0.98
SEIFA Index: level of relative disadvantage (ref. = low disadvantage)				
High disadvantage	-0.10	0.12	-0.06	0.10
Middle disadvantage	0.10	0.09	-0.06	0.08
Health characteristics				
One or more physical health conditions	0.28***	0.08	0.82***	0.07
Private health insurance	0.23***	0.09	0.59***	0.07
Conformity to Masculine Norms				
CMNI score (ref. = low conformity) ^c				
Middle conformity	-0.52***	0.09	-0.43***	0.07
High conformity	-0.99***	0.12	-0.67***	0.09
Constant	14.93***	0.24	6.05***	0.19
Total, n	9,205		9,246	

Notes: ASGS = Australian Statistical Geography Standard; SEIFA = Socio-Economic Indexes for Areas; CALD = Culturally and Linguistically Diverse; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. SE = robust standard error. ^a For a one unit change in the explanatory variable (age, Indigenous status, etc.), one would expect a β unit change in the outcome variable (HLQ score), assuming that all other variables in the model are held constant; ^b 'Financial hardships' was assessed according to having a shortage of money for medical care, being unable to pay for a prescription, being unable to pay bills on time, being unable to pay mortgage/rent on time, asking for financial help from others, and limited availability of fruit and vegetables. ^c The extent of conformity to traditional masculine roles was measured with the Conformity to Masculine Norms Inventory (CMNI) (Mahalik et al., 2003). The CMNI is comprised of 22 items that capture notions of winning, emotional control, risk taking, violence, dominance, sex, self-reliance, primacy of work, power over women, homosexuality, and pursuit of status. It is answered on a four-point scale (0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree); scores range from 0–66, with higher scores indicating greater conformity with masculine norms. The score distribution was divided into quantiles with classifications of Low, Middle, and High conformity.

Source: TTM data, Wave 2, adult cohort, balanced sample; unweighted

Health service use among Australian men

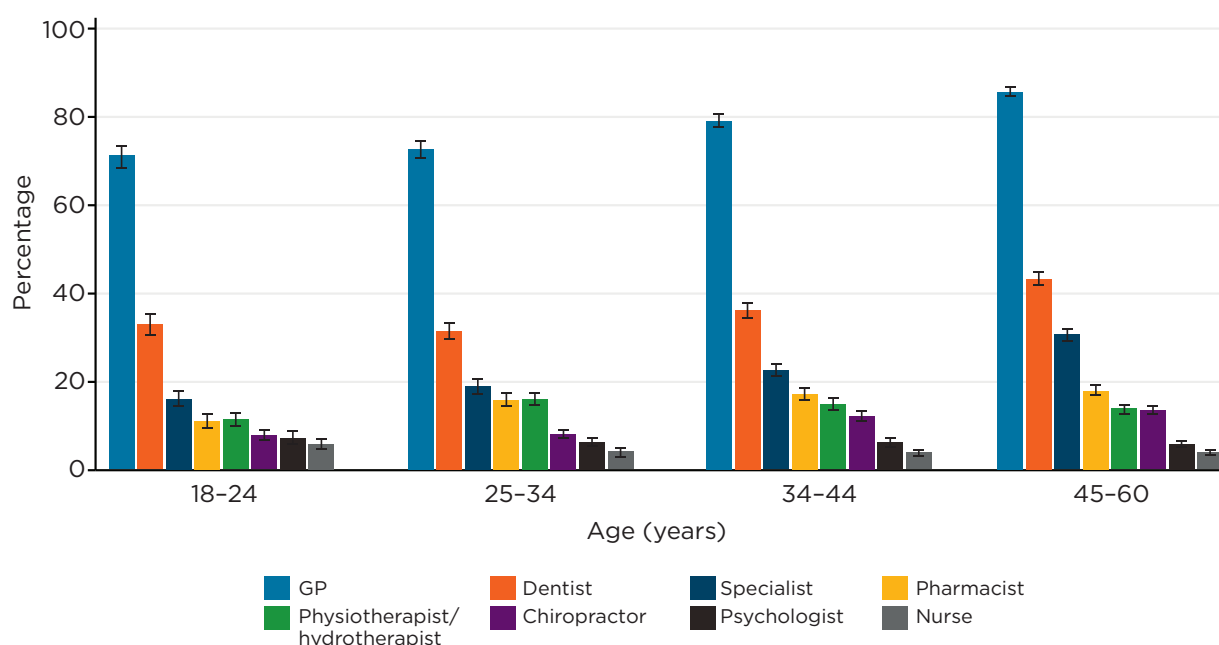
Types of health services accessed

Despite Australian men often having poorer health outcomes compared to women, they typically access health services less often (AIHW, 2019). In 2018/19, Australian men claimed an average of 14 Medicare services per person, compared to 19.5 Medicare services per person among women (AIHW, 2019). A possible explanation for this discrepancy, as previously noted, is that Australian males tend to visit a doctor only when unwell. *Ten to Men* findings also indicate that they often view their parents, partners and friends as a primary resource for health information over professional options (see 'Health care beliefs, preferences and information seeking'). While women also commonly source health information from family members and via social networks, perhaps even more so than men (Ek, 2015), a key difference appears to be that men often do not take the extra step of accessing professional support.

To improve our understanding of health care engagement patterns among Australian men, this section examines their use of key health services such as general practitioners (GPs), specialists, dentists and psychologists in 2015/16. Having ongoing contact with such health professionals promotes trust between providers and health care consumers, and can be crucial for the prevention, management and treatment of health issues (ABS, 2018a).

In 2015/16, a GP was the most commonly accessed health service among adult Australian males. More than 7 in 10 Australian men had consulted a GP at least once in the past 12 months for their own health. Rates were significantly higher for older men; 79% of 35–44 year olds and 86% of 45–60 year olds had visited a GP in the past 12 months, compared to 71% of Australian men aged 18–24 and 73% of those aged 25–34 (Figure 4.2).

Figure 4.2: Past year health service use among Australian men by age group, 2015/16



Notes: n (18–24) = 1,306; n (25–34) = 1,979; n (35–44) = 2,968; n (45–60) = 4,384. Percentages are those who said yes to each service option. Brackets above/below bars represent 95% Confidence Intervals.

Source: TTM data, Wave 2, adult cohort, weighted

Credit: *Ten to Men* 2020 (creativecommons.org/licenses/by/4.0/)

Although it is generally recommended to have at least an annual dental check-up to help prevent oral problems such as cavities, and for identifying emerging concerns (AIHW, 2016), only around one-third of Australian men aged 18–44 had visited a dentist in the past 12 months in 2015/16. A slightly higher proportion of men aged 45–60 – 4 in 10 men – had visited a dentist in the past year at this time.

Consultations with other specialists were also higher among older versus younger men in 2015/16 – around 3 in 10 (31%) men aged 45–60 years had consulted a specialist in the past 12 months, compared to fewer than 2 in 10 (16%) men aged 18–24 years. Visits to other health professionals such as pharmacists, physiotherapists, chiropractors, psychologists and nurses were rare – less than 2 in 10 men in any age group had visited these health professionals in the past 12 months, although there was an increasing trend in visits with age (Figure 4.2).

Preventive check-ups

Apart from visiting health professionals when a health concern emerges, it is also important that men engage in preventive health check-ups (i.e. for a general check-up and not because they are sick or injured). This is especially important if they are at higher risk for poor health outcomes or they are above the age of 40.¹

In 2015/16, only around 4 in 10 Australian men visited a GP at least annually for preventive reasons (Table 4.5). The rate of preventive check-ups was higher among older age groups – around 6 in 10 men aged 45–60 years visited a GP at least once per year for preventive reasons, compared to one-third of men aged 18–34 years.

Table 4.5: Frequency of preventive health check-ups among Australian men by age group, 2015/16

	Overall %	18–24 years %	25–34 years %	35–44 years %	45–60 years %
Once a year or more	41.9	33.5	30.8	38.9	56.7
Less frequently	28.3	32.9	28.6	28.7	25.4
Never	29.8	33.6	40.6	32.4	17.9
Total, n	10,445	1,268	1,936	2,923	4,318

Notes: Percentages are those who said yes to the option. 95% Confidence Intervals provided in supplementary materials.

