TEN to MEN

The Australian Longitudinal Study on Male Health

Social connectedness among Australian males

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Contents

List of abbreviations . . . vii

Executive summary . . . viii

Levels of social connectedness among adult Australian males . . . viii

Social connectedness and social support in the context of social life events . . . ix

Is there a bidirectional relationship between depression and self-perceived social support among Australian men? . . . ix

Experience of functional difficulty and social connectedness among Australian males . . . ix

Community engagement and participation among adult Australian males . . . x

Policy and practice implications . . . x

Introduction . . . xi

1. Levels of social connectedness among adult Australian males . . . 1

Overview . . . 1

Attachment relationships . . . 2

Community integration . . . 4

Self-perceived social support and satisfaction with personal relationships . . . 5

Multivariable analyses: Factors associated with low social support and relationship satisfaction . . . 8

Conclusion . . . 10

2. Social connectedness and social support in the context of social life events . . . 12

Overview . . . 12

Research objectives . . . 13

Types of social life events . . . 13

Overall prevalence of social life events . . . 14

Associations between single social events and self-perceived social support . . . 17

Conclusion . . . 19

3. Is there a bidirectional relationship between depression and self-perceived social support among Australian men? . . . 20

Overview . . . 20

Research objectives . . . 21

Depression and self-perceived social support among Australian men in 2015/16 . . . 22

Correlation between depression and self-perceived social support (Wave 2) . . . 23

Modelling bi-directional relationships over time . . . 25

Conclusion . . . 29

4. Experience of functional difficulty and social connectedness among Australian males . . . 30

Overview . . . 31

Research objectives . . . 31

Difficulty among adult Australian males . . . 32

Perceived social support . . . 34

Attachment relationships . . . 39

Community integration . . . 41

Conclusion . . . 41

5. Community engagement and participation among adult Australian males . . . 43

Overview . . . 43

Research objectives . . . 44

Community integration: Participation in community-based activities among adult males in 2013/14 . . . 45

Conclusion . . . 53

6. Policy and practice implications . . . 55

Lower social connectedness among older men . . . 55

Established and emerging initiatives in Australia for enhancing social connectedness . . . 56

Focusing on social connectedness to address mental ill-health . . . 56

Addressing low social connectedness among men with functional difficulty . . . 57

Future research directions . . . 58

Appendix A: Methodology . . . 59

Health-related measures . . . 61

Appendix B: Supplementary figures and tables . . . 68

References . . . 73

List of figures

Figure 1.1: Distribution of household composition by age group among adult males in 2015/16 . . . 3
Figure 1.2: Prevalence of availability of social support across individual MOS Social Support Scale items among adult males, 2015/16 . . . 6
Figure 1.3: Change in self-perceived social support categories over time, 2013/14 to 2015/16 . . . 7
Figure 1.4: Satisfaction with personal relationships and among adult men by age, 2015/16 . . . 8
Figure 2.1: Number of social life events in last 12 months by age group, 2015/16 . . . 14
Figure 2.2: Prevalence of social life events among adult males in the past year, 2015/16 . . . 15
Figure 3.1: Mean PHQ-9 score by MOS total score among adult males, by age group, 2015/16 . . . 24
Figure 3.2: Mean MOS score by total PHQ-9 score among adult males by age group, 2015/16 . . . 25
Figure 3.3: A two-wave, two-variable cross-lagged panel model . . . 26
Figure 3.4: Two-wave cross-lagged panel model: Results with socio-demographic controls . . . 28
Figure 4.1: No, some and serious difficulty among adult males in 2015/16, as assessed by the WG-SS, by age group . . . 33
Figure 4.2: Percentages of adult males with no difficulty, some difficulty, and serious difficulty across six core functional domains in 2015/16 . . . 34
Figure 4.3: Mean MOS Social Support Scale score by difficulty status (none, some difficulty, serious difficulty) among adult males aged 18–60 in 2015/16 . . . 35
Figure 4.4: Mean MOS Social Support Scale score among adult males aged 18–60 in 2015/16 with disability, by age . . . 36
Figure 4.5: Self-perceived social support by level and type of difficulty among adult males in 2015/16: mean MOS Social Support Scale score . . . 37
Figure 4.6: Prevalence of 'aloneness' (no close friends/relatives) among males aged 18–60 years in 2015/16, by level of functional difficulty . . . 39
Figure 5.1: Estimated prevalence of participation in three types of community-based activities among adult males in 2013/14, by age . . . 45
Figure 5.2: Average MOS Social Support Scale score by level and type of community engagement among adult males aged 18–55 in 2013/14 . . . 46
Figure 5.3: Hypothetical mediation model: Independent Variable = Community participation activity; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing . . . 49
Figure 5.4: Unadjusted mediation model: Independent Variable = Community service activity; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing . . . 50
Figure 5.5: Unadjusted mediation model: Independent Variable = Sports/hobby club/association membership; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing . . . 51
Figure 5.6: Multivariable mediation analyses: Participation in community service activities on personal wellbeing through self-perceived social support . . . 52
Figure 5.7: Multivariable mediation analyses: Active sports or hobby club or association membership on personal wellbeing through self-perceived social support . . . 53
Figure A1.1: Simple unadjusted mediation model . . . 66
Figure B1.1: Distribution of MOS Social Support Scale scores among adult TTM participants overall and by age group, 2015/16 . . . 68
Figure B3.1: Distribution of PHQ-9 scores among adult *Ten to Men* participants in 2015/16, by age group . . . 69

List of tables

Table 1.1: Marital status, children and household composition of adult males, 2015/16 2

Table 1.2: Estimated prevalence of participation in three types of community-based activities among adult males aged 18–55 in 2013/14 4

Table 1.3: MOS Social Support Scale distribution characteristics among adult Australian males by age group, 2015/16 5

Table 1.4: Predicting self-perceived social support and satisfaction in 2015/16 9

Table 2.1: Four most common life events in the past 12 months among adult males by age group, 2015/16 16

Table 2.2: Most common pairs of social life events among Australian men by age, 2015/16 17

Table 2.3: Adjusted multivariate analyses: Social life events associated with perceived support among adult men, 2015/16 18

Table 3.1: PHQ-9 distribution among adult men by age group, 2015/16 22

Table 3.2: Kendall's Tau correlation coefficient between PHQ-9 and MOS Social Support Scale scores among adult males in 2015/16, by age 23

Table 3.3: Multivariate cross-lagged panel analysis: The effect of depression on social support and vice versa, adjusting for key socio-demographics, adult males aged 18–60 years 27

Table 4.1: Percentage of adult males with two or more difficulty types (among those with serious difficulty) in 2015/16, by age 33

Table 4.2: Self-perceived social support by level of difficulty and age group among adult males in 2015/16: mean MOS Social Support Scale score [95% CI] 35

Table 4.3: Ordinary least-squares linear regression model: Correlates of self-perceived social support among adult males, 2015/16 38

Table 4.4: Average number of close friends and relatives by level of functional difficulty and age group among adult males in 2015/16 [95% CI] 40

Table 4.5: Household composition among adult males aged 18–60 in 2015/16, by level of functional difficulty . . 40

Table 4.6: Estimated percentage of employed[a] adult males in 2015/16 by age and level of functional difficulty [95% CI] 41

Table 5.1: Multivariable analyses: Socio-demographic and psychosocial characteristics associated with 1) Involvement in ongoing community service activity, and 2) Active membership of community-based sport or hobby club/association among adult males aged 18–55 in 2013/14 47

Table 5.2: Bivariate mediation analysis: Participation in community service activities 49

Table 5.3: Unadjusted mediation analysis: Active membership of sports or hobby-based clubs or associations . . 50

Table 5.4: Multivariable mediation analyses: Participation in community service activities (Model 1) and sports or hobby-based clubs or associations (Model 2) on personal wellbeing[b] through self-perceived social support[c] 52

Table B1.1: Prevalence of availability of social support across individual MOS Social Support Scale items among adult males, 2015/16 69

Table B3.1: Characteristics of the distribution of PHQ-9 scores among adult TTM participants overall and by age group, 2015/16 69

Table B4.1: Percentages of adult males aged 18–60 in 2015/16 with no difficulty, some difficulty, and serious difficulty by age group 70

Table B4.2: Percentages [95% CIs] of adult males with no, some or serious difficulty across each of the WG-SS core functional domains in 2015/16 70

Table B4.3: Mean MOS Social Support Scale scores (95% CI) among adult males in 2015/16 by difficulty classification and age group 70

Table B4.4: Self-perceived social support by level and type of difficulty among adult males in 2015/16: mean MOS Social Support Scale score [95% CI] 71

Table B4.5: Employment status of adult males aged 18–60 in 2015/16, by level of difficulty (none vs some vs serious difficulty) 71

Table B4.6: Estimated percentages [95% CI] of adult males aged 18–60 with serious difficulty across the six WG-SS core functional domains in 2015/16 71

Table B4.7: Ordinary least-squares linear regression model: Correlates of self-perceived social support among adult males, 2015/16 72

List of abbreviations

Abbreviation	Description
ABS	Australian Bureau of Statistics
AIC	Akaike's information criterion
AIHW	Australian Institute of Health and Welfare
aOR	adjusted Odds Ratio
APS	Australian Psychological Society
ASGS	Australian Statistical Geography Standard
BIC	Bayesian information criterion
CALD	Culturally and Linguistically Diverse
CDC	Centers for Disease Control and Prevention
CFI	Comparative fit index
CI	Confidence Interval
CLPM	Cross-lagged panel model
CMNI	Conformity to Masculine Norms Inventory
COVID-19	Coronavirus disease
CV	Covariate
DV	Dependent variable
HILDA	Household, Income and Labour Dynamics in Australia
IV	Independent variable
MOS	Medical Outcomes Study
OR	Odds Ratio
OTE	Other than English
PHQ-9	Patient Health Questionnaire
PWI	Personal Wellbeing Index
RMSEA	Root mean squared error of approximation
SD	Standard deviation
SE	Standard error
SEIFA	Socio-Economic Indexes for Areas
SRMR	Standardised root mean squared residual
TLI	Tucker-Lewis index
TTM	*Ten to Men*
WG-SS	Washington Group Short Set
WHO	World Health Organization

Executive summary

Social connectedness is important for optimal health and overall wellbeing and longevity. Conversely, limited social connectedness is associated with a variety of poorer mental and physical health outcomes and risk behaviours including depression, substance use, sleep problems and cardiovascular disease.

Limited social connectedness is more common among Australian males compared to females. Understanding how men develop and maintain social connectivity and community participation is important for optimising their health and wellbeing, and for informing targeted interventions to promote and enhance social connectedness among Australian men.

The research presented in this report describes social connectedness among adult Australian males. Across five empirical chapters, subjective and objective indicators of self-perceived social support, attachment relationships and community integration are investigated, associated health and wellbeing outcomes are examined, and factors associated with greater levels of social connectedness are identified. Data were from surveys with adult participants for the first two waves (2013/14 and 2015/16) of *Ten to Men*: The Australian Longitudinal Study on Male Health (TTM). At Wave 1, 13,896 adult men were surveyed; at Wave 2 there were 10,729 adult participants.

Findings from each chapter are summarised below.

Levels of social connectedness among adult Australian males

In 2015/16, most Australian men aged 18–60 appeared well-connected with, and felt supported by, their families, friends and communities. Around two-thirds of males in this age group were estimated to be married or in a de facto relationship and over 90% lived with at least one other person. Around half had between five and 15 close friends or relatives. Around three-quarters experienced at least moderate levels of self-perceived social support, and satisfaction with their personal relationships was generally high. Eighty-five per cent were employed.

Active membership of sports or hobby clubs or associations was more common among men overall than ongoing community service activities such as volunteering (37% vs 24%, respectively). Around 15% attended religious services at least monthly.

A significant minority of adult males experienced limited social connectedness. For example, approximately 4% had no close friends or relatives, a proportion that was relatively consistent across age groups. One-quarter of men experienced low levels of self-perceived social support, and 1%–2% were completely dissatisfied with their personal relationships.

Men who were more socially isolated typically experienced lower levels of perceived social support and satisfaction with relationships. Multivariable analysis findings showed that being unemployed, being single and living alone were significantly associated with less social support and relationship satisfaction after adjusting for other factors. Older age was also independently associated with lower perceived social support and relationship satisfaction, as was greater conformity to masculine norms.

Social connectedness and social support in the context of social life events

In 2015/16, about half of Australian men aged 18–60 had experienced at least one social life event (e.g. serious relationship break-up, started first job, got married, moved house) in the past year that may have affected their social connectedness.

Experiences in both family and employment domains appeared to affect levels of social support among men. Specifically, those who had difficulty finding work, men who experienced conflict with a family member during midlife, or young men who left home for the first time in the past year had the lowest levels of perceived support, on average.

Fifteen per cent of men aged 18–60 had experienced difficulty finding a job in the past year. The negative relationship between difficulty in finding a job and perceived social support was consistent across all ages and socio-economic groups. It was the single event, out of those studied, that had the greatest impact on perceived social support in each age group.

Men aged 35–60 who had experienced serious conflict with a family member in the past year had lower levels of perceived social support compared to those who had not experienced such conflict.

Is there a bidirectional relationship between depression and self-perceived social support among Australian men?

Experience of depressive symptoms and perceived social support were contemporaneously correlated with each other among Australian men over the surveyed period 2013–16. On average, lower levels of self-perceived social support led to worse depressive symptoms during this time, and worse depressive symptoms led to lower perceived social support.

Experiencing depression had a substantially greater influence on levels of social support over time than self-perceived social support did on depression.

For adult Australian males, there is evidence of a bidirectional association between depression and self-support.

Experience of functional difficulty and social connectedness among Australian males

Adult males who experienced functional difficulty in 2015/16 were typically less socially connected than those without difficulty. For example, a significantly greater percentage of men with serious functional difficulty lived alone compared to those without difficulty (11% vs 5%, respectively). Men with some or serious difficulty were significantly more likely to have no close friends or relatives than those without difficulty (5%–8% vs 2%, respectively). Multivariable analysis findings demonstrated that the experience of functional difficulty was negatively correlated with self-perceived social support, even after taking socio-demographic and psychosocial factors into account.

Older men with difficulty may be particularly vulnerable to being socially disconnected. Among adult males with serious difficulty, those aged 55–60 had significantly lower levels of self-perceived social support than men in all other age groups.

Men with serious difficulty were also significantly less likely to be employed/working for profit or pay compared to both men with some difficulty and those without difficulty. Across all ages, at least 70% of men without difficulty were employed; in comparison, employment rates among men with serious difficulty ranged from 38%–67%, depending on age.

Community engagement and participation among adult Australian males

In 2013/14, men who engaged in certain community-based activities reported significantly greater average levels of perceived social support compared to those who did not take part. Further, involvement in community-based activities was shown to directly improve personal wellbeing, while also enhancing perceived social support, which further indirectly and positively affected wellbeing.

Multivariable analysis findings pointed to specific subgroups of Australian men with lower rates of engagement in community-based activities in 2013/14. For example, men living in inner or outer regional areas of Australia were significantly more likely to participate in community service activities, such as volunteering, than men living in major cities. Compared to employed men, those who were unemployed or out of the labour force were less likely to be active members of community-based sports or hobby clubs/associations. Men from culturally and linguistically diverse backgrounds were less likely to participate in ongoing community service activities or be active members of sports or hobby clubs/associations.

Age differences were observed; the younger age (18–24) was associated with an increased likelihood of having an active membership with a sports or hobby club/association compared to older cohorts and with a decreased likelihood of involvement in ongoing community service activities.

Policy and practice implications

Implications of the research in this report are summarised here.

- Providing opportunities for physical activity and other types of social engagement in accessible or incidental contexts (e.g. in the workplace) may address low social connectedness among Australian men of working age.
- Local government could be supported and funded to develop initiatives to enhance community integration more broadly among adult males. This could include targeting younger men, with a focus on maintaining social connectedness as they age.
- Clinical and prevention approaches that focus on promoting or enhancing social connectedness might assist with improving mental wellbeing, and preventing poor health outcomes, among Australian men.
- There is a continued need for tailored programs to address discrepancies in social connectedness among Australian males experiencing functional difficulty and/or disability. Initiatives might include improving access to assistive technology and transport, purposeful design of accommodation, and approaches using digital platforms (e.g. social media).
- Similarly, there is a need to facilitate opportunities for men with functional difficulty or disability to enter and remain in the workforce.

Introduction

Numerous factors contribute to being socially connected. Simultaneously, social connectedness can have a variety of positive health and behavioural benefits. This report examines social connectedness among Australian men and the extent it is associated with mental, social and emotional health and wellbeing. In consideration of previous research (e.g. Bailey, Cao, Kuchler, Stroebel, & Wong, 2018; Berkman, Glass, Brissette, & Seeman, 2000; Holt-Lunstad, 2018), for the purposes of this report, 'social connectedness' comprises three domains:

- **Self-perceived social support**, meaning a person's subjective beliefs about the availability of emotional, tangible, affectionate and positive social interactions, companionship and support systems (Sherbourne & Stewart, 1991)
- **Attachment relationships**, including the number and quality of those with family, friends, colleagues and people we reside with (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010)
- **Community integration**, such as employment status and participation in community-based sport, hobby, volunteering, religion and other activities (Eime, Young, Harvey, Charity, & Payne, 2013; Hastings, 2016; Yeung, Zhang, & Yeun Kim, 2018).

Social support, community integration and high-quality relationships are important for optimal health and overall wellbeing and longevity (Umberson & Montez, 2010). Conversely, having limited social connectedness is associated with a variety of poorer mental health outcomes and risk behaviours including depression, substance use, suicidality and personality disorders (Lim, Rodebaugh, Zyphur, & Gleeson, 2016; Mushtaq, Shoib, Shah, & Mushtaq, 2014). It is also associated with adverse physical health outcomes, which may include the development of obesity, sleep problems and cardiovascular disease (Holt-Lunstad, 2018; Mushtaq et al., 2014; Xia & Li, 2018).

Human beings are inherently social (Holt-Lunstad, 2018) but many Australians are not socially connected. It has been estimated that around half of Australians have experienced loneliness for at least a day in the past week, and just over half felt they lacked companionship at least sometimes (Abbott, Lim, Eres, & Long, 2018). Among a large sample of close to 2,000 Australian adults in relationships, approximately 34% reported often feeling isolated, with a further 43% feeling isolated some of the time (Relationships Australia, 2017). Further indicators of social connectedness among Australia's broader population are lacking.

There is a need to investigate the factors impacting social connectedness among Australian males, especially given limited social connectedness is more common among this group compared to females. Data from the nationally representative Household, Income and Labour Dynamics in Australia (HILDA) Survey showed that, between 2001 and 2009, 36% of men recorded episodes of loneliness compared to 29% of women (Baker, 2012). Australian women also report greater community participation and social cohesion than men (Berry & Welsh, 2010); for example, rates of volunteering are higher among females compared to males (54% vs 46%, respectively) (Australian Institute of Health and Welfare [AIHW], 2019a).

Examining how men maintain social connectivity and community participation is important in understanding how they enhance and promote their health and wellbeing. The identification of subgroups of males who are more likely to be socially disconnected – for example, older men (Sixsmith & Boneham, 2003), those with disability (Tough, Siegrist, & Fekete, 2017), and men with greater conformity to traditional masculine roles (McKenzie, Collings, Jenkin, & River, 2018) – in addition to exploring modifiable factors that might enhance social support (e.g. community participation) is crucial for informing the development and implementation of targeted interventions to promote and enhance social connectedness among Australian men, their families and the wider community.

Using data from the first two 'waves' (data collection periods) of *Ten to Men*: The Australian Longitudinal Study on Male Health (TTM) in 2013/14 and 2015/16, the research presented in this report aims to describe social connectedness among adult Australian males. Across five empirical chapters, subjective and objective indicators of self-perceived social support, attachment relationships and community integration are investigated, associated health and wellbeing outcomes are examined, and factors associated with greater levels of social connectedness are identified.

Chapter 1 includes an overview of social connectedness among Australian men, focusing on indicators including relationships with family and friends, household composition, employment status and perceived social support. It aims to provide a broad context for the subsequent sections. Chapter 2 describes the nature and prevalence of different social life events affecting adult Australian males (e.g. marriage, retirement, death of a loved one), and examines how such events affect men's perceived social support. Chapter 3 uses data from Waves 1 and 2 of TTM to investigate the bi-directional nature of depression and perceived social support among men over time. Chapter 4 examines whether adult Australian males who experience functional difficulty across six core domains are less socially connected than those without difficulty. Chapter 5 investigates participation in certain community-based activities among men, and whether community engagement affects perceived social support, and if this – in turn – enhances personal wellbeing. A final section discusses policy and practice implications in relation to the key findings of this report's empirical chapters, in addition to future directions for research. A detailed methodology is included in the report's Appendices.

Given that Waves 1 and 2 of TTM data collection were completed prior to the COVID-19 pandemic, the research presented in this report was not able to investigate the possible impacts of the virus and related restrictions (e.g. periods of 'lockdown') on the social connectedness of Australian males - and other outcomes - during 2020/21. However, given that Wave 3 of TTM data collection was undertaken during the second half of 2020, future studies will be able to examine the social connectedness of males during COVID-19 and associations with health, wellbeing and behavioural outcomes.

1 Levels of social connectedness among adult Australian males

Sonia Terhaag, Jennifer Prattley, Neha Swami, Bosco Rowland and Brendan Quinn

Key messages

- In 2015/16, the vast majority (over 90%) of adult Australian males lived with at least one other person. Older men were more likely to live alone; for example, 10% of those aged 45 and over lived alone, compared to 3% of those aged 18–24.
- Men aged 18–34 experienced significantly higher levels of self-perceived social support than men aged 35–60.
- Around half of Australian men had between five and 15 close friends or relatives. A small minority (4%) had no close friends or relatives.
- Active membership of sports or hobby clubs or associations was more common among men than ongoing community service activities such as volunteering (37% vs 24%, respectively). Around 15% attended religious services at least monthly.
- Indicators of social isolation – unemployment, living alone, being a single father – were significantly associated with lower perceived support and satisfaction with relationships.

Overview

Social connectedness is comprised of the relationships and interactions we have with others, as well as how we subjectively perceive our levels of support. In general, Australians are well-connected and have access to supportive social networks (AIHW, 2019b; Relationships Australia, 2018); however, some groups are more likely to be socially isolated or poorly supported. These groups include men, single fathers, older Australians, and those who live alone (Arbes, Coulton, & Boekel, 2014).

This disparity in social connectedness may be temporary; for example, in response to a particular event such as a relationship breakdown, but such experiences and feelings can persist over long periods of time (Moloney, Weston, Qu, & Hayes, 2012). This can be problematic for some people – loneliness, social isolation and low social support may substantially and adversely affect physical and emotional wellbeing, as well as economic participation and functioning (Berkman et al., 2000). Because of this, it is important to consider how different demographic and social characteristics and behaviours are associated with feelings of support.

Research on social connectedness among males is limited. Little is known about their social networks and how they perceive and mobilise support. International studies have indicated that males might be more susceptible to feelings of low social support – and to being less socially connected in general – than females (e.g. Cornwell, B., Laumann, & Schumm, 2008; McKenzie et al., 2018; Shields & Wheatley Price, 2005).

This chapter aims to address these gaps in the research. It describes the social connectedness of Australian men across different indicators of attachment relationships and community involvement. Men's overall subjective sense of social support and satisfaction with their relationships is also examined.

Research objectives

This chapter uses data from Waves 1 and 2 of *Ten to Men* (TTM) to describe:

- the types of attachment relationships between Australian men and their families and friends
- levels of community integration among Australian men, as per employment status and participation in certain community-based activities
- the level of social support men receive from their social connections overall, including changes in perceived social support over time and satisfaction with relationships.
- socio-demographic and psychosocial factors associated with men's levels of perceived social support and satisfaction with personal relationships.

Attachment relationships

Connections with family

Table 1.1 presents different types of family connections among Australian men aged 18–60 in 2015/16. The majority (64%) were either married or in a de facto relationship. When broken down by age, the greatest proportion (80%) who were married/de facto were those aged between 45–60; in contrast, only 8% of 18–24 year old men were married or in a de facto relationship. Close to one-third (30%) of all men had never been married.

Around 60% of men had at least one child (mean = 1.5). Most fathers lived with their children (83%), whereas 9% had children who sometimes lived elsewhere, and 8% had children who always lived elsewhere.

Household composition

Table 1.1 also details the household composition of adult Australian males in 2015/16 in consideration of their relationship status. Over 90% lived with at least one other person. Around one-quarter (24%) were single but lived with others (e.g. friends, family, housemates). Nearly two-thirds (63%) were living either as a coupled household or as a couple with children. Five per cent resided in single-parent households.

Table 1.1: Marital status, children and household composition of adult males, 2015/16

Variable	*n*	%	[95%CI]
Marital status *n = 10,488*			
Never married	2,424	30.1	[28.6,31.7]
Widowed	47	0.4	[0.3,0.6]
Divorced	370	2.8	[2.4,3.2]
Separated but not divorced	307	2.5	[2.1,2.9]
Married/De facto	7,340	64.3	[62.6,65.8]
Number of children (range 0–5 or more) *n = 10,539*			
No children	3,193	39.5	[37.8,41.5]
One child	1,222	12.8	[11.6,13.8]
Two to four children	5,649	44.1	[42.6,45.9]
Five or more children	475	3.7	[3.1,4.1]
Mean (SD)		1.5 (1.5)	

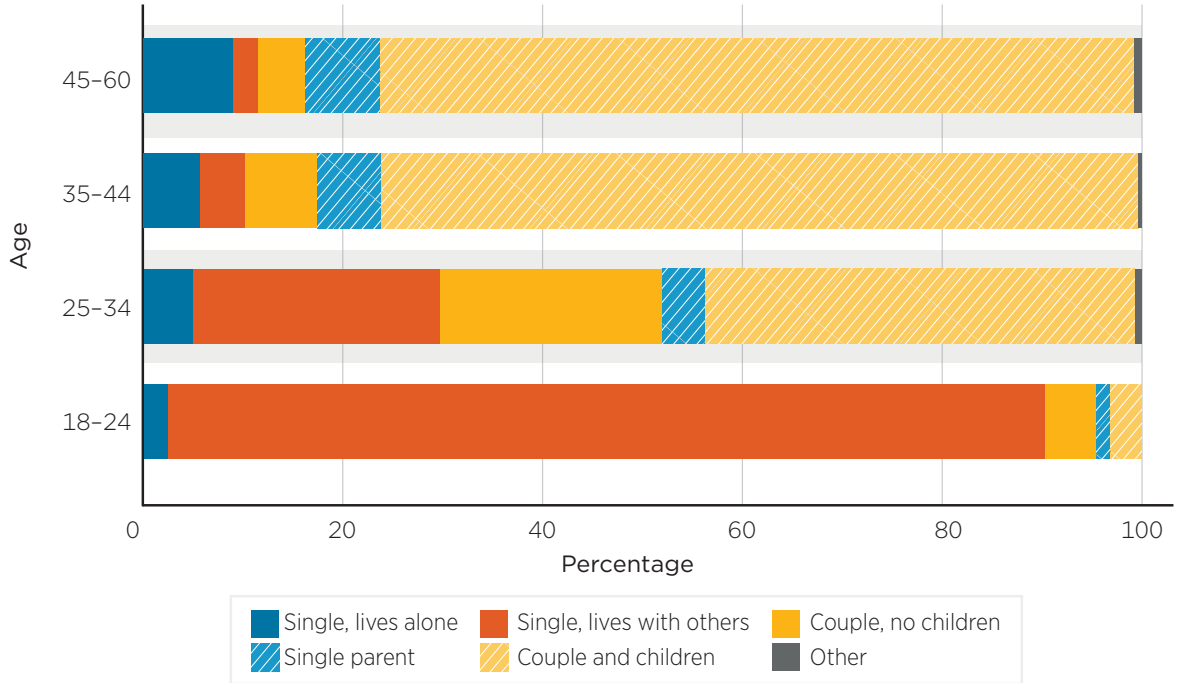
Table continued over page →

Variable	*n*	%	[95%CI]
Number of children under 18 (of those with children) *n = 7,305*			
None		20.3	[18.9,21.8]
One or more		79.7	[78.4,81.4]
Where children live *n = 5,611*			
Children always live with me		83.1	[81.6,84.6]
Children sometimes live elsewhere		9.3	[8.3,10.5]
Children always live elsewhere		7.6	[6.5,8.8]
Household composition *n = 10,391*			
Single, live alone	678	6.5	[5.7,7.3]
Single, lives with others (e.g. family, friends)	1,810	24.2	[22.8,25.6]
Couple, no children	915	10.6	[9.3,12.0]
Single parent	607	5.4	[4.7,6.1]
Couple + children	6,326	52.8	[51.1,54.5]
Other	55	0.6	[0.4,1.0]

Notes: *N* > 10,391; CI = Confidence Interval; SD = Standard deviation.
Source: TTM data, Wave 2, adult cohort, weighted

Figure 1.1 presents the variation in household composition among Australian men of different ages in 2015/16. The majority of young men (<24) were single but living with others, while those over the age of 25 were mostly living with a partner and child/ren. Only 4% of those aged over 34 were single but living with others. The proportion of men living alone was significantly greater among older males; approximately 3% of Australian men aged 18–24 lived alone, compared to 5% of those aged 25–34, 6% of those aged 35–44, and 10% of those aged 45 and above. The majority of men aged 35–44 and 45–60 lived with partners and children (73% for each).