Source: TTM data, Wave 2, adult cohort, weighted

Private health insurance

Being able to afford visits to health care providers is a key determinant of seeking care. In 2013, 16% of adult Australians said they had forgone health care due to cost in the previous year (Corscadden et al., 2017). In Australia, Medicare provides access to free or subsidised treatment by frontline health professionals such as doctors and public hospitals under the Medicare Benefits Schedule.² Private health insurance can further facilitate or fund health care use when not fully – or partially – covered by Medicare (in the case of specialists, for example), or when being treated in a private hospital. Not having private health insurance could therefore preclude engagement with the health care system.³

In 2015/16, more than 4 in 10 (46%) Australian men aged 18–24 years and more than half (55%) of Australian men aged 25–34 had private health insurance. Health insurance was more common among older men – around 6 in 10 (62%) of those aged 35–57 had it in 2015/16. It should be noted that a higher rate of private health insurance among older Australian males could be expected given the Medicare levy surcharge, which is charged to Australian taxpayers without an appropriate level of private hospital cover who also earn above a certain income and are aged 31 years or over.⁴

1 See www.betterhealth.vic.gov.au/health/HealthyLiving/health-checks-for-men

2 See www.servicesaustralia.gov.au/individuals/medicare

3 See www.health.gov.au/health-topics/private-health-insurance/about-private-health-insurance#:~:text=In%20Australia%2C%20private%20health%20insurance,t%20cover%2C%20such%20as%20physiotherapy.&text=buy%20a%20policy%20from%20a,regular%20premiums%20to%20stay%20covered

4 See [www.ato.gov.au/individuals/medicare-levy/medicare-levy-surcharge/#:~:text=The%20Medicare%20levy%20surcharge%20\(MLS,earn%20above%20a%20certain%20income.&text=The%20base%20income%20threshold%20\(under,singles%20and%20%24180%2C000%20for%20families](http://www.ato.gov.au/individuals/medicare-levy/medicare-levy-surcharge/#:~:text=The%20Medicare%20levy%20surcharge%20(MLS,earn%20above%20a%20certain%20income.&text=The%20base%20income%20threshold%20(under,singles%20and%20%24180%2C000%20for%20families)

Having health insurance appears to be associated with a greater likelihood of accessing health services that typically require out-of-pocket expenses. In 2015/16, among men who had private health insurance, around one-quarter – 27% – had visited a specialist in the past 12 months, compared to one-fifth – 20% – of those without private health insurance.

There was some socio-demographic variation in the types of men who had private health insurance; in particular, those with greater levels of disadvantage were typically less likely to have private health cover, including men with lower education, and those who were unemployed or out of the labour force. Accordingly, men living in disadvantaged neighbourhoods (as per SEIFA classifications) and those experiencing financial hardships were significantly less likely to have private health insurance. Men who were not married and those living in regional areas were also significantly less likely to have private health insurance.

Only 25% of Indigenous men had private health insurance compared to 59% of non-Indigenous men. Forty-three per cent of non-heterosexual men had private health insurance compared to 59% of heterosexual men.

Characteristics associated with service use (GP)

As highlighted in previous sections, some men find it difficult to engage and establish good relationships with health care providers. Understanding who these men are is crucial for designing and implementing targeted interventions and education resources to help them access appropriate services to meet their needs, and to feel empowered and supported when accessing health care.

Research has shown that men with low education levels and those located in non-metropolitan areas are less likely to effectively engage with the health care system (Clouston, Manganello, & Richards, 2017; Davey, Holden, & Smith, 2015; Geller et al., 2006). Some evidence suggests that the level of conformity to masculine norms may also be an important predictor of men's ability to engage with, and feel supported by, health care providers (Milner et al., 2019).

This section builds on the current evidence and examines a wide range of factors associated with health care use among Australian men; specifically, having visited a GP in the past 12 months at Wave 2 (2015/16). GPs were the focus of this analysis because they are often the first point of contact for health issues due to factors including low cost and high levels of familiarity, accessibility and availability compared to other service types. GPs are also important sources of health education and preventive health care (Steering Committee for the Review of Government Service Provision, 2016).

Table 4.6 details associations between various socio-demographic and psychosocial characteristics of adult males (18–60 years) and reporting at least one visit to a GP in the past year.

Younger age was associated with a significantly lower likelihood of having visited a GP in the past 12 months. Men in inner and outer regional areas of Australia had a 30–35% lower likelihood of recently visiting a GP.

Compared to single men, those who were married or living in de-facto relationships had about 18% higher likelihood of visiting a GP in the past 12 months. Men from CALD backgrounds had around 21% lower likelihood of going to a GP in the past 12 months. There was no significant association between Indigenous status and visiting a GP.

Socio-economic factors were also shown to influence engagement with GPs among adult males in Australia. Those out of the labour force had a nearly 34% higher likelihood of visiting a GP in the past 12 months compared to those who were employed. Experience of financial hardship (such as not being able to pay bills and/or mortgage/rent, being unable to pay for a prescription) was also associated with a greater likelihood of visiting a GP.

Compared to those without private health insurance, men with private health cover had close to a 40% higher odds of going to a GP in the past 12 months. Compared to men with no physical health conditions, those with at least one had more than triple the odds of visiting a GP in the past 12 months.

Compared to men with low conformity to masculine norms, those with higher conformity to masculine norms had around a 12% lower likelihood of visiting a GP in the past 12 months. Finally, men who reported

better ability to actively engage with health care services had a higher likelihood of visiting a GP in the past 12 months.

Table 4.6: Factors associated with past year access of GP services among Australian men aged 18–60 years, 2015/16

	Outcome: Visited GP in past year	
	aOR	SE
Socio-demographic characteristics		
Age	1.02***	0.00
Aboriginal or Torres Strait Islander	1.19	0.25
CALD background	0.79**	0.09
Non-heterosexual	1.10	0.13
Highest level of education achieved (ref. = university degree)		
Year 12 or less	0.93	0.08
Certificate/diploma	1.01	0.07
Employment status (ref. = employed)		
Unemployed and looking for work	1.07	0.13
Out of labour force	1.34**	0.18
Married or in a de-facto relationship (ref.= single/separated/widowed)	1.18**	0.08
Number of financial hardships (ref. = no financial hardship) ^a		
One	1.18*	0.11
Two	1.29**	0.16
Three or more	1.31*	0.14
Neighbourhood characteristics		
ASGS Region of residence (ref. = major cities)		
Inner regional	0.71***	0.05
Outer regional	0.66***	0.05
Remote/Very remote	1.29	0.87
SEIFA Index: level of relative disadvantage (ref. = low disadvantage)		
High disadvantage	1.11	0.09
Middle disadvantage	1.03	0.07
Health characteristics		
One or more physical health conditions	3.34***	0.26
Private health insurance	1.38***	0.08
Conformity to Masculine Norms		
CMNI score (ref. = low conformity) ^b		
Middle conformity	0.87**	0.06
High conformity	0.88**	0.07
HLQ subscale: Ability to actively engage with services	1.08***	0.01
Constant	0.40***	0.08
Total, n	9,205	

Notes: aOR = adjusted Odds ratio; ASGS = Australian Statistical Geography Standard; SEIFA = Socio-Economic Indexes for Areas; CALD = Culturally and Linguistically Diverse; HLQ = Health Literacy Questionnaire; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. SE = robust standard error. ^a 'Financial hardships' was assessed according to having a shortage of money for medical care, being unable to pay for a prescription, being unable to pay bills on time, being unable to pay mortgage/rent on time, asking for financial help from others, and limited availability of fruit and vegetables. ^b The extent of conformity to traditional masculine roles was measured with the Conformity to Masculine Norms Inventory (CMNI) (Mahalik et al., 2003). The CMNI is comprised of 22 items that capture notions of winning, emotional control, risk taking, violence, dominance, sex, self-reliance, primacy of work, power over women, homosexuality, and pursuit of status. It is answered on a four-point scale (0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree); scores range from 0–66, with higher scores indicating greater conformity with masculine norms. The score distribution was divided into quantiles with classifications of Low, Middle, and High conformity.