Figure 1.1: Distribution of household composition by age group among adult males in 2015/16



Notes: *N* = 10,391
Source: TTM data, Wave 2, adult cohort, weighted

Connections with friends and relatives

Most adult males have connections with relatives and friends; however, the number of close friends and/or relatives in men's lives ranges substantially (0–600). In 2015/16, around half of Australian men (51%) had between five and 15 close friends or relatives, whereas 4% had none.

When broken down by age, similar proportions of men in each group had no close friends or relatives. Approximately, 5% of men aged 45–60 had no close friends or relatives; 4% of those aged 35–44, 4% of men 25–34, and 3% of 18–24 year olds.

Community integration

Employment status

The majority of Australian men aged 18–60 (85%) were in some form of employment in 2015/16. Approximately 60% of this group were employed on a permanent basis; in comparison, a minority were employed on a casual basis (10%), were self-employed (11%), or had fixed-term contracts (4%).

Employment was highest among adult males aged 25–34 and 35–44 (91% and 89%, respectively), and lowest among men aged 45–60 (86%) and 18–24 (71%). The highest rate of unemployment was among men aged 18–24 (29%). Only 12% of all men aged over 25 were unemployed.

Involvement in community-based activities

The majority of adult Australian males attend events that bring people together, such as fetes, festivals or other community events. In 2013/14,[1] approximately 36% of men attended these events at least sometimes. Table 1.2 outlines the proportions of men participating in certain community-based activities at this time. Less than one-quarter (24%) took part in any sort of ongoing community service activity, such as volunteering, whereas approximately one-third (37%) were active members of a sports, hobby or community-based club or association. Around 15% attended religious ceremonies on at least a monthly basis.

Table 1.2: Estimated prevalence of participation in three types of community-based activities among adult males aged 18–55 in 2013/14

Community activity type	%
Ongoing community service activity[a] (*n* = 13,397)	23.5
Active member of sports, hobby or community-based club or association (*n* = 13,392)	36.8
Frequency of attendance at religious services[b] (*n* = 13,448)	
Never	57.9
Once–twice per year	20.7
Once every few months	6.6
At least monthly	14.8
Frequency of attendance at events that bring people together[c] (*n* = 13,435)	
Never	8.5
Rarely	26.7
Occasionally	29.4
Sometimes	20.2
Often–very often	15.3

Notes: [a] Includes volunteering at a school, coaching a sports team, working with a church or neighbourhood association; [b] Includes going to church, temple, mosque or other religious institutions or activities; [c] Such as fetes, festivals and 'other' community events.

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

1 Data were only collected on involvement in community-based activities among adult TTM participants in Wave 1

Chapter 5 provides more detail about participation in community-based activities among Australian males in 2013/14, including information on age differences and factors associated with community-based activity involvement among this group.

Self-perceived social support and satisfaction with personal relationships

Self-perceived social support

Self-perceived social support is one of the main variables of interest in analyses presented throughout this report. It was assessed in Waves 1 and 2 using the Emotional/Informational Support subscale from the Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). Total scores range 0–100; higher scores indicate greater levels of social support. Table 1.3 shows the distribution of self-perceived social support scores among all adult Australian males – broken down by age group – in 2015/16, as measured by the Medical Outcomes Study (MOS) Social Support Scale. The overall mean self-perceived support score across all ages was 69.5 (standard deviation [SD] = 26.9; range: 0–100). The lowest quartile of respondents had a self-perceived social support score of less than 32.

Men aged 18–34 experienced significantly higher levels of self-perceived social support (average score range: 72–76) compared to men aged 35–60 years (average score range: 66–68). Accordingly, a significantly greater proportion of men aged 18–24 and 25–34 years (29% and 25%, respectively) rated their support at the maximum value of 100, compared to 19% of those aged 35 and over.

Table 1.3: MOS Social Support Scale distribution characteristics among adult Australian males by age group, 2015/16

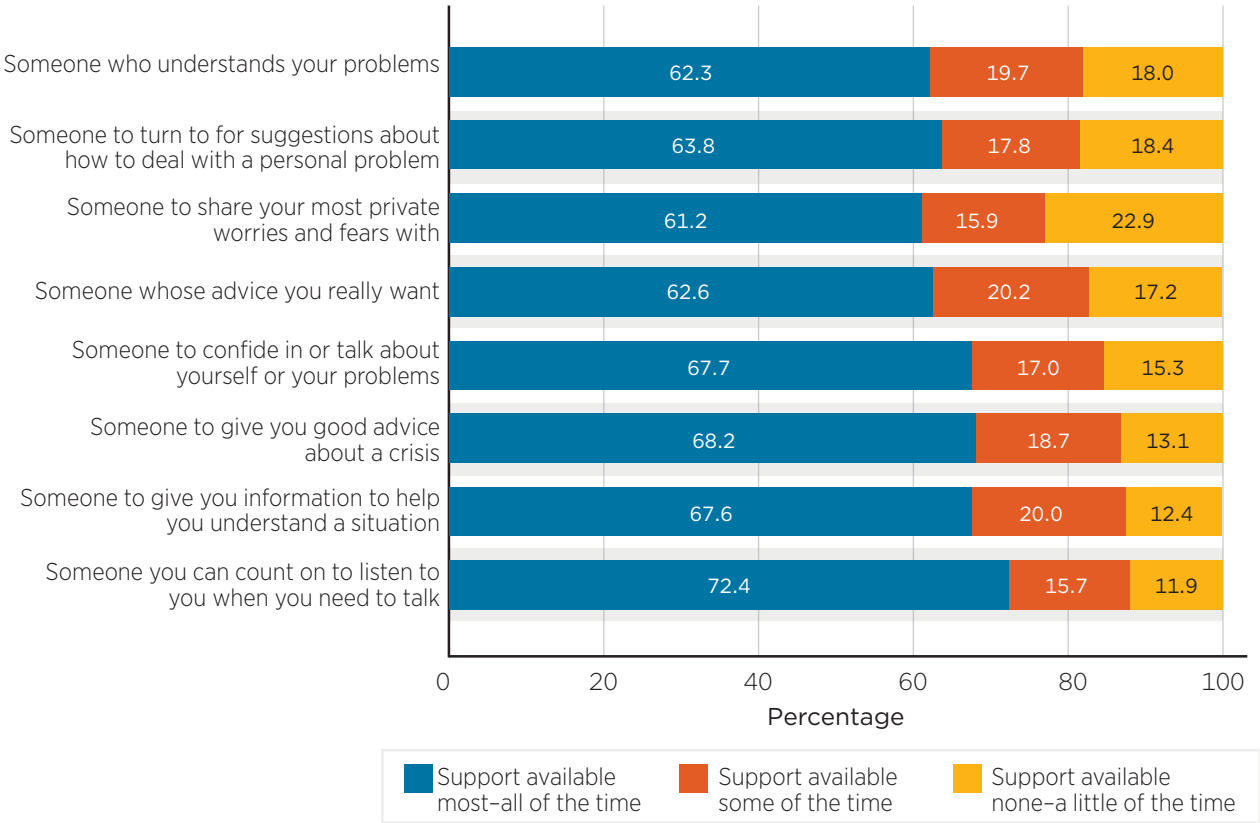
Age group	*n*	Mean	SE	95% CI
All	10,384	69.5	0.43	[68.6,70.3]
18–24	1,259	75.8	1.24	[73.4,78.3]
25–34	1,931	72.1	1.08	[70.0, 74.3]
35–44	2,897	67.6	0.87	[65.9, 69.3]
45–60	4,297	65.8	0.78	[64.2, 67.3]

Notes: CI = Confidence Interval; SE = Standard error.
Source: TTM data, Wave 2, adult cohort, weighted

Availability of social support among adult males in 2015/16

The availability of eight different types of emotional and informational support experienced by Australian men is shown in Figure 1.2. The majority (>60%) had each type of support available most or all of the time. The type of support most commonly available to men most of to all the time was having someone they could count on to listen when needing to talk (72%). The least available support was having someone to share private worries and fears with; this was available to around 61% of men most of to all the time.

Figure 1.2: Prevalence of availability of social support across individual MOS Social Support Scale items among adult males, 2015/16



Notes: *N* = 10,384. Each MOS Social Support Scale item is rated on a five-point scale (1–5; refer: Appendix A: Methodology). Here the highest ('most', 'all') and lowest ('none', a little') response items were collapsed to create three categories: most/all of the time; some of the time; a little/none of the time.

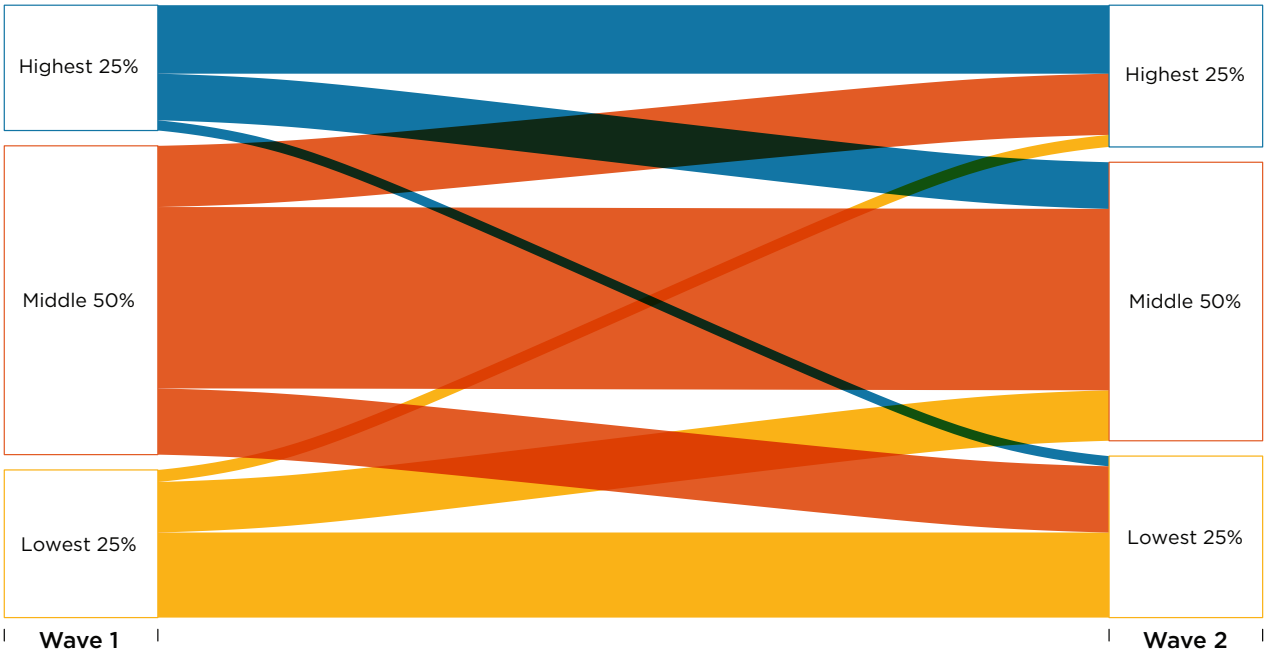
Source: TTM data, Wave 2, adult cohort, weighted

Change in the relative level of self-perceived social support over time

Figure 1.3 illustrates that the majority of Australian men did not change from their relative level of self-perceived social support between 2013/14 and 2015/16. That is, 55% of those who were in the highest quartile of self-perceived social support in 2013/14 were also in the highest quartile in 2015/16, while 57% of those who were in the lowest quartile in 2013/14 were also in the lowest quartile in 2015/16. Furthermore, most (58%) of those in the middle 50% in 2013/14 remained in this category in 2015/16. In Figure 1.3, the blue bars represent males who comprised the highest quartile of self-perceived social support in 2013/14, the orange bars are those in the middle 50% of self-perceived social support, and the yellow bars are those in the lowest quartile of self-perceived social support at this time point.

Importantly, a minority of males did experience a significant change in their relative position. Nine per cent were in the highest quartile for self-perceived social support in 2013/14 but the lowest quartile two years later. Ten per cent were in the lowest quartile in 2013/14 but the highest in 2015/16.