Source: TTM data, Wave 2, adult cohort, balanced sample, unweighted

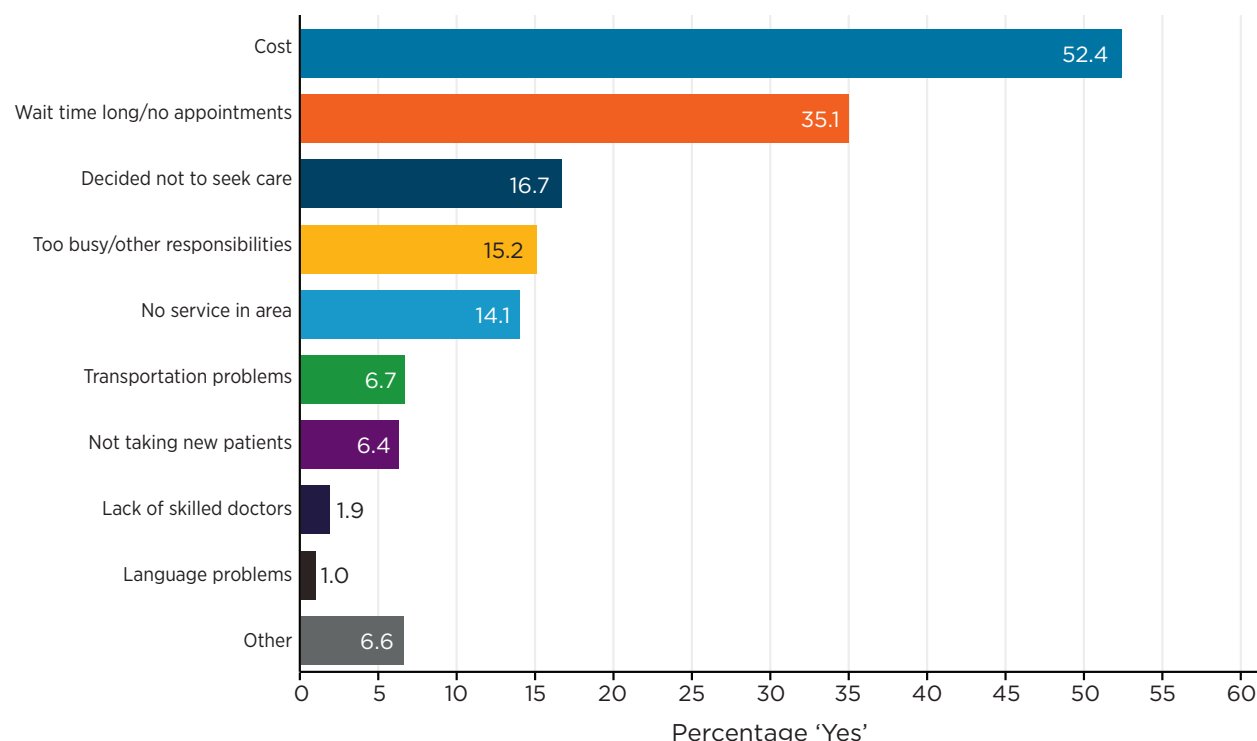
Understanding barriers to using health care among Australian men

In addition to factors such as poor health literacy and lack of private health insurance precluding access to health care, a wide range of other personal, social and structural barriers to service use exist for males, including excessive wait times and limited hours of operation and availability of services (Smith et al., 2006). Previous research has indicated that barriers to health service use affect males differently depending on their age, sexual orientation, education, employment and ethnicity (Buckley & Lower, 2002; Rockloff & Schofield, 2004; Schlichthorst, King, Turnure, Phelps, & Pirkis, 2019); however, this research has typically focused on specific subpopulations of men, such as those residing in rural or remote areas and men with mental health problems, as opposed to larger samples of more diverse groups of males.

This section, therefore, examines a number of barriers to the use of health care with a nationally representative sample of Australian men aged 18–60 years. It also identifies the socio-demographic characteristics associated with an increased likelihood of experiencing these barriers.

When TTM participants were asked to indicate why they had not accessed health care when needed, options to choose from included: no service in the area, long wait time/no appointments, not taking new patients, cost, decided not to seek care, too busy/other responsibilities, transportation problems, and language problems (Figure 4.3). Understanding the reasons why some men do not receive health care when needed, and their characteristics, is important for the development of resources and interventions to improve their engagement with the health care system.

Figure 4.3: Barriers to health care use in the past 12 months among Australian men aged 18–60 years, 2015/16



Notes: $n = 685$. The 'Other' category includes barriers such as 'Not a resident', 'Work/Busy at work' and 'Waiting for health insurance'.

Source: TTM data, Wave 2, adult cohort, weighted

Credit: *Ten to Men 2020* (creativecommons.org/licenses/by/4.0/)

In 2015/16, around 7% of Australian men had needed health care in the last 12 months but could not get it. For more than half of adult males (around 52% in 2015/16), cost was a reason for not getting health care when needed (Figure 4.3). Around one-third (35%) experienced long waiting lists or a lack of available appointments. Having no service/s in the area was a barrier to health care use for 14% of men.

At the same point in time, around 16% of Australian males decided not to seek health care despite acknowledging that they had needed it, and around 15% decided not to seek health care because they were too busy or due to other responsibilities.

Around 7% of men reported other barriers to health care use such as being busy at work, a lack of skilled doctors or because they were waiting for health insurance.

Importantly, there were only minimal variations in the experience of each of the individual barriers by age. This suggests that the nature of barriers faced by Australian men is quite similar regardless of age or life stage.

Men who experience barriers to health care access

Table 4.7 presents results from a multivariate analysis that examined associations between the recent experience of health care barriers in 2015/16 (i.e. not being able to get health care when needed in the past 12 months) and socio-demographic and economic characteristics among adult males.

Findings indicated that several socio-demographic factors increased the risk of experiencing barriers to health service use. Compared to men living in cities, those in outer regional locations had a 40% higher likelihood of experiencing barriers to health care. Compared to men living in neighbourhoods of low disadvantage, those in high disadvantage areas had a 33% higher likelihood of experiencing barriers to health care use. There were also indications that race and ethnicity affected access to health care; specifically, adult males who identified as Indigenous and men from CALD backgrounds had around 70% higher odds of experiencing barriers to health service use than non-Indigenous and non-CALD men.

Men with one or more physical health condition such as diabetes, arthritis or cardiovascular or respiratory disease had a 47% higher likelihood of experiencing barriers to health service use. This is problematic given that such men might be in greater need of professional support.

Of all the factors considered, financial situation had the strongest effect on the likelihood of experiencing barriers to health care among Australian men in 2015/16. Overall, more than one in four (26.8%) adult males experienced at least one financial hardship. Men with at least one financial hardship had triple the odds of experiencing barriers to health care compared to those with none. There appeared to be a dose-response relationship; that is, the odds of experiencing health service use barriers increased considerably with the number of financial hardships experienced. These findings are in line with the cost of health care being the most common barrier to health service use among Australian men (see Figure 4.3).

Other socio-economic factors such as employment status and having private health insurance had no, or only a marginally, significant effect on the probability of facing barriers to health service use. Similarly, masculine norms did not have a significant impact on the probability of facing barriers to health service use.

Table 4.7: Factors associated with experiencing barriers to health service use among Australian men aged 18–60, 2015/16

	Outcome: Needed health care in past year but could not get it	
	aOR	SE
Socio-demographic characteristics		
Age	1.01*	0.01
Aboriginal or Torres Strait Islander	1.70**	0.45
CALD background	1.68***	0.33
Non-heterosexual	1.24	0.23
Highest level of education achieved (ref. = university degree)		
Year 12 or less	0.96	0.14
Certificate/diploma	0.99	0.13
Employment status (ref. employed)		
Unemployed and looking for work	1.21	0.20
Out of labour force	1.19	0.19
Married or in a de-facto relationship (ref. = single/separated/widowed)	1.12	0.12
Number of financial hardships (ref. = no financial hardship) ^a		
One	3.23***	0.45
Two	4.06***	0.63
Three or more	11.25***	1.33
Neighbourhood characteristics		
ASGS Region of residence (ref. = Major cities)		
Inner regional	1.03	0.12
Outer regional	1.41***	0.17
SEIFA Index: level of relative disadvantage (ref. = Low disadvantage)		
High disadvantage	1.33*	0.20
Middle disadvantage	1.25	0.17
Health characteristics		
One or more physical health conditions	1.47***	0.14
Private health insurance	0.83*	0.09
Conformity to Masculine Norms		
CMNI score (ref. = low conformity) ^b		
Middle conformity	0.91	0.10
High conformity	1.16	0.15
Constant	0.01***	0.003
Total, n	9,206	

Notes: aOR = adjusted Odds Ratio; ASGS = Australian Statistical Geography Standard; SEIFA = Socio-Economic Indexes for Areas; CALD = Culturally and Linguistically Diverse; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; Experiencing barriers to health services was indicated by being unable to get health care when needed in the last 12 months. SE = robust standard error. ^a 'Financial hardships' was assessed according to having a shortage of money for medical care, being unable to pay for a prescription, being unable to pay bills on time, being unable to pay mortgage/rent on time, asking for financial help from others, and limited availability of fruit and vegetables. ^b The extent of conformity to traditional masculine roles was measured with the Conformity to Masculine Norms Inventory (CMNI) (Mahalik et al., 2003). The CMNI is comprised of 22 items that capture notions of winning, emotional control, risk taking, violence, dominance, sex, self-reliance, primacy of work, power over women, homosexuality, and pursuit of status. It is answered on a four-point scale (0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree); scores range from 0–66, with higher scores indicating greater conformity with masculine norms. The score distribution was divided into quantiles with classifications of Low, Middle, and High conformity.

Source: TTM data, Wave 2, adult cohort, balanced sample, unweighted

Conclusion

Rates of help seeking and health service use are generally lower among males compared to females. To better understand this discrepancy, this chapter explored the beliefs and preferences of Australian men regarding health service use, in addition to their health literacy in relation to effectively understanding, communicating and engaging with service providers. It also identified the types of health services accessed by Australian men, barriers to professional support, and the characteristics of adult males who were less likely to engage with the health care system.

Overall, there appear to be inconsistencies between how Australian men value their health and view their ability to engage with health services and how they actually interact with the health care system. Many men view seeking health care as a response only to being unwell (i.e. not for preventive purposes). Indeed, around one-third – 3 in 10 men – did not see a GP in the past 12 months, and less than half – around 4 in 10 men – saw a GP for a preventive health check-up in a given year. This is despite the vast majority of Australian men saying their health is important to them.

Across all age groups of adult males, informal sources for obtaining health-related information regarding a health concern were preferred to engaging with professionals; for example, a family member was the most common primary or first source for health-related information above other options including GPs and the internet. Although an increasing number of people are using the internet to meet their health information needs, international studies have found that males are less likely to source health information online compared to females (Bianco, Zucco, Nobile, Pileggi, & Pavia, 2013; Dickerson et al., 2004). Online care is not always an adequate replacement for in-person service provision but enhancing rates of internet usage for the purposes of sourcing health information and help seeking among Australian males could help overcome barriers to professional support among this group more generally, and facilitate timely access to health care and pertinent information (e.g. by increasing knowledge of available services). This could be especially beneficial for older Australian men, given TTM findings indicating they were less likely to access the internet for the purpose of accessing health information, and those who live in areas with limited services (men residing in regional areas were less likely to have visited a GP in the past year).

It should be noted that rates of internet use for sourcing health information and help seeking could now have become more common among Australian males, given that Wave 1 of TTM was conducted in 2013/14. Indeed, a substantial increase in telehealth usage in Australia during the COVID-19 pandemic has shifted access to remote and online services around the country (Department of Health, 2020). Regardless, promoting and supporting the use of available digital health services, such as Head to Health (an online national mental health service),⁵ is acknowledged as a means of addressing access issues among Australian males in the *National Men's Health Strategy 2020–2030*. This is an area that will be further explored using Wave 3 data collected throughout 2020/21.

In 2015/16 around 7% of Australian men had needed health care in the past 12 months but had been unable to get it. This was most commonly attributed to cost and high waiting times. Highlighting a common theme throughout this chapter, the findings of multivariable analyses indicated that men with an increased likelihood of experiencing barriers to health care were typically more socio-economically vulnerable or marginalised; for example, living in areas of high disadvantage (vs low disadvantage) and experiencing a greater number of financial hardships were significantly associated with experiencing barriers to health care use in the past year. This is a crucial gap, given that socio-economic disadvantage is generally associated with poorer health (e.g. higher rates of obesity, tobacco smoking, lung cancer, diabetes and suicide) (Department of Health, 2019). These findings suggest that improving access to health care for males who experience disadvantage should be a policy priority.

There were indications that race and ethnicity affected access to health care among Australian men; indeed, those who identified as Indigenous and men from CALD backgrounds had around 70% higher likelihood of experiencing barriers to health service use than non-Indigenous and non-CALD men. This is especially problematic given that such men are more likely to experience a number of different health

5 See headtohealth.gov.au

concerns, including chronic issues covered elsewhere in this report, such as depression, diabetes and overweight and obesity. Further, only 25% of Indigenous men had private health insurance compared to over half – 59% – of non-Indigenous men.

Other national studies have found similar differences in the rates of private health insurance by Indigenous status (AIHW, 2015), indicating a glaring gap in equity for this group. Accordingly, Medicare data from 2015/16 show that, while claim rates for GP visits were 10% higher among Indigenous versus non-Indigenous Australians, claim rates for specialist services were 43% lower (AIHW, 2018), which likely reflects difficulties in accessing specialist providers for people who identify as Aboriginal or Torres Strait Islander. Crucially, Indigenous Australians access hospitals for potentially preventable conditions at a rate three times higher than non-Indigenous Australians (specifically, 69 per 1,000 vs 23 per 1,000, respectively) (AIHW, 2018). Addressing barriers to certain types of professional support for this group is one vital component of improving the health of Indigenous Australians in general. It could also alleviate the strain experienced by frontline services due to limited access to other health care providers, such as specialists.

These findings build on previous research to enhance our understanding of some of the reasons why men in Australia generally have lower levels of engagement with health service providers than women, which likely leads to poor health outcomes. They provide an indication of which subgroups of men are less likely to share their health concerns and are more likely to experience barriers to professional support. Health campaigns could aim to improve rates of health service use among Australian males by educating men about how and when to engage with appropriate and available services. To this end, researchers have suggested that, to address the specific health needs of this group, the health care system needs to be more targeted in terms of their health messages and other communication with men and how care is delivered (Smith et al., 2006).⁶ Progress in this area could help build client-provider trust and enhance feelings of support and confidence among Australian men with regard to health service engagement.

Further research with the TTM cohort will help determine trajectories in health service use and health outcomes over time among males who are less likely to engage with the health care system.

⁶ See also www.afr.com/life-and-luxury/health-and-wellness/are-men-struggling-through-a-feminised-health-system-20191126-p53e93

References

- Australian Bureau of Statistics (ABS). (2018a). *Coordination of Health Care Study: Use of health services and medicines, Australia, 2015–16* (Catalogue no. 4343.0.55.001). Canberra: ABS. Retrieved from www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/4343.0.55.001Main%20Features12015-16?opendocument&tabname=Summary&prodno=4343.0.55.001&issue=2015-16&num=&view=
- Australian Bureau of Statistics. (2018b). *National Health Survey: Health literacy* (Catalogue no. 4364.0.55.014). Canberra: ABS. Retrieved from www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4364.0.55.014Main+Features12018?OpenDocument
- Australian Institute of Health and Welfare (AIHW). (2015). *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples: 2015*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/indigenous-australians/indigenous-health-welfare-2015
- Australian Institute of Health and Welfare. (2016). *Oral health and dental care in Australia 2015*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/dental-oral-health/oral-health-dental-care-in-australia-2015
- Australian Institute of Health and Welfare. (2018). *Australia's health 2018* (Australia's health series no. 16. AUS 221). Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/australias-health/australias-health-2018
- Australian Institute of Health and Welfare. (2019). *The health of Australia's males*. Canberra: AIHW. Retrieved from www.aihw.gov.au/reports/men-women/male-health
- Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine*, 155(2), 97–107.
- Bianco, A., Zucco, R., Nobile, C. G. A., Pileggi, C., & Pavia, M. (2013). Parents seeking health-related information on the Internet: Cross-sectional study. *Journal of Medical Internet Research*, 15(9), e204.
- Buckley, D., & Lower, T. (2002). Factors influencing the utilisation of health services by rural men. *Australian Health Review*, 25(2), 11–15.
- Clouston, S. A., Manganello, J. A., & Richards, M. (2017). A life course approach to health literacy: The role of gender, educational attainment and lifetime cognitive capability. *Age and Ageing*, 46(3), 493–499.
- Corscadden, L., Levesque, J.-F., Lewis, V., Breton, M., Sutherland, K., Weenink, J.-W. et al. (2017). Barriers to accessing primary health care: comparing Australian experiences internationally. *Australian Journal of Primary Health*, 23(3), 223–228.
- Courtenay, W. H. (2002). Behavioral factors associated with disease, injury, and death among men: Evidence and implications for prevention. *International Journal of Men's Health*, 1(3), 281.
- Davey, J., Holden, C. A., & Smith, B. J. (2015). The correlates of chronic disease-related health literacy and its components among men: A systematic review. *BMC Public Health*, 15(1), 589.
- Department of Health. (2019). *Standard drinks guide*. Canberra: Department of Health. Retrieved from www.health.gov.au/health-topics/alcohol/about-alcohol/standard-drinks-guide
- Department of Health. (2020). *Australians embrace telehealth to save lives during COVID-19*. Canberra: Department of Health. Retrieved from www.health.gov.au/ministers/the-hon-greg-hunt-mp/media/australians-embrace-telehealth-to-save-lives-during-covid-19
- Dickerson, S., Reinhart, A. M., Feeley, T. H., Bidani, R., Rich, E., Garg, V. K., & Hershey, C. O. (2004). Patient Internet use for health information at three urban primary care clinics. *Journal of the American Medical Informatics Association*, 11(6), 499–504.
- Ek, S. (2015). Gender differences in health information behaviour: A Finnish population-based survey. *Health Promotion International*, 30(3), 736–745.
- Geller, J., Swetter, S. M., Leyson, J., Miller, D. R., Brooks, K., & Geller, A. C. (2006). Crafting a melanoma educational campaign to reach middle-aged and older men. *Journal of Cutaneous Medicine and Surgery*, 10(6), 259–268.
- Mahalik, J. R., Locke, B. D., Ludlow, L. H., Diemer, M. A., Scott, R. P., Gottfried, M., & Freitas, G. (2003). Development of the conformity to masculine norms inventory. *Psychology of Men & Masculinity*, 4(1), 3.
- Mansfield, A. K., Addis, M. E., & Mahalik, J. R. (2003). 'Why won't he go to the doctor?': The psychology of men's help seeking. *International Journal of Men's Health*, 2, 93–110.
- Milner, A., Shields, M., & King, T. (2019). The influence of masculine norms and mental health on health literacy among men: Evidence from the Ten to Men study. *American Journal of Men's Health*, 13(5), 1557988319873532.
- Oliffe, J. L., Rossnagel, E., Kelly, M. T., Bottorff, J. L., Seaton, C., & Darroch, F. (2019). Men's health literacy: A review and recommendations. *Health Promotion International*, daz077.
- Osborne, R. H., Batterham, R. W., Elsworth, G. R., Hawkins, M., & Buchbinder, R. (2013). The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). *BMC Public Health*, 13(1), 658.
- Rockloff, M. J., & Schofield, G. (2004). Factor analysis of barriers to treatment for problem gambling. *Journal of Gambling Studies*, 20(2), 121–126.
- Schlichthorst, M., King, K., Turnure, J., Phelps, A., & Pirkis, J. (2019). Engaging Australian men in masculinity and suicide: A concept test of social media materials and a website. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals*, 30(3), 390.