Figure 1.3: Change in self-perceived social support categories over time, 2013/14 to 2015/16



Notes: *N* = 9,744. Blue bars represent the highest quartile of self-perceived social support in 2013/14, the orange bars are those in the middle 50% of self-perceived social support, and the yellow bars are those in the lowest quartile.

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

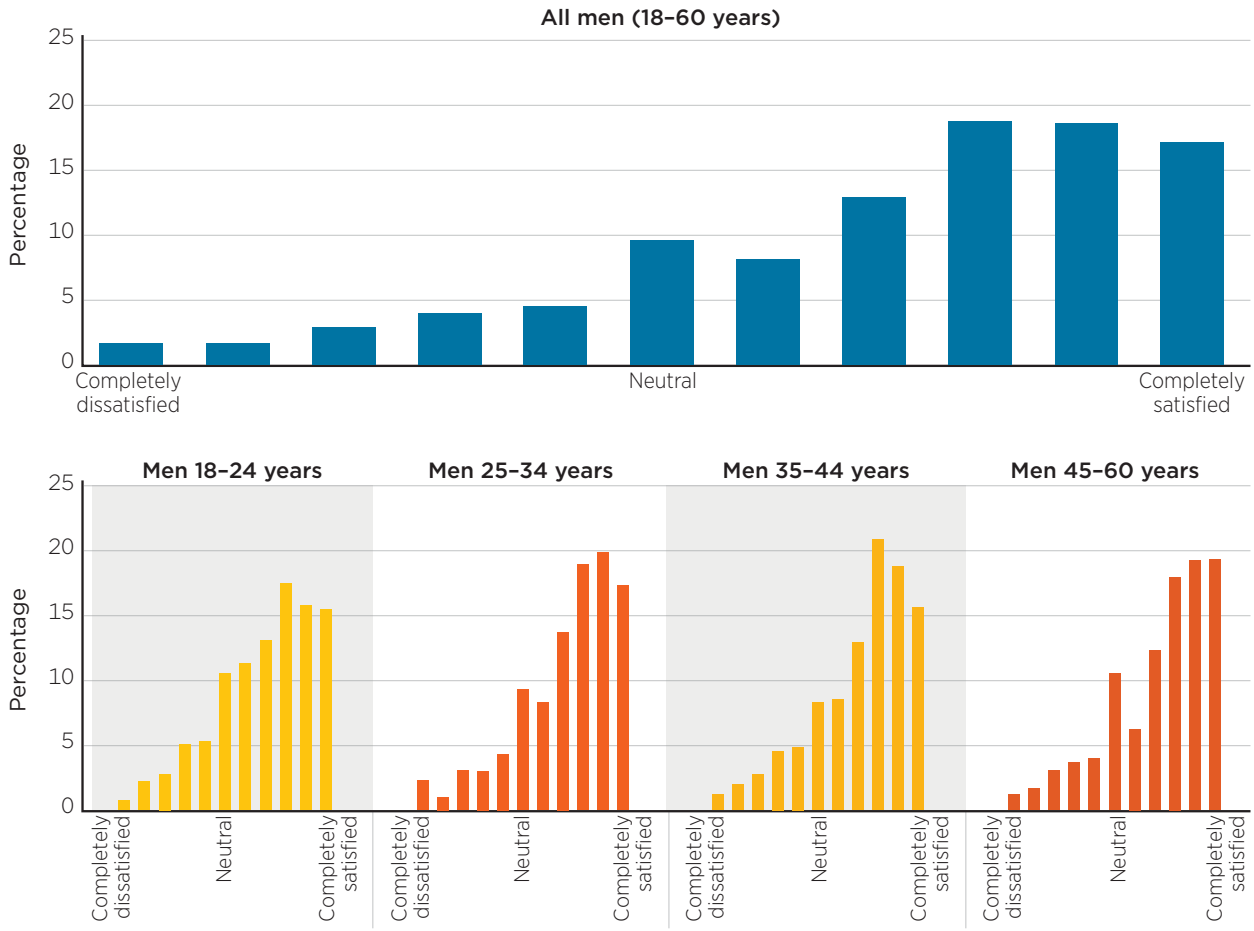
Satisfaction with personal relationships

Figure 1.4 illustrates the distribution of satisfaction with personal relationships[2] among adult Australian males in 2015/16 – overall and by age group – as measured using the Personal Wellbeing Index on a scale from 'completely dissatisfied' to 'completely satisfied' (International Wellbeing Group, 2013). The distribution of scores was negatively skewed; in general, satisfaction with personal relationships was high among men (mean = 7.15, SD = 2.47). A small proportion (1%–2%) were 'completely dissatisfied' with their personal relationships. In comparison, 15%–20% of men were 'completely satisfied' with their personal relationships.

The average level of satisfaction ranged between 7.0 and 7.2 and did not differ significantly between the four age groups.

2 Note the PWI does not distinguish between types of 'personal' or attachment relationships, such as platonic friendships vs familial or intimate partner relationships.

Figure 1.4: Satisfaction with personal relationships and among adult men by age, 2015/16



Notes: *N* = 10,577. Bars represent different levels of satisfaction with personal relationships among Australian men (%) on an 11-point scale ranging from 0 (completely dissatisfied) to 10 (completely satisfied).

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

Multivariable analyses: Factors associated with low social support and relationship satisfaction

Table 1.4 details the findings of two multivariable linear regression analyses that explored associations between socio-demographic factors and the number of past-year social life events with:

1. perceived social support
2. satisfaction with relationships.

There were several consistent findings regarding both outcomes, namely that indicators of social isolation were typically associated with lower levels of social support and satisfaction with personal relationships. In particular, having no close friends or family, being single, and being unemployed or out of the labour force were all associated with lower self-perceived social support and satisfaction with relationships.

Having no close friends or relatives had the strongest negative relationship with perceived support – an average of 45 points lower on self-perceived support on the MOS Social Support Scale (range: 0–100). Having no close friends or relatives was also associated with an average of 1.8 fewer points on relationship satisfaction on the PWI subscale (range: 0–10). Living in remote or very remote locations was associated with 15 fewer points on self-perceived support compared to living in major cities.

Compared to being employed, being unemployed and looking for work and being out of the labour force were independently associated with lower levels of both self-perceived social support and satisfaction with relationships.

Older age and identifying as non-heterosexual were also negatively correlated with self-perceived social support and satisfaction with relationships.

In contrast, men with lower conformity to masculinity norms experienced higher self-perceived social support and satisfaction with relationships. Having a partner – with or without children – was significantly associated with higher relationship satisfaction (around three percentage points higher).

Except for single father households, all other household types had significantly higher self-perceived social support compared to those who were single and living alone. Single fathers had similar levels of self-perceived social support to men who lived alone.

Experiencing potentially stressful life events (e.g. job loss or moving house; see Box 2.1 in Chapter 2) was associated with incrementally lower self-perceived support and satisfaction with relationships. In particular, having experienced two or more life events in the past year was associated with an average five-point lower self-perceived support score, and half a point lower relationship satisfaction score. There was no association found between experiencing one event and levels of self-perceived social support. As the nature of life events can vary and be experienced at different times and in different combinations, further investigation of the associations between certain life events and social connectedness is covered in the next chapter.

Table 1.4: Predicting self-perceived social support and satisfaction in 2015/16

Variable	1) Self-perceived social support β *n* = 9,016	2) Relationship satisfaction β *n* = 9,090
No close friend or family (ref. = at least one)	-44.80***	-1.84***
Age group (ref. = 18–24)		
25–34	-5.27***	-0.79***
35–44	-10.00***	-1.15***
45–57	-12.62***	-1.01***
Regional status (ref. = major cities)		
Inner regional	0.67	0.09
Outer regional	0.15	0.07
Remote/Very remote	-14.90**	1.20*
SEIFA level of disadvantage (ref. = High)		
Middle	1.80***	0.05
Low	2.32***	0.03
Education level (ref. = <Year 12)		
Certificate/ diploma	-0.26	0.03
University degree	-0.15	-0.13*
Other	-1.27	-0.37**
Household composition (ref. = single, lives alone)		
Single, lives with others (e.g. family, friends)	4.20***	1.11***
Couple, no children	8.65***	2.89***
Single parent	2.01	0.81***
Couple, with children	6.47***	2.71***
Other (e.g. couple, live apart)	10.14***	2.77***
Aboriginal and Torres Strait Islander status	-2.12	-0.19

Table continued over page →

Variable	1) Self-perceived social support β *n* = 9,016	2) Relationship satisfaction β *n* = 9,090
Sexual orientation (ref. = heterosexual)#		
Not heterosexual	-6.94***	-0.62***
Employment status (ref. = employed)		
Unemployed and looking for work	-5.76***	-0.71***
Out of labour force	-3.07***	-0.70***
Conformity to masculinity norms (ref. = highest 25%)#		
Lowest 25%	8.27***	0.63***
Middle 50%	2.34***	0.21***
CALD#	-6.33***	0.14
Number of social life events in past year (ref. = none)		
One	-0.63	-0.13**
Two or more	-4.52***	-0.47***
Model summary (R^2)	0.18	0.20

Notes: CALD = Culturally and Linguistically Diverse; SEIFA = Socio-Economic Indexes for Areas. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$;
Only available and measured at Wave 1. For a one-unit change in the explanatory variable (age, Indigenous status, etc.), one would expect a β unit change in the outcome variable (MOS Social Support Scale or PWI score), assuming that all other variables in the model are held constant. MOS Social Support Scale scores for the TTM sample ranged from 0–100; mean = 68.8; standard deviation = 26.9. PWI scores for the sample ranged from 1–99; mean = 69.8; standard deviation = 17.3.

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

Conclusion

Limited research has investigated the social connectedness of Australian men. TTM findings presented in this chapter provide an indication of attachment relationships, community integration and levels of self-perceived social support among adult Australian males in 2015/16. Unadjusted analyses in the first part of the chapter indicated that most men aged 18–60 appeared well-connected with, and felt supported by, their families, friends and communities. For example, around two-thirds were married or in a de facto relationship and over 90% lived with at least one other person. Approximately half had between five and 15 close friends or relatives. Eighty-five per cent were employed. Around three-quarters experienced at least moderate levels of self-perceived social support, and satisfaction with their personal relationships was generally high.

Importantly, a significant minority of adult males experienced limited social connectedness. For example, approximately 4% had no close friends or relatives, a proportion that was fairly consistent across age groups. One-quarter of men experienced low levels of self-perceived social support, and 1%–2% were completely dissatisfied with their personal relationships.

The findings of multivariable analyses showed that certain characteristics indicating limited social connectedness – such as unemployment, being single and living alone – were significantly associated with lower levels of self-perceived social support and relationship satisfaction after adjusting for other factors. These findings support those of previous research showing that attachment relationships and indicators of community integration – such as being employed – can be crucial for developing and maintaining social networks and feelings of support (Milner, Krnjacki, Butterworth, & LaMontagne, 2016). In turn, this can be beneficial for mental and physical health and wellbeing (Aslund, Starrin, & Nilsson, 2014).

In multivariable analyses, older age was independently associated with lower self-perceived social support and relationship satisfaction. This accords with other findings, presented in this chapter and elsewhere in the report, that show a higher prevalence of living alone among men aged 45 and above, and lower rates of certain types of community integration (e.g. membership of sport or hobby clubs/associations; see Chapter 5) in older vs younger males.

In line with other research highlighting older males as a group vulnerable to lower levels of social connectedness (e.g. Cornwell, & Waite, 2009; Sixsmith & Boneham, 2003), TTM findings indicate that ageing Australian males could possibly benefit from targeted interventions to promote community engagement and social interactions and associated health and wellbeing outcomes (see Policy and practice implications).

Lastly, greater conformity to masculine norms was also independently associated with lower levels of self-perceived social support and satisfaction with relationships in multivariable analyses. Previous research has highlighted the numerous adverse outcomes associated with aligning with norms of stoicism, self-reliance and avoidance of negative emotions, including poor mental health, harmful substance use and a reluctance to seek help when needed (Herreen, Rice, Currier, Schlichthorst, & Zajac, 2021; Struik et al., 2019).

Lastly, greater conformity to masculine norms was also independently associated with lower levels of self-perceived social support and satisfaction with relationships in multivariable analyses. These findings are consistent with international studies indicating limited social connectedness – including low rates of community involvement and attachment relationships and negative social functioning – among males with rigid adherence to masculine norms (McKenzie et al., 2018; Wong, Ho, Wang, & Miller, 2017). For example, research by Sixsmith and Boneham (2003) showed that older men who exhibited higher distrust and perceived dominance over women were also more excluded from social spaces that could grow their social connectedness and capital. Further, an evaluation of men's experiences in male support groups in Western Australia showed that a greater amenability to identity change, and more flexible masculinity, enhanced men's sense of emotional support and community (Reddin & Sonn, 2003). Recommendations to address low social connectedness in the context of greater conformity to masculine norms – and in consideration of previous research – are included in the Policy and Practice implications section of this report.

2 Social connectedness and social support in the context of social life events

Sonia Terhaag, Jennifer Prattley, Neha Swami, Bosco Rowland and Brendan Quinn

Key messages

- Social life events can have significant and potentially long-term impacts on men's social connectedness.
- Experiencing social life events was more common among younger males; 65% of those aged 18–24 had experienced at least one in the 12 months prior to the survey taken in 2015/16, compared to 62% of those aged 25–34, and 48% of those aged both 35–49 and 50–60.
- Fifteen per cent of men aged 18–60 had had difficulty finding a job in the 12-month period prior to their survey date in 2015/16. On average, these men had significantly lower levels of self perceived social support than their peers who had no difficulty finding work.
- Thirteen per cent of young men aged 18–24 had left home for the first time in the 12 months prior to the survey date in 2015/16. They had lower levels of self-perceived social support, on average, compared to those who had not left home.
- Serious conflict with a family member was associated with lower feelings of social support among men aged 35–60.