Smith, J., Braunack-Mayer, A., & Wittert, G. (2006). What do we know about men's help-seeking and health service use? *The Medical Journal of Australia*, 184(2).

Steering Committee for the Review of Government Service Provision. (2016). *Report on Government Services 2016, vol. E, Health*. Canberra: Productivity Commission, Retrieved from www.pc.gov.au/research/ongoing/report-on-government-services/2016/health/rogs-2016-volume-e-health.pdf

World Health Organization (WHO). (2016). *Health Literacy*. Geneva: WHO. Retrieved from www.who.int/healthpromotion/conferences/9gchp/health-literacy/en/

Appendix A

Supplementary material



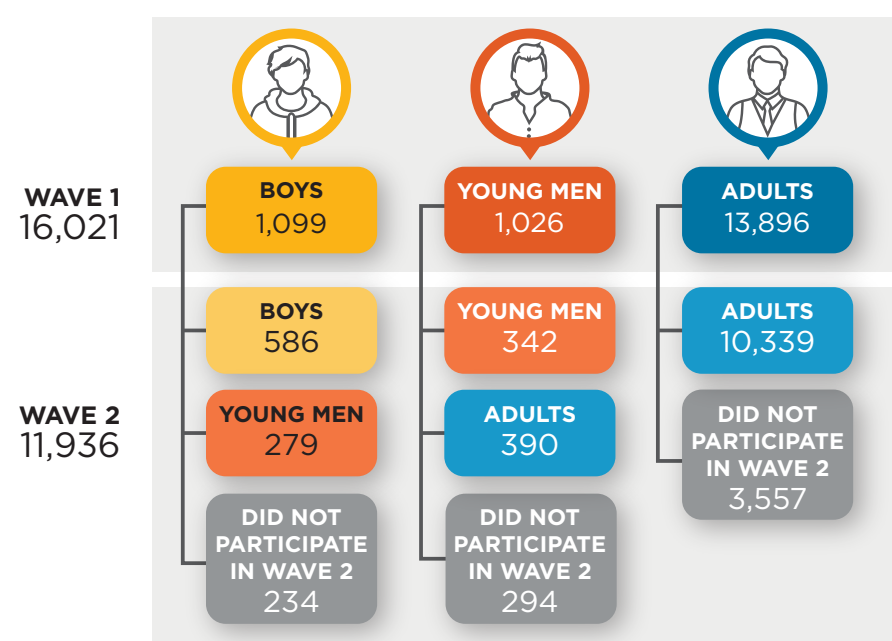
The *Ten to Men* (TTM) Insights report's Supplementary Material includes information on cohort and sub-cohort response rates from Wave 1 to Wave 2, and further details regarding the statistical methods, key measures and findings included in the four empirical chapters.

Further information on the study design, questionnaires, statistical considerations, data files and other user resources is available via the *TTM Data User Guide* on the TTM website.¹

Response rates

The overall cohort sample size for Wave 1 is 16,021 males aged 10–55 years. Figure S1 shows the distribution of TTM participants across three sub-cohorts at Wave 1: boys aged 10–14 years ($n = 1,099$), young men aged 15–17 years ($n = 1,026$) and adults aged 10–55 ($n = 13,896$). The overall retention rate of participants from Wave 1 to Wave 2 was 75% (79% for boys, 71% for young men and 74% for adults). Figure S1 also shows the movement of participants between the age-based cohorts across waves.

Figure S1: Number of participants across Waves 1 and 2 by each cohort



Key measures (alphabetical order)

Conformity to Masculine Norms

The extent of conformity to traditional masculine roles among the young men and adult TTM cohorts was measured using the Conformity to Masculine Norms Inventory (CMNI).² The CMNI is comprised of 22 items that capture notions of winning, emotional control, risk taking, violence, dominance, sexual behaviours and attitudes, self-reliance, primacy of work, power over women, attitudes towards homosexuality, and pursuit of status. The CMNI is answered on a four-point scale (0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree); scores range from 0–66, with higher scores indicating greater conformity with masculine norms. Continuous scores were split into three categories: the lowest quartile (25%), the middle 50%, and the highest 25%.

¹ <https://tentomen.org.au/>

² Mahalik, J. R., Locke, B. D., Ludlow, L. H., Diemer, M. A., Scott, R. P., Gottfried, M., & Freitas, G. (2003). Development of the conformity to masculine norms inventory. *Psychology of Men & Masculinity*, 4(1), 3.

Education

At Waves 1 and 2 of TTM, adult participants were asked to specify their highest post-secondary school qualification. The options provided were doctorate; master's or postgraduate degree; bachelor degree; undergraduate diploma; associate diploma; non-trade certificate; trade certificate; begun, but have not completed any qualification; have not completed any additional qualification; and, other (please specify).

This information was used to create a variable with four categories indicating highest qualification achieved: year 12 or less (have not completed any additional qualification); certificate/diploma (included trade certificate, non-trade certificate, associate diploma, undergraduate diploma); university degree (included bachelor degree, master's or postgraduate degree, doctorate); other.

Employment status

At Waves 1 and 2 of TTM, adult participants were asked to classify their current employment status using the following options: employed/working for profit or pay; unemployed and looking for work; and, neither working nor looking for work.

Financial hardship

At Waves 1 and 2, adult TTM participants were asked whether they had experienced seven types of hardship over the previous 12 months 'because of a shortage of money'. The hardships included: could not fill/collect prescription; could not get a medical test, treatment, or follow-up that was recommended by a doctor; limited how much fruit or vegetables eaten; could not pay electricity, gas or telephone bills on time; could not pay the mortgage or rent on time; asked for financial help from family or friends.

This information was used to create an indicator variable for number of financial hardships experienced, with a possible range of 0 to 6 (higher scores indicated greater financial hardship). At Wave 1, the mean number of financial hardships experienced by adult TTM participants was 0.7 (standard deviation [SD] = 1.3); at Wave 2, the mean number of financial hardships experienced by adult TTM participants was 0.6 (SD = 1.2).

Indigenous status

In the first wave of TTM data collection, all participants were asked if they identified as Aboriginal, Torres Strait Islander, both, or neither. This information was used to create a binary variable: Aboriginal and Torres Strait Islander vs. non-Indigenous.

Area level of disadvantage

The area level of socioeconomic disadvantage of TTM respondents' residential locations was assessed using the Socio-Economic Indexes for Areas (SEIFA),³ developed by the Australian Bureau of Statistics (ABS). Area level of disadvantage was measured at both waves of data collection. Scores were divided into three categories: the lowest quartile (25%), middle 50%, and the highest 25%.

Marital status

At Waves 1 and 2, adult TTM participants were asked to classify their marital status according to the following options: never married; widowed; divorced; separated but not divorced; and married/de facto.

Language background

At Wave 1 of TTM, all participants were asked about the language they mainly spoke at home. This information was used to create a binary variable; those who mainly spoke a language other than English at home were classified as being culturally and linguistically diverse (CALD) vs. those not from CALD backgrounds.

³ <https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>

Personal Wellbeing Index (PWI) – subjective wellbeing

At Waves 1 and 2, general life satisfaction among adult TTM participants was measured using the Personal Wellbeing Index (PWI),⁴ which captures satisfaction across various life domains (e.g., health, relationships, safety, future security, life achievements). PWI scores provide an indicator of subjective wellbeing (a higher score indicates higher overall life satisfaction). The score distribution for the TTM sample (range: 1–99) was divided into quartiles indicating classifications of low, middle, and high satisfaction. Analyses for the Insights report used a binary indicator comprising low vs. middle-high satisfaction. At both waves, around one-quarter of adult TTM participants reported low life satisfaction (approximately 26% and 27% at Waves 1 and 2, respectively).

Residential region

The region of participants' residential locations were determined by the Australian Statistical Geography Standard (ASGS).⁵ Residential region was assessed at Waves 1 and 2 of data collection. The four categories included major cities, inner regional areas, outer regional areas, and remote/very remote areas.

Sexual orientation

At Wave 1 of TTM, participants aged 15 and older (i.e., young men and adult cohorts) were asked if they identified as: heterosexual; bisexual; homosexual; 'not sure'; or 'other'. A binary variable was generated to indicate sexual orientation; participants were classified as 'non-heterosexual' if they identified as bisexual, homosexual, not sure, or other (vs. heterosexual).

Overview of statistical methods and terms used in the report

Confidence interval

A confidence interval (CI) is a range of values, above and below a finding, in which the actual value is likely to fall. The CI represents the accuracy of an estimate, and it can take any number of probabilities, with the most common being 95% or 99%. Unless otherwise specified, the analysis in this report uses a 95% CI. This means that the CI covers the true value for 95 out of 100 of the outcomes.

In graphs, 95% confidence intervals are shown by the 'I' bars at the top of each column. Where confidence intervals for the groups being compared do not overlap, this indicates that the differences in values are statistically significant at the $p < 0.05$ level.

Mean

'Mean' is the statistical term used for what is more commonly known as the average – the sum of the values of a data series divided by the number of data points.

Standard deviation

'Standard deviation (SD)' is a statistical term used for variation or variability in a set of values. Lower standard deviations indicate that the values tend to be close to the mean, while higher standard deviations indicate that the values are spread out over a wider range.

⁴ International Wellbeing Group (2013). Personal Wellbeing Index: 5th Edition. Melbourne: Australian Centre on Quality of Life, Deakin University <http://www.acqol.com.au/instruments#measures>

⁵ [https://www.abs.gov.au/websitedbs/d3310114.nsf/home/australian+statistical+geography+standard+\(asgs\)](https://www.abs.gov.au/websitedbs/d3310114.nsf/home/australian+statistical+geography+standard+(asgs))

Odds ratios

An odds ratio (OR) is a measure of association between an exposure and an outcome. The odds ratio represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure.

ORs are used to compare the relative odds of the occurrence of the outcome of interest (e.g. disease or disorder), given exposure to the variable of interest (e.g. health characteristic, aspect of medical history). The OR can also be used to determine whether a particular exposure is a risk factor for a particular outcome, and to compare the magnitude of various risk factors for that outcome.

- OR = 1 Exposure does not affect odds of outcome.
- OR > 1 Exposure is associated with higher odds of outcome.
- OR < 1 Exposure is associated with lower odds of outcome.

Logistic regression models

Logistic regression models are used to estimate the effects of factors, such as age and educational attainment, on a categorical dependent variable, such as attendance at religious services. The standard models examine 'binary' dependent variables, which are variables with only two distinct values, and estimates obtained from these models are interpreted as the effects on the probability that the variable takes one of those values. For example, a model might be estimated on the probability that an individual regularly attends religious services (as opposed to not attending religious services).

Chi-square test

A chi-square (χ^2) test is used to investigate whether distributions of categorical variables differ from one another. For example, are overweight or obese men more likely to smoke cigarettes than non overweight or obese men?

Statistical significance

In the context of statistical analysis of survey data, a finding is statistically significant if it is unlikely that the relationship between two or more variables is caused by chance. That is, a relationship can be considered to be statistically significant if we can reject the 'null hypothesis' that hypothesises that there is no relationship between measured variables. A common standard is to regard a difference between two estimates as statistically significant if the probability that they are different is at least 95%. However, 90% and 99% standards are also commonly used. Unless otherwise specified, the 95% standard is adopted for regression results presented in this report. Note that a statistically significant difference does not mean the difference is necessarily large, it simply means that you can be fairly confident there is a difference.

Sample weights

Sample weights (for study participants) were produced for the study dataset to reduce the effect of bias in sample selection and participant non-response. When these weights are used in analyses, greater weight is given to population groups that are under-represented in the sample, and less weight to groups that are over-represented in the sample. Weighting therefore ensures that the study sample more accurately represents the sampled population.

The sample weights were used in analyses presented throughout the Insights report's four empirical chapters. Cross-sectional or longitudinal weights were used when examining data from more than one wave. Analyses were conducted using Stata® svy (survey) commands, which take the clusters and strata used in the study design into account when producing measures of the reliability of estimates.

Additional chapter findings

The following sub-sections provide some additional findings to those included in the four empirical chapters.

Chapter 1

Table S1.1: Comorbidity estimates (with 95% CI)

	Prevalence of comorbidity	
	12-months %	95% CI
Number of comorbid disorders among all adult males		
Any comorbidity (2+ disorders)	6.5	[5.9, 7.1]
Total, n	13,894	
Number of comorbid disorders among adult males with at least two disorders		
2	83.6	[80.0, 86.6]
3+	16.4	[13.4, 20.0]
Total, n	929	
Most common comorbid disorders among adult males with at least two disorders		
Depression & anxiety	88.4	[85.5, 90.7]
PTSD & depression	22.9	[19.3, 26.9]
Total, n	929	

Table S1.2: Depressive severity in the past two weeks among males (with 95% CI)

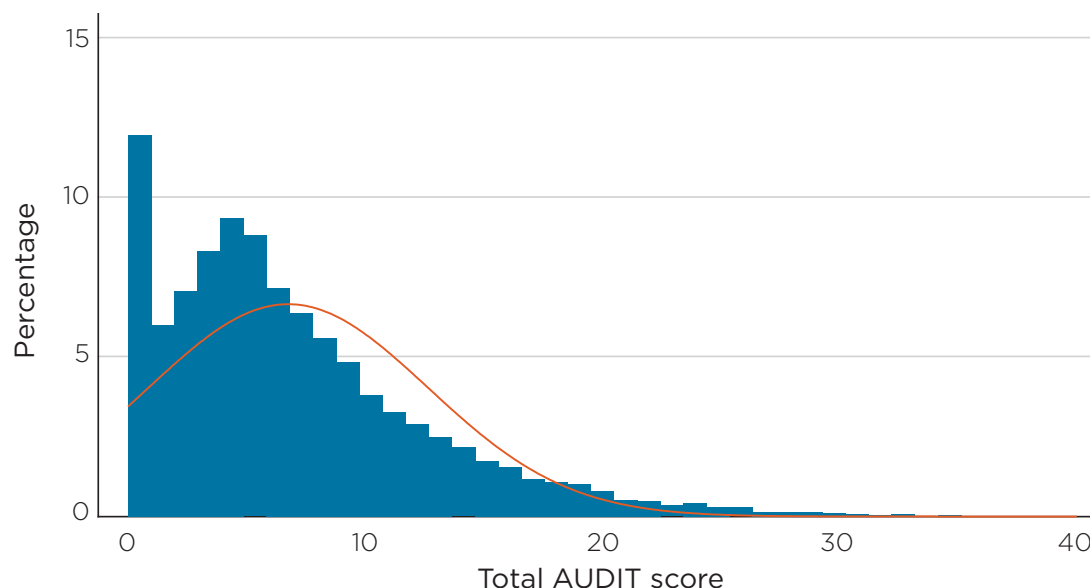
	Boys		Young men		Adults	
	%	95% CI	%	95% CI	%	95% CI
Depression severity						
None	69.4	[65.2, 73.3]	62.9	[58.5, 67.1]	63.2	[62.1, 64.4]
Mild	21.5	[18.2, 25.1]	23.8	[20.2, 27.8]	23.7	[22.7, 24.7]
Moderate	7.9	[5.8, 10.8]	9.4	[6.9, 12.8]	7.5	[7.0, 8.2]
Severe	1.2	[0.7, 2.2]	3.9	[2.5, 6.0]	5.4	[4.9, 6.1]
Total, %	100		100		100	
Probable major depressive disorder						
Score 10+	2.2	[1.3, 3.8]	5.78	[4.1, 8.0]	6.9	[6.3, 7.5]
Total, n	1,066		1,004		13,573	

Notes: 95% CI = Confidence Interval.