Overview

Social life events can have significant and potentially long-term effects on social connectedness (Schulz & Tompkins, 1990; Stansfeld, 2006). Such events include the beginning or end of a relationship, a change in relationship type (e.g. colleagues become friends, friends become housemates), serious conflict with a close friend or relative, the death of a loved one, or a change in living or employment circumstances. These events can affect the size or composition of a person's social networks, alter their relationships with others, and fundamentally impact the availability and accessibility of social support (Beyond Blue, 2014).

Conversely, good social support can act as a 'buffer' against negative outcomes during major life transitions and stressful periods (Cohen, 2004). The role of social support and networks during periods of change is complex. Research has shown males typically have fewer sources of emotional support in their social networks than females (Liebler & Sandefur, 2002; Maulik, Eaton, & Bradshaw, 2010). This does not mean they need less support; rather, compared to women, the structure of men's networks tends to be smaller and more closely tied to family relationships and instrumental support (i.e. more practical or tangible assistance or interactions) (McKenzie et al., 2018).

Feeling supported and having a strong social network can be protective against poorer mental health outcomes after major life events (Cohen, 2004; Maulik et al., 2010). Depending on the nature of the event, the composition of men's social networks and/or the extent of their interactions with others may change, leading to an increase or decrease in perceived levels of available support. The same broad type of event could also have different outcomes for different people. Moving house, for example, might result in increased support if moving in with others but a decrease if associated with a relationship breakdown, job loss or interstate relocation.

The types of social life events men are most likely to experience vary over the life course. For example, younger men aged 18–24 are more likely to start their job or leave home for the first time than older males, while the death of a partner or close family member is more common over the age of 45 (Hatch & Dohrenwend, 2007). Some events, such as serious conflict, may happen more uniformly across the life course. It also follows that some events are more likely to co-occur in a similar time frame, to men of different ages. For example, getting married and becoming a father for the first time are two events that could happen within a short period for men in their twenties or thirties, whereas starting retirement and the death of a spouse might be close experiences for older males.

Few studies have explored the impact of social life events on men's social connectedness; specifically, their levels of self-perceived social support, which can be a vital mechanism and resource for dealing with stressors (Ozbay et al., 2007). There is evidence indicating that substantial changes to wellbeing and mental health can follow life events among the general population (Maulik et al., 2010) but there is less about how social life events affect the source or level of social support available to men. The stress diathesis model posits that the experience of stressful life events, which may bear long-term consequences for social connectedness, interact with vulnerabilities and can overwhelm the ability to cope and deplete the resources available to help deal with the stress and other outcomes of significant life events (Ingram & Luxton, 2005). However, this concept has not been explored in-depth in relation to men, in particular, and to how it may vary for males of different ages and life stages.

Using TTM data, the research in this chapter establishes the prevalence of a variety of social events experienced by Australian men at different stages of life. It also looks at the impact that commonly experienced events have on men's feelings of social support in the context of connectedness with friends, family and the work environment.

Research objectives

This chapter uses data from Wave 2 of TTM to:

- describe the nature and prevalence of 15 social life events among Australian men overall and by age group
- describe common combinations of life events experienced by adult males in the past year
- evaluate the impact of single life events on men's self-perceived social support, and whether this differs by age.

Types of social life events

TTM participants were asked about their experience of a range of social life events at Wave 2 (2015/16). As indicated in Chapter 1 (Table 1.4), past-year experience of two or more of these events was significantly associated with lower self-perceived social support and satisfaction with personal relationships (vs experiencing no events) when taking other socio-demographic and psychosocial factors into account. While the results in Chapter 1 showed no association between experiencing one event and levels of self-perceived social support, that finding may mask significant relationships relating to specific individual events among men of different ages. This chapter explores the effects of 15 social life events (listed in Box 2.1) on self-perceived social support in greater detail.

There are some caveats with the items assessed here. Loss of job/unsuccessfully looking for work for a long time and difficulty finding a job are both related to employment but the first specifically captures the experience of losing a job as well as the long-term challenges in finding work. Around 10% of participants had indicated they experienced one of these two events but not the other. Other items are less definitive and might have been interpreted or experienced differently by different respondents; for example, serious conflict with a family member. For the purposes of the research in this chapter, the primary focus was on determining how the experience of specific events might have affected the support men received from their social connections.

Some events were more closely related to a specific age range than others. For example, retirement is more common among people aged 50 or older. Consequently, the age groupings for the analysis presented in this chapter were adjusted to ensure they aligned with distinct life stages and are as follows: 18–24, 25–34, 35–49 and 50–60.

Box 2.1: Social life events

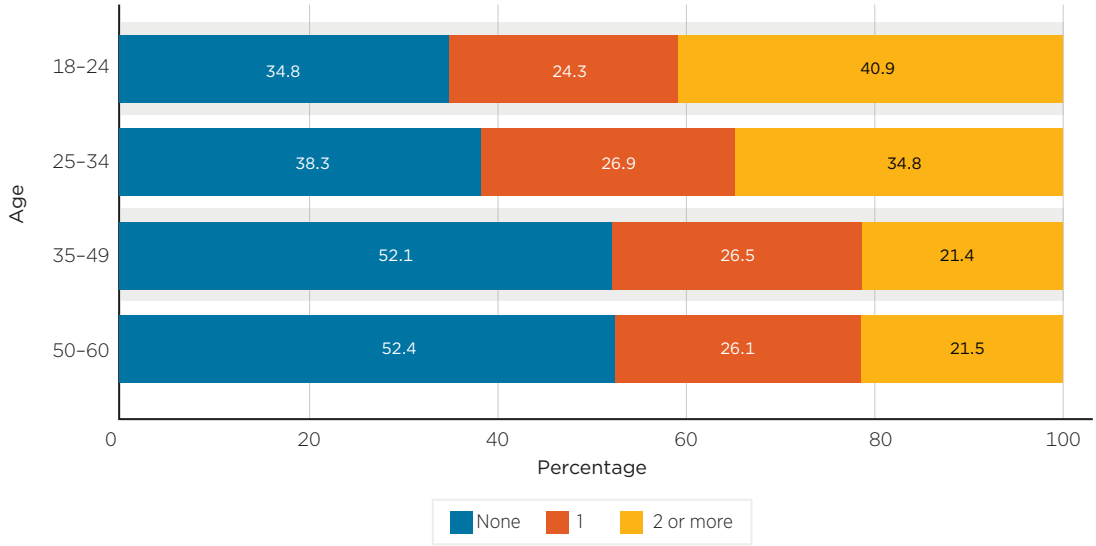
At Wave 2, adult TTM participants were asked if they had experienced a range of life events during the past 12 months. The following 15 events were included in the research presented in this chapter because they are typically associated with potential changes in social environment and/or relationships:

- Break-up of a serious relationship/divorce/separation
- Getting married (or starting to live with someone)
- Infidelity of partner or spouse
- Became a father for first time
- Serious conflict with family member
- Death of partner, spouse or close family member
- Loss of a child (e.g. death, stillbirth, miscarriage, termination)
- Left home for first time
- Child or family member left home
- Started first job
- Loss of job or looking for work unsuccessfully for a long time
- Difficulty finding a job
- Started retirement
- Became a carer for someone
- Moved house.

Overall prevalence of social life events

The majority of Australian men (54%) had recently experienced at least one of the social life events assessed in 2015/16. Figure 2.1 shows the distribution of the number of life events experienced by men in the past year by age. Experiencing social life events was more common among the younger age groups. Around two-thirds (65%) of men aged 18–24 and 62% of those aged 25–34 had experienced at least one event in the past 12 months, compared to around 48% of men aged both 35–49 and 50–60. The co-occurrence of events was also more common among men aged 18–34 than their older counterparts. Forty-one per cent of those aged 18–24 and 35% of 25–34 year olds experienced two or more events in the past 12 months, compared to 21% and 22% of men aged 35–49 and 50–60 years, respectively.

Figure 2.1: Number of social life events in last 12 months by age group, 2015/16



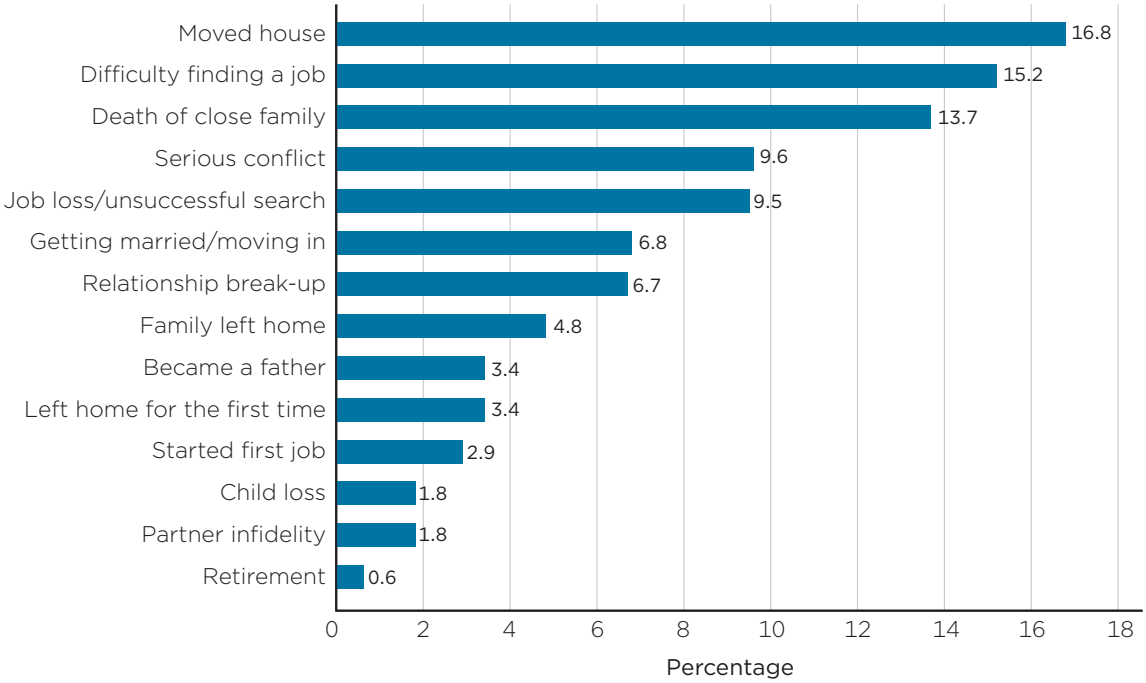
Notes: *N* = 11,936

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

Prevalence of individual events

Figure 2.2 shows the percentages of adult men aged 18–60 who experienced each of the 15 events of interest in the past year in 2015/16. Moving house was the most common event (17%), followed by difficulty finding a job (15%), and the death of a partner, spouse or close family member (14%). The least common events were retirement (1%), partner infidelity (2%) and loss of a child (2%).

Figure 2.2: Prevalence of social life events among adult males in the past year, 2015/16



Notes: *N* = 10,504
Source: TTM data, Wave 2, adult cohort, weighted

Most of the social life events of interest can occur at any age, although TTM findings indicate that some are more likely to be experienced by men at specific ages or life stages. Table 2.1 shows the four most common events experienced in the past year by men in each age group.

Difficulty finding a job was the one top-four event experienced by men in every age group, although fewer older than younger men had experienced this in the past year. One-third (34%) of those aged 18–24 had recently experienced difficulty finding a job, compared to 16% of those aged 25–34, 12% of those aged 35–49, and 10% of men aged 50–60.

Moving house was more common among the three younger age groups, experienced by 21% of men aged 18–24, 29% of those aged 25–34, and 14% of 35–49 year olds.

Social life events specifically associated with relationships were more prevalent among older vs younger age groups. Thirteen per cent of men aged 25–34 had experienced the death of a partner, spouse or close family member in the past year, as had around 16% of men aged both 35–49 and 50–60. Approximately 10% of men aged both 35–49 and 50–60 had experienced serious conflict with a family member.

Table 2.1: Four most common life events in the past 12 months among adult males by age group, 2015/16

Age group	%	95% CI
18–24 (*n* = 1,281)		
Difficulty finding job	34.3	[30.2,38.6]
Moved house	21.2	[17.9,25.0]
Loss of job or looking for work unsuccessfully for a long time	15.5	[12.6,18.9]
Left home first time	13.1	[10.5,16.1]
25–34 (*n* = 1,948)		
Moved house	29.2	[25.9,32.7]
Difficulty finding job	16.3	[14.0,18.8]
Got married/started living with someone	15.1	[12.2,18.5]
Death of partner/spouse/close family member	12.6	[10.6,14.8]
35–49 (*n* = 4,623)		
Death of partner/spouse/close family member	15.7	[14.1,17.5]
Moved house	14.2	[12.5,16.0]
Difficulty finding job	11.7	[10.1,13.6]
Serious conflict with family member	10.9	[9.6,12.4]
50–60 (*n* = 2,654)		
Death of partner/spouse/close family member	16.3	[14.2,18.7]
Child/family member left home	11.8	[10.0,13.8]
Difficulty finding job	9.6	[7.9,11.6]
Serious conflict with family member	9.0	[7.5,10.8]

Notes: *N* = 11,936; CI = Confidence Interval.
Source: TTM data, Wave 2, adult cohort, weighted

Common event pairs

Social life events do not always take place in isolation. Just over one-quarter (28%) of Australian males aged 18–60 had experienced two or more such events in the past year, although the prevalence of different combinations varied by age. Table 2.2 lists the most common pairs of co-occurring events for each age category.

Loss of job/looking for work unsuccessfully for a long time and difficulty finding a job was the most prevalent combination across all ages, which might be in part due to the similar nature of the events. However, the percentage of men who experienced these events was more than two times higher among those aged 18–24 (15%) than among men aged both 35–49 (7%) and 50–60 (7%).

Moving house was most often one of two social life events experienced in the past year among males aged 18–24 and 25–34. Relationship-based event combinations, such as serious conflict with a family member, death of a close family member or partner, and children leaving home, were more common in men aged 35–49 and 50–60.