Source: TTM Data, Wave 1, all cohorts, weighted

Chapter 2

Figure S2.1: Distribution of AUDIT scores among adult TTM participants at Wave 1 (2013/14)



Notes: $n = 12,601$ adults at Wave 1; AUDIT = Alcohol Use Disorders Identification Test, scores range from 0–40; a score of 0 includes people who have not consumed alcohol in the last year and also those who drink low volumes (no more than three standard drinks per session) infrequently.

Source: TTM Wave 1, Adult cohort, unweighted

Table S2.1: Estimated prevalence of lifetime and recent/past year alcohol consumption among boys in 2013/14, by age

Age (years)	n	Lifetime % [95% CI]	Past year % [95% CI]
10	202	16.6 [9.3, 24.9]	8.7 [4.1, 17.5]
11	212	18.3 [12.2, 26.7]	6.0 [3.5, 10.2]
12	229	15.7 [10.4, 23.1]	5.9 [3.3, 10.2]
13	245	24.1 [17.1, 32.8]	12.2 [7.2, 19.8]
14	206	33.0 [24.4, 43.0]	20.0 [13.6, 28.6]
Total	1,094	21.4 [17.9, 25.3]	10.6 [8.2, 13.5]

Notes: $n = 1,094$ boys with valid responses to alcohol prevalence questions; CI = Confidence Interval

Source: TTM data, Wave 1, Boys cohort, weighted

Table S2.2: Alcohol use frequency in the last 12 months among boys who have ever consumed alcohol in 2013/14

Alcohol use frequency	%	95% CI
Never	50.1	40.9, 59.4
Monthly	43.9	35.1, 53.0
2-4 times/month	4.5	2.0, 9.7
More than weekly	1.5	0.6, 3.7

Notes: $n = 211$ boys who reported lifetime alcohol consumption (of $n = 1,094$ boys with valid responses to alcohol prevalence questions); CI = Confidence Interval

Source: TTM data, Wave 1, Boys cohort, weighted

Table S2.3: Characteristics associated with 'medium' or 'high' risk of experiencing alcohol-related harms (vs 'low', as per AUDIT scores) among TTM participants aged >18 years at Waves 1 and 2

Characteristics	OR	95% CI	aOR	95% CI
Age group (years) (ref. = 18–24 age group)				
25–34	0.66	0.46, 0.93*	1.34	.85, 2.11
35–44	0.44	0.31, 0.63***	0.76	0.47, 1.21
45–54	0.32	0.23, 0.45***	0.40***	0.25, 0.65***
55–60	0.24	0.15, 0.38***	0.31***	0.17, 0.56***
Employment status (ref. = employed)				
Unemployed, looking for work	1.12	0.82, 1.53	0.89	0.61, 1.32
Out of labour force	0.71	0.50, 1.01	0.40***	0.26, 0.62***
Highest level of education achieved (ref. = Year 12)				
Certificate/diploma	0.94	0.74, 1.20	0.92	0.71, 1.20
University degree	0.15	0.11, 0.20***	0.22***	0.16, 0.31***
Aboriginal and Torres Strait Islander	4.12	1.56, 10.88**	1.92	0.62, 5.97
SEIFA Index (level of disadvantage) (ref. = high)				
Middle	1.16	0.92, 1.46	1.35*	1.02, 1.78*
Low	1.17	0.87, 1.56	1.61**	1.31, 2.50**
ASGS (ref. = major cities)				
Inner regional areas	1.79	1.39, 2.31***	1.20	0.87, 1.64
Outer regional areas	2.80	2.08, 3.77***	1.99***	1.39, 2.85***
Recent/past year depression and/or anxiety	1.91	1.48, 2.46***	1.52*	1.14, 2.02**
CALD	0.01	0.01, 0.02***	0.02***	0.01, 0.03***
Married or de facto	0.37	0.29, 0.46***	0.44***	0.33, 0.59***
Personal Wellbeing Index				
Continuous	0.97	0.97, 0.98***	–	–
Score >73 (median = 73)	0.46	0.39, 0.55***	0.50***	0.41, 0.61***

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. OR = Odds Ratio; aOR = adjusted Odds Ratio; ASGS = Australian Statistical Geography Standard; CALD = Culturally and Linguistically Diverse; multivariable random effects logistic regression, $n = 19,718$ observations. Depression and anxiety were classified according to self-report.

Source: TTM data, Waves 1 and 2, Adult cohorts, unweighted

Chapter 3

Complete results: Outcomes associated with overweight and obesity

Table S3.1: Complete results: Associations between cardiovascular, respiratory and diabetes conditions and overweight and obesity patterns among *Ten to Men* participants, 18–60 years

Variables	Any cardiovascular condition in past 12 months prior W2		Any respiratory condition in past 12 months prior W2		Diabetes in past 12 months prior W2	
	Without socio- demographic controls	With socio- demographic controls	Without socio- demographic controls	With socio- demographic controls	Without socio- demographic controls	With socio- demographic controls
	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)
Weight (ref.: Healthy weight at both Waves 1 and 2)						
Overweight or obese at both Waves 1 and 2	4.02*** (0.36)	2.80*** (0.27)	1.40*** (0.13)	1.42*** (0.14)	4.03*** (0.77)	3.40*** (0.69)
Transitioned into overweight or obesity from Wave 1 to Wave 2	1.79*** (0.27)	1.57*** (0.26)	1.12 (0.18)	1.13 (0.19)	1.55 (0.52)	1.40 (0.51)
Transitioned out of overweight and obesity from Wave 1 to Wave 2	1.87*** (0.33)	1.49** (0.29)	0.95 (0.19)	0.92 (0.20)	1.62 (0.62)	1.49 (0.61)
Key socio-demographics characteristics						
Married or in a de-facto relationship at Wave 2		0.93 (0.08)		0.98 (0.09)		0.75** (0.11)
Age (at Wave 2)		1.09*** (0.00)		0.99 (0.00)		1.06*** (0.01)
Highest level of education achieved at Wave 2 (ref.: <=Year 12)						
Certificate/Diploma		1.04 (0.08)		0.99 (0.09)		0.71** (0.10)
University degree		0.87 (0.08)		1.03 (0.11)		0.78 (0.13)
Employment status at Wave 2 (ref.: Employed)						
Unemployed and looking for work		1.26 (0.20)		1.42** (0.23)		2.19*** (0.50)
Out of labour force		1.98*** (0.24)		2.19*** (0.29)		2.54*** (0.45)
SEIFA Index: level of relative disadvantaged at Wave 2 (ref.: Low disadvantaged)						
High disadvantage		1.27** (0.12)		1.36*** (0.15)		1.53** (0.28)
Middle disadvantage		1.04		1.15		1.23

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Variables	Any cardiovascular condition in past 12 months prior W2		Any respiratory condition in past 12 months prior W2		Diabetes in past 12 months prior W2	
	Without socio-demographic controls	With socio-demographic controls	Without socio-demographic controls	With socio-demographic controls	Without socio-demographic controls	With socio-demographic controls
	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)
		(0.08)		(0.11)		(0.20)
ASGS Region of residence at Wave 2 (ref.: Metro/Urban)						
Inner regional		1.10		1.04		1.19
		(0.09)		(0.10)		(0.18)
Outer regional		1.01		0.99		1.03
		(0.09)		(0.11)		(0.17)
Remote/Very remote		1.88		0.76		–
		(1.32)		(0.74)		–
Non-heterosexual (asked at Wave 1)		1.32*		1.14		1.30
		(0.20)		(0.19)		(0.31)
Aboriginal and Torres Strait Islander (asked at Wave 1)		1.33		1.03		2.62***
		(0.32)		(0.29)		(0.93)
CALD background (asked at Wave 1)		1.15		0.66**		1.55*
		(0.19)		(0.14)		(0.41)
Total, n	9,021	8,562	9,050	8,588	9,023	8,553

Notes: ***p < 0.01, **p < 0.05, *p < 0.10. aOR = adjusted Odds Ratio; SE = Robust standard error. All health conditions are self-reported (see Box 3.2). Socio-demographic variables controlled for the regression models were: Wave 2 – age, area disadvantage, region of residence, highest education, employment status, marital status; Wave 1 – sexual orientation, Aboriginal and Torres Strait Islander status and CALD background.