Table 2.2: Most common pairs of social life events among Australian men by age, 2015/16

Most common combinations by age group		%	95% CI
18–24 (*n* = 1,281)			
Loss of job or looking for work unsuccessfully for a long time	Difficulty finding job	14.6	[11.7,18.0]
Moved house	Difficulty finding job	8.7	[6.4,11.7]
Moved house	Left home for first time	7.3	[5.4,9.8]
Moved house	Serious conflict with family member	6.0	[4.1,8.7]
25–34 (*n* = 1,948)			
Loss of job or looking for work unsuccessfully for a long time	Difficulty finding job	8.6	[7.0,10.6]
Moved house	Got married/started to live with someone	7.3	[5.3,9.8]
Moved house	Difficulty finding job	6.2	[4.6,8.3]
Moved house	Death of close family/partner	3.5	[2.6,4.7]
35–49 (*n* = 4,623)			
Loss of job or looking for work unsuccessfully for a long time	Difficulty finding job	6.6	[5.4,8.0]
Difficulty finding job	Moved house	2.9	[2.1,4.0]
Serious conflict with family member	Death of close family/partner	2.7	[2.1,3.6]
Serious conflict with family member	Difficulty finding job	2.6	[1.8,3.7]
Serious conflict with family member	Moved house	2.6	[1.8,3.6]
50–60 (*n* = 2,654)			
Loss of job or looking for work unsuccessfully for a long time	Difficulty finding job	6.5	[5.0,8.4]
Death of close family/partner	Child/family left home	3.2	[2.2,4.6]
Death of close family/partner	Moved house	2.1	[1.4,3.1]
Death of close family/partner	Serious conflict with family member	2.0	[1.4,2.8]

Notes: *N* = 11,936; CI = Confidence Interval.
Source: TTM Wave 2, adult cohort, weighted

Associations between single social events and self-perceived social support

The impact of social life events on men's levels of self-perceived social support, as measured by MOS Social Support Survey scores, may vary depending on the nature of the event and when it occurs during the life course. Table 2.3 shows the results of a multivariate analysis that assessed associations between the four most common events, as outlined in Table 2.1, with men's self-perceived social support by age group, after taking socio-demographic characteristics into account.

Difficulty finding a job was associated with lower levels of perceived support across men in all age groups. It was the event in each group that had the largest associations, and the magnitude of this association was similar irrespective of age. For example, among males aged 18–24, difficulty finding work was associated with 7.2 points lower self-perceived social support; likewise, among those aged 50–60, it was associated with 7.9 points lower self-perceived social support. This suggests that men who have difficulty finding work are a high-risk group for experiencing feelings of low social support, regardless of age and when accounting for other socio-demographic characteristics.

Table 2.3: Adjusted multivariate analyses: Social life events associated with perceived support among adult men, 2015/16

Variable	β
Age 18–24	
Difficulty finding job	-7.22***
Moved house	2.32
Loss of job or looking for work unsuccessfully for a long time	1.45
Left home first time	-4.55**
Observations	1,055
Model summary (R^2)	0.17
Age 25–34	
Moved house	-1.03
Difficulty finding job	-8.86***
Got married for first time/started to live together	1.74
Death of family member	0.33
Observations	1,693
Model summary (R^2)	0.20
Age 35–49	
Death of family member	-0.56
Moved house	0.13
Difficulty finding job	-7.28***
Serious conflict with family member	-6.33***
Observations	2,520
Model summary (R^2)	0.18
Age 50–60	
Death of family member	1.00
Child/family left home	-1.46
Difficulty finding job	-7.90***
Serious conflict with family member	-7.15***
Observations	3,741
Model summary (R^2)	0.18

Notes: The four most common social life events for each age group are explored for their association with self-perceived social support after adjusting for socio-demographic characteristics included in Chapter 1, Table 1.4. Characteristics include: age, regional status, SEIFA, education level, household composition, Aboriginal and Torres Strait Islander status, sexual orientation, employment status, masculinity norms, CALD status and number of close friends. R-squared indicates the proportion of variance in the outcome (perceived social support) explained by the included independent variables. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

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

Among men aged 18–24, leaving home for the first time was associated with lower levels of perceived support. Specifically, those who had left home for the first time in the last year had self-perceived social support 4.6 points lower than those who had not. In comparison, moving house and losing a job or looking for work unsuccessfully for a long time were not significantly associated with levels of self-perceived social support among males in this age group.

Serious conflict with a family member was associated with lower levels of perceived support among men aged both 35–49 and 50–60. Specifically, men aged 35–49 experienced 6.3 points lower self-perceived social support if there had been serious conflict, while men aged 50–60 had 7.2 points lower self-perceived social support.

Apart from difficulty finding work, serious conflict and leaving home, no other events examined here had significant associations with men's perceptions of support. This included, for men aged 25–34, getting

married or starting to live with a partner, which is an event that could be expected to increase feelings of connectedness and support. As far as connectedness is concerned, the level of support men in this age group received from being in a partnership appeared unchanged upon marriage or moving in together.

Small sample sizes and concerns of parsimony prevented a more in-depth analysis of the impact that common event pairs (as listed in Table 2.2) might have on self-perceived social support. Initial models did include indicators of common event pairs but findings were not sufficiently robust to report, due to limited observations in some age groups.

Conclusion

In 2015/16, about half of Australian men aged 18–60 had experienced at least one social life event in the past year that may have affected their social connectedness. Knowing which events are associated with low self-perceived social support is important for informing when interventions can be needed. Our findings indicate that experiences in both family and employment domains can influence feelings of social support among men. Specifically, those who have difficulty finding work, men who experience conflict with a family member during midlife, or young men leaving home for the first time had the lowest levels of perceived support, on average.

Further to results presented in Chapter 1, these findings suggest that gaining employment might facilitate social support through the development of connections with colleagues and friendships formed in the workplace. The findings of previous research point to the possibility of a bi-directional relationship, in that men with greater levels of self-perceived social support – i.e. who are more socially connected – might experience less difficulty finding a job, due to employment opportunities available through social networks, which is consistent with the findings of previous research (Trimble & Kmec, 2011).

Our results show that, for men, the relationship between difficulty in finding a job and lower self-perceived social support holds irrespective of age – it was significant across all age groups from 18–60 – and following adjustments for socio-economic status. Further, it was the single event that had the greatest impact out of those studied in each age group.

Employment has positive impacts on men's social wellbeing above and beyond financial stability (Beyond Blue, 2014), and the work environment can be a particularly vital source of support for men (Milner et al., 2016). Men are typically more likely to have – or rely on – fewer sources of emotional social support than women (Fuhrer & Stansfeld, 2002). Not having access to such support through employment avenues may impact men's perceived support more severely than it does for women.

Leaving home for the first time is a significant milestone (Aassve, Billari, & Ongaro, 2001). Young men aged 18–24 who had left home in the past year were found to have lower levels of self-perceived social support compared to those who had not experienced this transition. While the effect was less than that arising from difficulties in finding work, it was nonetheless a significant finding. It is likely indicative of changes in connectedness with members of the immediate family; moving out of home could mean less frequent communication and reduced in-person contact with parents and siblings (Leopold, 2012). This could lead to some men feeling as if they have lower levels of available support, compared to when they were living at home. Continued connectedness with family members may be key during this period (Whiteman, McHale, & Crouter, 2011), in addition to forming or strengthening friendships and associations with individuals in or around a new place of residence. To an extent, these new associations may provide replacement sources of support for any lost when young men move out of home for the first time.

The importance of family for social support was also evidenced through findings relating to conflict. Men aged 35–60 who had experienced serious conflict with a family member in the previous 12 months had lower levels of self-perceived social support compared to those who had not experienced such conflict. Disagreement or discord of this nature could manifest in fewer – or more negative – interactions with the family member/s in question, undermining any positive support received or feelings of connectedness that could be gained in the absence of conflict. This finding is consistent with a large body of evidence that shows men rely heavily on support from family relationships, particularly partners/spouses. Disruptions in these relationships are likely to be associated with a marked decline in their social connectedness (Fuhrer & Stansfeld, 2002).

3 Is there a bidirectional relationship between depression and self-perceived social support among Australian men?

Neha Swami, Jennifer Prattley, Sonia Terhaag, Bosco Rowland and Brendan Quinn

AIFS recognises that each of the numbers reported here represents an individual. AIFS acknowledges the devastating effects mental ill-health and limited social support can have on people, their families, friends and communities.

This chapter discusses depression 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 Tel. 13 11 14
- Kids and young adults Help Line (5-25 years) kidshelpline.com.au Tel. 1800 55 1800
- MensLine Australia mensline.org.au Tel. 1300 789 978

Key messages

- For Australian men, there is evidence of a bidirectional association between depression and self-support.
- Over time, lower levels of self-perceived social support were associated with greater depressive symptoms. Similarly, greater depressive symptoms were associated with lower self-perceived social support.
- The effect size of depression on social support was substantially greater than the effect of social support on depression.
- Interventions that promote or enhance social connectedness may assist with improving mental wellbeing among adult males.

Overview

Mental health is a key determinant of quality of life. Mental health disorders such as depression affect a significant portion of the global population and can result in a high burden on health and functioning (Rehm & Shield, 2019; World Health Organization [WHO], 2017). It is estimated that approximately four people in every 100 of the global population suffer from a depressive disorder at any point in time and, globally, these disorders are ranked as the single largest contributor to non-fatal health loss (7.5% of all Years Lived with Disability [YLD]) (WHO, 2017).

Depression is a highly recurrent disorder. At least 50% of people who recover from an initial episode have one or more further depressive episodes in their lifetime, and the risk of reoccurrence is close to 80% for a person with a history of two episodes (American Psychiatric Association, 2000; Burcusa & Iacono, 2007; Machmutow, Grosse Holtforth, Krieger, & Watzke, 2018).

Social support has been identified as important for maintaining good mental health. It can improve resilience to stress and ease key life transitions and personal crises (Ozbay et al., 2007). However, a

corollary of experiencing mental health disorders may be difficulty accessing social support and/or appropriate professional support for mental ill-health.

Existing research has investigated the relationship between self-perceived social support and a variety of mental health outcomes. However, most studies in this area have focused on understanding the one-way relationship of how social support affects mental health outcomes in general and not looked at depression specifically (Wang, Mann, Lloyd-Evans, Ma, & Johnson, 2018).

There is some international evidence indicating that the effect of social support on mental health is not necessarily proportionate to the effect of mental health on social support (Fiori & Denckla, 2012; Hakulinen et al., 2016; Ren, Qin, Zhang, & Zhang, 2018; Santini et al., 2020). For example, a prospective cohort study using a representative sample of New Zealanders investigated the bi-directional, longitudinal relationship between social connectedness and mental health (operationalised as distress). It found that perceived social connectedness was a stronger and more consistent predictor of mental health year-on-year than the alternative association of mental health on social connectedness (Saeri, Cruwys, Barlow, Stronge, & Sibley, 2018).

In Australia, there is limited evidence on the nature and direction of the relationship between indicators of social connectedness and mental health, including depression. Available studies have focused on examining the prevalence of loneliness and lack of self-perceived social support and correlations with mental health outcomes (Australian Psychological Society [APS], 2018; Relationships Australia, 2018). For example, the APS found that, in 2018, one in four Australians felt lonely, lonely Australians were more likely to be depressed, and experiencing depression increased the likelihood of being lonely (AIHW, 2019b; APS, 2018).

Using data from a representative sample of Australian adults from the Household, Income and Labour Dynamics in Australia Survey (HILDA), Ding, Berry and O'Brien (2015) found that higher levels of community participation (a proxy for social capital) predicted better mental wellbeing, and better mental wellbeing predicted greater levels of community participation.

Further research points to a bi-directional association between depression and social support; that is, the experience of depressive symptoms may cause reduced social support (Clement et al., 2015; Heinrich & Gullone, 2006; McKenzie et al., 2018), and reduced social support may cause depression (Santini et al., 2020; Wang et al., 2018). However, evidence on this relationship among men is particularly limited, and the relative magnitude and importance of each association has not been estimated using a large, nationally representative sample.

Given the scarcity of research into the reciprocal association between social support and depression (Wang et al., 2018), particularly among men, in this chapter, this bi-directional relationship is explored. The impact of the relationship is quantified in both directions for Australian men, which is important for developing prevention and intervention initiatives..

Research objectives

This chapter used data from the first two waves of *Ten to Men* (TTM) to:

- describe the prevalence of depressive symptoms and social support among Australian men
- examine how the experience of depressive symptoms varies among men with different levels of social support, and the converse relationship; that is, how social support levels vary according to depressive symptoms.
- test the bi-directional relationship between social support and experiencing depressive symptoms with two waves of longitudinal data using a cross-lagged panel model that accounts for: i) initial depressive symptoms and social support; ii) multiple potentially confounding observed factors; and, iii) unobserved factors impacting both depression and social support.

Depression and self-perceived social support among Australian men in 2015/16

Prevalence of depression

Depression was assessed among TTM participants using the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) (refer: Appendix A: Methodology). The PHQ-9 score range is 0–27; the average in 2015/16 for Australian men aged 18–60 was 4.3.

Table 3.1 shows the mean PHQ-9 scores across men of different age group and for the whole TTM sample; similar levels of depression, regardless of age, were observed in the sample. An estimated 13% of men were classified as experiencing moderately severe to severe depressive symptoms, indicated by scores of 15 or higher. Further details of the distribution of the sample for the PHQ-9 are included in Appendix B, (Table B3.1 and Figure B3.1).

Table 3.1: PHQ-9 distribution among adult men by age group, 2015/16

Age group	Number	Mean	SE	95% CI
All	10,461	4.26	0.08	[4.10, 4.41]
18–24	1,273	4.62	0.21	[4.21, 5.04]
25–34	1,952	4.50	0.18	[4.14, 4.85]
35–44	2,915	4.32	0.16	[4.00, 4.64]
45–60	4,321	3.84	0.13	[3.59, 4.09]

Notes: SE = Standard error; CI = Confidence Interval.
Source: TTM data, Wave 2, adult cohort, weighted

Prevalence of self-perceived social support

As detailed in Chapter 1 and Appendix A: Methodology, the MOS Social Support Scale score range is 0–100, with higher scores indicating greater levels of self-perceived social support. A score of 100 indicates a respondent reported having social support 'all of the time' for each of the eight scale items; a score of 0 would suggest the respondent reported having support 'none of the time' for every item. Scores were calculated for those with valid responses to all eight items; those with missing data were removed from the analysis. Respondents were categorised into one of three groups according to their score. At Wave 2, 10% of respondents scored on the lowest quarter of the scale (0-25). Fifty-one per cent scored between 26-75, the middle 50% of the scale. Thirty-nine per cent had scores between 76-100, the highest quarter of the scale.