Table S3.2: Complete results: Associations between cancer and arthritis, and overweight and obesity patterns among *Ten to Men* participants, 18–60 years

Variables	Cancer in past 12 months prior W2		Arthritis in past 12 months prior W2	
	Without socio-demographic controls	With socio-demographic controls	Without socio-demographic controls	With socio-demographic controls
	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)
Weight (ref.: Healthy weight at both Waves 1 and 2)				
Overweight or obese at both Waves 1 and 2	1.47*	0.90	2.10***	1.38***
	(0.34)	(0.22)	(0.23)	(0.17)
Transitioned into overweight or obesity from Wave 1 to Wave 2	1.22	1.10	1.44*	1.23
	(0.50)	(0.46)	(0.28)	(0.26)
Transitioned out of overweight and obesity from Wave 1 to Wave 2	2.58**	2.25**	1.42	1.15
	(0.95)	(0.85)	(0.32)	(0.28)
Key socio-demographics characteristics				
Married or in a de-facto relationship at Wave 2		0.95		1.01
		(0.21)		(0.11)
Age (at Wave 2)		1.10***		1.07***
		(0.01)		(0.01)

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Variables	Cancer in past 12 months prior W2		Arthritis in past 12 months prior W2	
	Without socio- demographic controls	With socio- demographic controls	Without socio- demographic controls	With socio- demographic controls
	aOR (SE)	aOR (SE)	aOR (SE)	aOR (SE)
Highest level of education achieved at Wave 2 (ref.: <=Year 12)				
Certificate/Diploma		1.14 (0.27)		1.13 (0.12)
University degree		0.92 (0.26)		0.65*** (0.09)
Employment status at Wave 2 (ref.: Employed)				
Unemployed and looking for work		0.46 (0.33)		1.57** (0.30)
Out of labour force		2.66*** (0.68)		2.77*** (0.38)
SEIFA Index: level of relative disadvantaged at Wave 2 (ref.: Low disadvantage)				
High disadvantage		1.07 (0.28)		1.42*** (0.18)
Middle disadvantage		0.97 (0.22)		1.29** (0.15)
ASGS Region of residence at Wave 2 (ref.: Metro/Urban)				
Inner regional		1.03 (0.24)		1.09 (0.11)
Outer regional		1.12 (0.27)		1.13 (0.13)
Non-heterosexual (asked at Wave 1)				
		1.12 (0.47)		1.13 (0.24)
Aboriginal and Torres Strait Islander (asked at Wave 1)				
		-		1.47 (0.42)
CALD background (asked at Wave 1)				
		0.35 (0.27)		0.38*** (0.14)
Total, n	9,025	8,418	9,024	8,552

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. aOR = adjusted Odds Ratio; SE = Robust standard error. All health conditions are self-reported (see Box 3.2). Socio-demographic variables controlled for the regression models were: Wave 2 – age, area disadvantage, region of residence, highest education, employment status, marital status; Wave 1 – sexual orientation, Aboriginal and Torres Strait Islander status and CALD background.

Chapter 4

Table S4.1: Primary source for health-related information regarding a health concern among Australian men, by age group, 2013/14

Source	Overall % [95% CI]	18–24 % [95% CI]	25–34 % [95% CI]	35–44 % [95% CI]	45–57 % [95% CI]
Family members	45.2 [43.9, 46.6]	48.9 [45.6, 52.1]	44.2 [41.6, 46.9]	46.2 [44.1, 48.4]	42.9 [40.8, 45.0]
Internet	20.7 [19.7, 21.8]	24.7 [22.2, 27.4]	25.0 [22.9, 27.3]	20.2 [18.4, 22.1]	15.0 [13.6, 16.5]
Doctor or nurse	23.1 [21.9, 24.2]	12.0 [10.3, 14.0]	17.1 [15.2, 19.2]	24.3 [22.3, 26.4]	34.0 [32.0, 36.1]
Friend	3.8 [3.2, 4.5]	6.7 [5.1, 8.8]	5.5 [4.1, 7.3]	2.5 [1.8, 3.4]	1.7 [1.3, 2.2]
Other	1.3 [1.1, 1.6]	1.7 [1.1, 2.5]	1.6 [1.2, 2.3]	1.4 [0.9, 2.0]	0.8 [0.5, 1.2]
I don't seek any information	3.5 [3.1, 3.9]	2.5 [1.7, 3.5]	3.6 [2.9, 4.6]	3.5 [2.8, 4.4]	3.9 [3.2, 4.8]
I never have health concerns	2.5 [2.1, 2.9]	3.6 [2.5, 5.2]	2.9 [2.1, 4.0]	2.0 [1.5, 2.7]	1.8 [1.3, 2.5]
Total, n	12,890	1,798	2,842	3,889	4,361

Notes: Percentages are those who said yes to each source option. 'Family members' include partners and spouses. 95% CI = Confidence Interval.

Source: TTM data, Wave 1, Adult cohort, weighted

Table S4.2: Ability to access health information among Australian men aged 18–60 years, 2015/16

	Adults (18–60 years) % [95% CI]
Ability to access health information ('quite' or 'very easy' to achieve the following tasks)	
Find information about health problems	85.6 [84.4, 86.6]
Find health information from several different places	81.0 [79.7, 82.1]
Get information about health so you are up to date with the best information	80.3 [79.0, 81.5]
Get health information in words you understand	84.9 [83.8, 86.0]
Get health information by yourself	82.9 [81.7, 84.0]
Total, n	10,365

Notes: Percentages are those who said 'quite easy' or 'very easy' for each statement. 95% CI = Confidence Interval.

Source: TTM data, Wave 2, Adult cohort, weighted

Table S4.3: Ability to engage with, and get support from, health care providers among Australian men aged 18–60 years, 2015/16

	% [95% CI]
Ability to engage with health care providers ('quite' or 'very easy' to achieve the following tasks)	
Make sure that health care providers understand your problems properly	79.8 [78.4, 81.1]
Feel able to discuss your health concerns with a health care provider	80.7 [79.3, 82.0]
Have a good discussion about your health with doctors	80.7 [79.4, 82.0]
Discuss things with health care providers until you understand	79.9 [78.6, 81.1]
Ask health care providers questions to get the health information you need	82.0 [80.7, 83.2]
Total, n	10,365
Feeling supported and understood by health care providers ('agree' or 'strongly agree' with the following statements)	
I have at least one health care provider who knows me well	55.2 [53.6, 56.8]
I have at least one health care provider I can discuss my health problems with	70.4 [69.0, 71.8]
I have the health care providers I need to help me work out what I need to do	70.1 [68.7, 71.5]
I can rely on at least one health care provider	75.9 [74.5, 77.1]
Total, n	10,425

Notes: Percentages in the top panel are those who said 'quite easy' or 'very easy' for each statement; and percentages in the bottom panel are those who said 'agree' or 'strongly agree' for each statement. 95% CI = Confidence Interval.

Source: TTM data, Wave 2, Adult cohort, weighted

Table S4.4: Frequency of preventive health check-ups among Australian men by age group, 2015/16

	Overall % [95% CI]	18–24 % [95% CI]	25–34 % [95% CI]	35–44 % [95% CI]	45–60 % [95% CI]
Once a year or more	41.9 [40.3, 43.5]	33.5 [29.5, 37.7]	30.8 [27.7, 34.1]	38.9 [35.8, 42.0]	56.7 [54.4, 59.1]
Less than once a year	28.3 [27.0, 29.6]	32.9 [29.1, 37.0]	28.6 [25.4, 31.9]	28.7 [26.3, 31.2]	25.4 [23.4, 27.5]
Never	29.8 [28.4, 31.4]	33.6 [30.0, 37.5]	40.6 [37.1, 44.2]	32.4 [29.6, 35.4]	17.9 [16.2, 19.8]
Total, n	10,445	1,268	1,936	2,923	4,318

Notes: Percentages are those who said yes to the option. 95% CI = Confidence Interval.

Source: TTM data, Wave 2, Adult cohort, weighted