The mean MOS Social Support Scale score among men aged 18–60 years in 2015/16 was 69.5, indicating that adult Australian males generally reported moderate levels of self-perceived social support, and fall within the middle 50% of the scale. The mean values and 95% CIs of MOS Social Support Scale scores for all age groups, shown in Table 1.3 in Chapter 1, indicate that younger men aged 18–34 experienced higher levels of self-perceived social support (average score range: 72–76) compared to men aged 35–60 years (average score range: 66–68).

In terms of specific types of support, 'having someone to count on to listen when needing to talk' was the most common form of support; 72% of men said this was available to them most to all of the time. Relatively, the least available form of support was 'having someone to share private worries and fears with'; 61% of men said this was available to them most to all of the time. The distribution of MOS Social Support Scale scores among the TTM sample at Wave 2, overall and by age group, is depicted in Appendix B, Figure B1.1.

Correlation between depression and self-perceived social support (Wave 2)

Overall, there was a negative relationship between depressive symptoms and levels of self-perceived social support among adult TTM participants. Greater levels of depressive symptoms were associated with lower levels of self-perceived social support. Conversely, when the level of social support increased, depression tended to decrease in severity.

Kendall's Tau-b correlation coefficient values at Wave 2 are presented in Table 3.2 Kendall's Tau-b is a measure of the strength and direction of any association between two variables (Arndt, Turvey, & Andreasen, 1999); here, it is the two separate scores for depressive symptoms and self-perceived social support. As shown in Table 3.2, there were minimal differences across age groups in that all showed a negative association between depressive symptoms and self-perceived social support. The strength of the association – the value of Kendall's Tau – also varied little by age.

Table 3.2: Kendall's Tau correlation coefficient between PHQ-9 and MOS Social Support Scale scores among adult males in 2015/16, by age

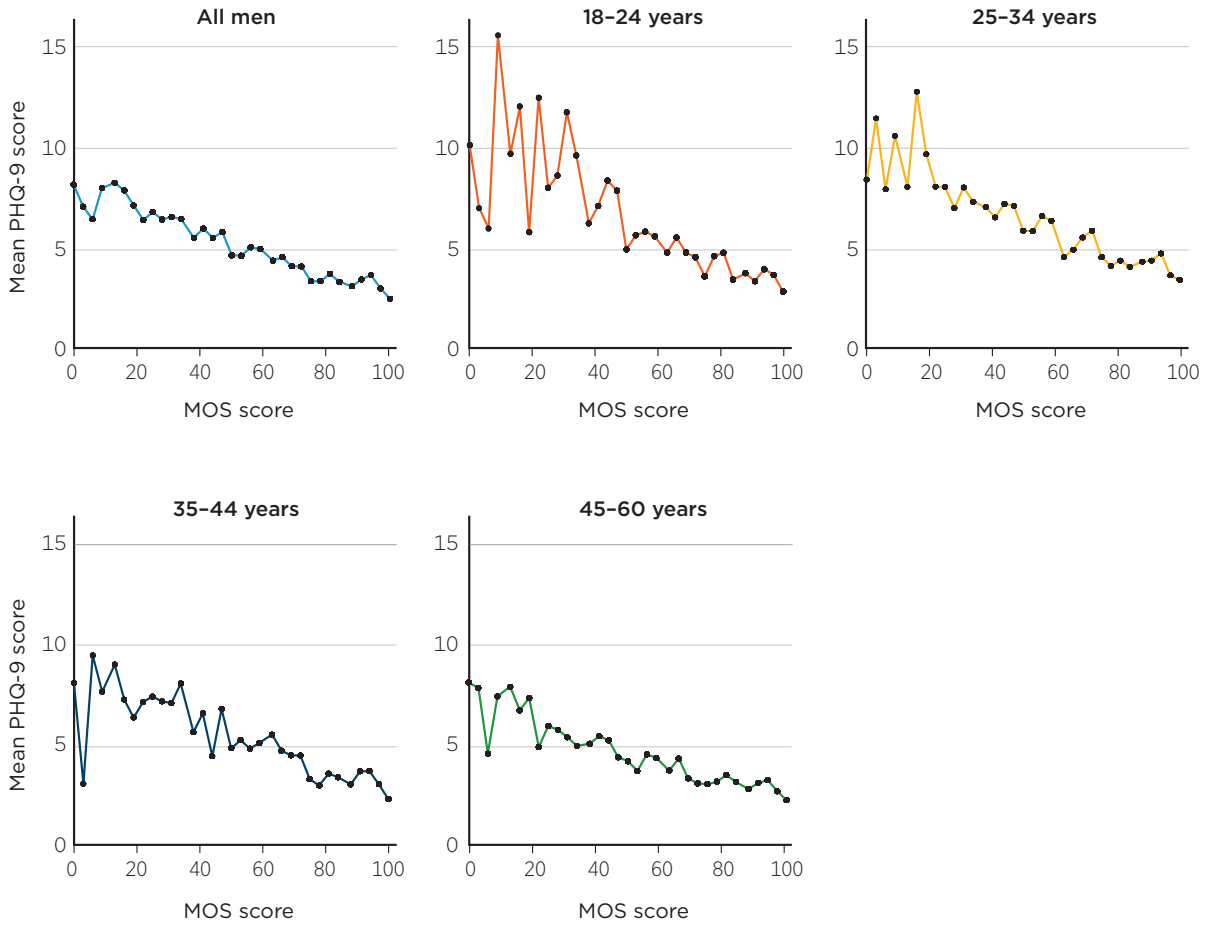
Age group	Kendall's Tau-b coefficient value[a]
All (n = 10,258)	-0.24***
18–24 (n = 1,241)	-0.25***
25–34 (n = 1,913)	-0.25***
35–44 (n = 2,860)	-0.26***
45–60 (n = 4, 244)	-0.24***

Notes: N = 10,258 participants aged 18–60 years; those without valid responses to PHQ-9 and MOS items were excluded from analyses;
[a] Kendall's Tau-b values range between -1 (indicating a strong negative relationship) and 1 (a strong positive relationship);
***p < 0.01, **p < 0.05, *p < 0.1

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

Figure 3.1 presents the mean PHQ-9 depression scores according to levels of self-perceived social support for men across each age group at Wave 2. Men with lower levels of self-perceived social support (i.e. scores <20) demonstrated considerable variability in their depressive symptom scores. This variability was particularly marked in young men. Among those aged 18–24, men with self-perceived social support scores of less than 20 had mean depressive symptom scores ranging from 6 to 15. In the oldest age group (45–60 years), men with social support scores of less than 20 had mean depressive symptom scores ranging from around 4.5 to 9.0.

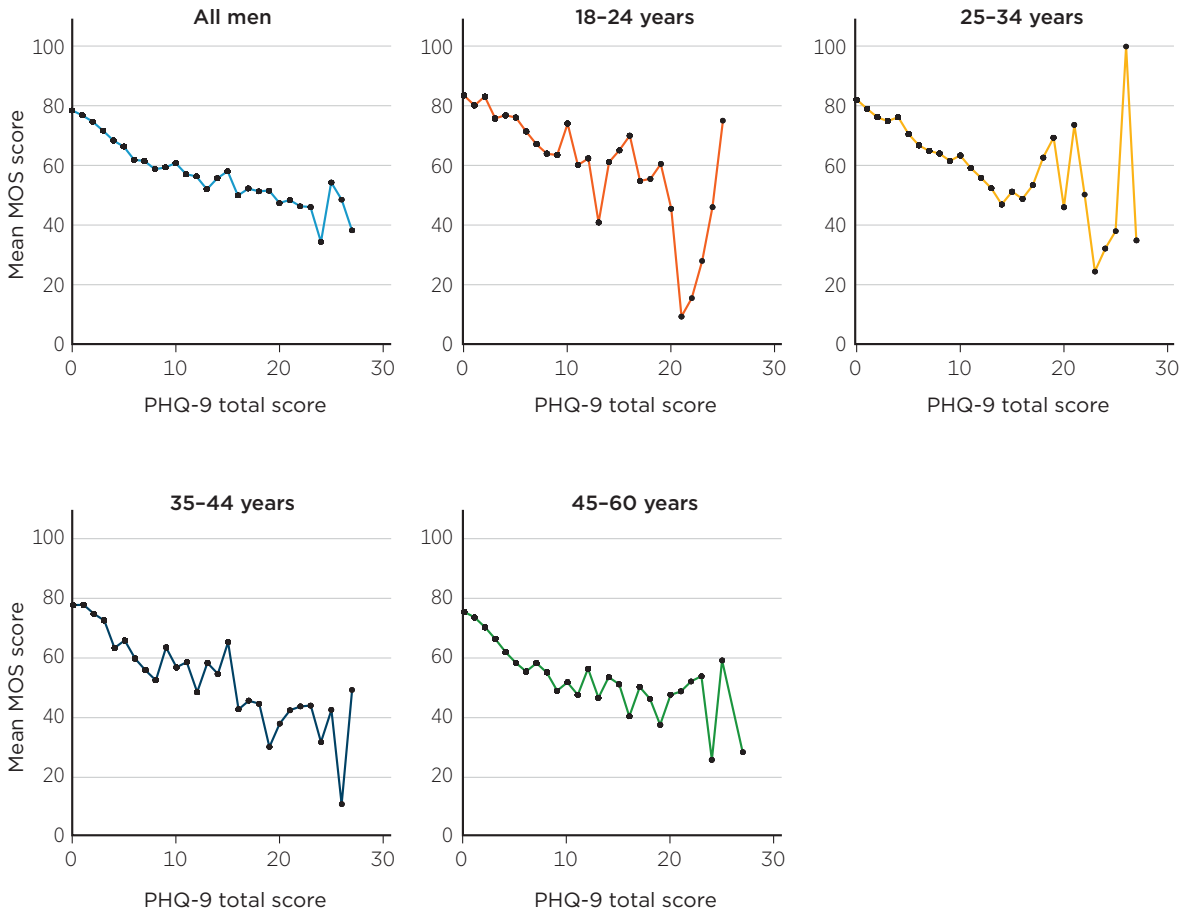
Figure 3.1: Mean PHQ-9 score by MOS total score among adult males, by age group, 2015/16



Notes: *N* = 10,258 participants aged 18–60 years; those without valid responses to PHQ-9 and MOS items were excluded from analyses.
Source: TTM data, Wave 2, adult cohort, unweighted

Figure 3.2 shows the converse relationship of the above; that is, the association of the mean self-perceived social support score according to the PHQ-9 depression score. Again, the negative association between the two measures can be seen across all age groups: as depressive scores increased, mean self-perceived social support scores decreased. However, similar to before, men with higher levels of depressive symptoms (scores >20) had greater variability in their self-perceived social support levels than those with lower depression scores. Again, this variability was more pronounced among younger men. Adult males aged 18–24 with depressive symptom scores higher than 20 had mean self-perceived social support scores ranging from around 10 to 75. Those aged 25–34 with depression scores higher than 20 had mean perceived support scores ranging from around 25 to 100. However, men aged 45–60 with high depression scores had mean support scores that varied between 25 and 60.

Figure 3.2: Mean MOS score by total PHQ-9 score among adult males by age group, 2015/16



Notes: *N* = 10,258 participants aged 18–60 years; those without valid responses to PHQ-9 and MOS items were excluded from analyses.
Source: TTM data, Wave 2, adult cohort, unweighted

Modelling bi-directional relationships over time

The correlation results presented above showed that, at one time point, overall, levels of depression and social support were negatively correlated. That is, as depressive symptoms increased, self-perceived social support tended to decrease, and vice versa. However, further investigation was required to determine if changes in one variable was temporally related; that is, caused changes in the other. To this end, statistical models – specifically, cross-lagged panel models (CLPMs) – were developed to provide insight into whether changes in depression among Australian men may have caused levels of self-perceived social support levels to change, and vice versa.

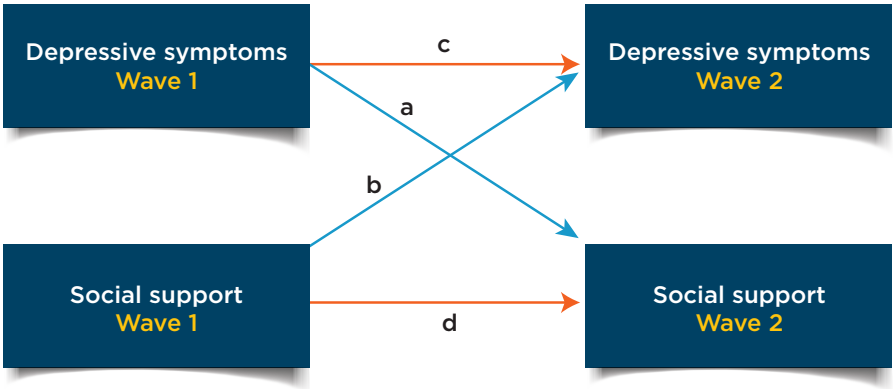
Using data from Waves 1 and 2 of TTM (2013/14 and 2015/16), an unadjusted[3] CLPM first accounted for how levels of depression and self-perceived social support interacted with each other over time. Subsequently, a multivariate CLPM was developed that controlled for differences between men in terms of certain socio-demographic factors such as education level, employment status and age. Additional details are below.

Figure 3.3 is a schematic diagram of the unadjusted CLPM (Zyphur et al., 2020). It shows the different relationships that were tested. The models evaluated the extent to which depressive symptoms measured at Wave 1 predicted levels of self-perceived social support at Wave 2 (relationship **a**). They also tested whether the level of self-perceived social support at Wave 1 affected depressive symptoms at Wave 2 (relationship **b**); therefore, allowing us to describe the influence of past depression on future self-perceived social support, and vice versa (i.e. the bi-directional cross-lagged relationship). Additionally, the models were

3 Unadjusted analyses test the relationship between an independent/predictor/exposure variable and dependent/outcome variable without controlling for other factors (e.g. socio-demographic characteristics).

used to determine the extent to which depressive symptoms at Wave 1 influenced symptoms two years later (relationship **c**), and whether social support levels at Wave 1 predicted those at Wave 2 (relationship **d**).

Figure 3.3: A two-wave, two-variable cross-lagged panel model



Unadjusted cross-lagged analysis: Depression and self-perceived social support

On an unadjusted level, men with relatively higher levels of depressive symptoms at Wave 1 (2013/14) were found to have lower levels of self-perceived social support compared to others at Wave 2 (2015/16) (relationship **a** in Figure 3.3). Conversely, a lower level of self-perceived social support among men at Wave 1 was associated with a higher level of depressive symptoms at Wave 2 (relationship **b**). Notably, the negative effect of depressive symptoms on self-perceived social support (-0.688) was substantially larger than the positive association of self-perceived social support on depression (-0.007).

Both self-perceived social support and depressive symptoms were strongly predicted by their past levels. Men with relatively high depressive symptoms at Wave 1 were also likely to have a high level of symptoms at Wave 2, compared to others (relationship **c** in Figure 3.3). Men with low self-perceived social support compared to others at Wave 1 also reported low self-perceived social support at Wave 2[4] (relationship **d**).

Multivariate cross-lagged analysis: Depression and self-perceived social support

Table 3.3 and Figure 3.4 present the findings from the multivariate cross-lagged panel analysis. This model tested the bi-directional relationship between depression and self-perceived social support while accounting for the influences of key socio-demographic factors measured at Wave 1: age, Aboriginal and Torres Strait Islander status, sexual orientation, language background, marital status, remoteness of residential location, neighbourhood disadvantage, education level, employment status, conformity to masculine norms and number of close friends and relatives, all measured at Wave 1.[5]

Overall, the multivariate findings indicated that among Australian men, there was a bi-directional relationship between self-perceived social support and depressive symptoms. Those with relatively low levels of self-perceived social support were likely to have higher levels of depressive symptoms compared to others 2–3 years later, while higher levels of depressive symptoms led to poor self-perceived social support.

The influence of depressive symptoms on self-perceived social support appeared to be stronger than the effect of social support on depression. After adjusting for socio-demographic characteristics, the effect of self-perceived social support at Wave 1 on depressive symptoms at Wave 2 remained unaltered compared to the unadjusted model (-0.007, relationship **b** in Figure 3.4); however, the effect of depressive symptoms at Wave 1 on self-perceived social support at Wave 2 increased slightly (-0.700) (Figure 3.4, relationship **a**).

4 The fit of the unadjusted bivariate model was found to be good. The value of the root mean squared error of approximation (RMSEA) was 0.000, and the comparative fit index (CFI) and Tucker-Lewis index (TLI) was 1.000 [RMSEA should be < .05, and the comparative fit index (CFI) and Tucker-Lewis index (TLI) score lower than 0.9 to indicate a poor fit].

5 The fit indices of the model are shown in Table 3.3. The fit of the multivariate model was found to be good. The values of the RMSEA were 0.000 and CFI and TLI were 1.000.

In the multivariable model (after accounting for key socio-demographics), both depressive symptoms and self-perceived social support continued to be significantly predicted by their own past levels. Men with high levels of self-perceived social support at Wave 1, relative to others, could expect to have high levels at Wave 2. Likewise, those with relatively low levels at Wave 1 would likely have low levels 2–3 years later (relationship **d** in Figure 3.4). Similarly, men with relatively high depressive symptoms at Wave 1 could expect high depressive symptoms at Wave 2 (relationship **c**).

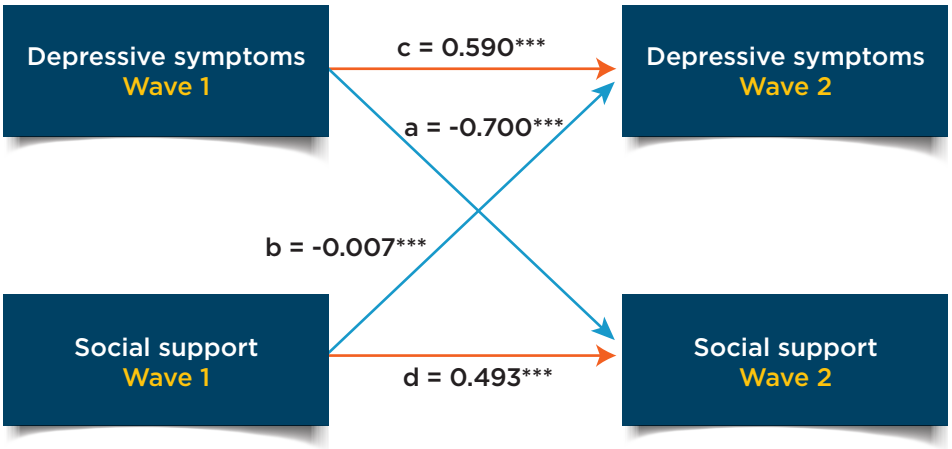
Table 3.3: Multivariate cross-lagged panel analysis: The effect of depression on social support and vice versa, adjusting for key socio-demographics, adult males aged 18–60 years

Variable	PHQ-9 score at Wave 2 Coefficient (SE)	MOS social support score at Wave 2 Coefficient (SE)
MOS social support score at Wave 1	-0.007*** (0.00)	0.49*** (0.01)
PHQ-9 score at Wave 1	0.59*** (0.01)	-0.70*** (0.06)
Control variables (at Wave 1/baseline)		
Age	-0.02*** (0.00)	-0.18*** (0.03)
Aboriginal and Torres Strait Islander status	0.27 (0.31)	-3.27* (1.91)
Non-heterosexual	0.51*** (0.18)	-1.73 (1.10)
CALD background	-0.38** (0.17)	-3.28*** (1.05)
Living in metropolitan area (ref. = regional/remote)	0.08 (0.08)	-0.34 (0.51)
High disadvantage neighbourhood (based on SEIFA index)	0.30*** (0.09)	-1.39** (0.59)
Highest level of education: university degree (ref. = Year 12/ certificate/diploma)	-0.33*** (0.09)	-0.44 (0.56)
Unemployed or out of labour force (ref. = employed)	0.73*** (0.13)	-0.41 (0.80)
Married (ref. = single/separated/widowed)	0.06 (0.10)	0.27 (0.60)
No close friends/relatives	0.41 (0.25)	-2.81* (1.55)
High conformity to masculine norms (ref. = medium or low conformity)	0.05 (0.10)	-0.87 (0.62)
Fit statistics		
Likelihood ratio for baseline vs adjusted model		
chi^2	8,048.81	
P-value	0.00	
RMSEA (Root mean squared error of approximation)	0.00	
90% CI		
Lower bound	0.00	
Upper bound	0.00	
*p*close (Probability RMSEA <= 0.05)	1.00	
Information criteria		
Akaike's information criterion (AIC)	351,818.99	
Bayesian information criterion (BIC)	352,038.01	
Baseline comparison		
CFI (Comparative fit index)	1.00	
TLI (Tucker-Lewis index)	1.00	
Size of residuals		
SRMR (Standardised root mean squared residual)	0.00	

Notes: N = 8,646. ***p < 0.01, **p < 0.05, *p < 0.1; CALD = culturally and linguistically diverse; MOS = Medical Outcomes Study social support scale; PHQ-9 = Patient Health Questionnaire (PHQ) depressive symptoms score; Identifying as non-heterosexual included men who identified as bisexual, homosexual, not sure or other. MOS Social Support Scale scores for the TTM sample ranged from 0–100; mean = 68.8; standard deviation = 26.9. PWI scores for the sample ranged from 1–99; mean = 69.8; standard deviation = 17.3.

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

Figure 3.4: Two-wave cross-lagged panel model: Results with socio-demographic controls



Notes: *N* = 8,646 participants aged 18–60 years; those without valid responses to depression PHQ-9 items, social support MOS items and socio-demographic factors were excluded from the analyses; ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

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

The association of key socio-demographic characteristics with depressive symptoms and self-perceived social support

When examining the influence of various socio-demographic factors on experience of depressive symptoms and levels of self-perceived social support among adult TTM participants (Table 3.3), the findings showed that:

1. Getting older was associated with both a decline in self-perceived social support and a decrease in depressive symptoms. Every one-year increase in age was associated with a 0.18 unit decrease in the social support score, and a 0.02 unit decrease in the depression score.
2. Aboriginal and Torres Strait Islander men, men from culturally and linguistically diverse backgrounds (CALD), those living in higher disadvantaged areas, and men with no close friends or relatives were more likely to experience lower self-perceived social support. For instance, being from a CALD background was associated with a 3.28 unit decrease in the social support score. Similarly, having no close friends or relatives was associated with a 2.81 unit decrease in the social support score.
3. Being unemployed or out of the labour force and identifying as non-heterosexual were associated with experiencing more severe depressive symptoms. Men with lower levels of education and those living in more disadvantaged areas also experienced an increased likelihood of more severe depressive symptoms. For instance, unemployment was associated with a 0.73 unit increase in the depression score compared to being employed. Identifying as non-heterosexual was associated with a 0.51 unit increase in the depression score.
4. Men from CALD backgrounds were more likely to report fewer depressive symptoms (a decrease of 0.38 units in the depression score).
5. Conformity to traditional masculine norms was not significantly associated with either depression or self-perceived social support.

Conclusion

Depression, a form of mental illness, is associated with a large global health burden. Previous analyses using TTM data have shown that, on average, one in five Australian men will experience depression at some stage of their lives, and around one in eight will experience symptoms in a 12-month period (Terhaag, Quinn, Swami, & Daraganova, 2020). The extent that mental health impacts a person's life can vary. This often depends on factors such as age and life stage or in response to particular life experiences, events and stressors (Nurius, Uehara, & Zatzick, 2013).

Social support plays an important role in creating and maintaining good mental health (Ozbay et al., 2007). This chapter examined the bi-directional relationship between self-perceived social support and depression among Australian men. Findings demonstrated that depressive symptoms and self-perceived social support were contemporaneously correlated with each other; on average, men with higher depressive symptoms experienced lower self-perceived social support over the same time period, and vice versa.

The findings of this chapter are consistent with interpersonal theories that emphasise that depression can adversely affect levels of social support and interpersonal relationships (Hames, Hagan, & Joiner, 2013; Segrin, 2001). These theories posit that the experience of depression leads to social disconnectedness, interpersonal stress and social withdrawal, which can exacerbate or maintain the experience of depressive symptoms, thus creating a cycle of depression and poor social support.

However, the findings do conflict somewhat with those of Saeri and colleagues (2018), who found that perceived social connectedness was a stronger predictor of mental health than mental health was of social connectedness among a representative sample of New Zealanders. TTM findings indicated the opposite – the effect of depression on social support was substantially greater than the effect of social support on depression. This discrepancy may be explained by different measures of social connectedness/support and mental ill-health, in addition to distinctly different target populations.

Future waves of TTM data collection will enable further examination of the relationship between social support and mental ill-health among Australian men over time.

4 Experience of functional difficulty and social connectedness among Australian males

Brendan Quinn, Jennifer Prattley, Neha Swami, Sonia Terhaag and Bosco Rowland

Experience of functional difficulty and disability among the *Ten to Men* (TTM) sample has previously been classified using the six-item Washington Group Short Set of questions on functioning (WG-SS) (e.g. Currier, Sahabandu, Davidson, Pirkis, & English, 2016). To provide context for the findings presented in this chapter, it is important to note limitations associated with the WG-SS compared to other measures used to classify functional difficulty and disability. Because the WG-SS is a succinct measure designed to identify limitations across domains of basic activity functioning that are typically universal, occur most commonly, and are most closely associated with social exclusion, it likely underestimates the prevalence of disability in general (Centers for Disease Control and Prevention [CDC]), in addition to insufficiently identifying certain types of disability, such as intellectual disability and psychosocial disability. In consideration of this, in analyses for this chapter, TTM WG-SS results were used to categorise Australian males according to level of functional difficulty (no, some, and serious difficulty) vs classifying any as having 'disability'.

Further information on the WG-SS is included in Box 4.1 in this chapter.

Key messages

- In 2013/14 and 2015/16, approximately 7%–8% of adult Australian males had serious functional difficulty across visual, auditory, mobility, cognition, self-care or communication domains.
- Australian men with functional difficulty were significantly more likely to have lower levels of self-perceived social support than those without difficulty and disability.
- A significantly greater proportion of men with serious difficulty had no close friends or relatives (8%) compared to those with some difficulty (5%) and those with no difficulty (2%).
- Across all ages, at least 70% of men without difficulty were employed. Employment rates among men with serious difficulty ranged from 38–67%, depending on age.
- Older men with functional difficulty may be particularly vulnerable to being socially disconnected.

Overview

Functional difficulty and disability are significant ongoing public health concerns, and are growing in the context of ageing populations worldwide (AIHW, 2020; Groce, 2018). In 2011 – some of the most recent global data available – the World Health Organization (WHO) estimated that over one billion people (close to 16% of the world's population) lived with a physical, sensory, mental health or intellectual impairment significant enough to impact their daily lives (WHO and World Bank, 2011).[6]

In Australia, an estimated 10% of males aged 0–14 years, 13% of males aged 15–64 years and around half of males aged 65 and above are estimated to have disability (Australian Bureau of Statistics [ABS], 2019).[7]

The Department of Health's *National Men's Health Strategy 2020–2030* identifies Australian males who experience functional difficulty or disability as a priority population (i.e. a subgroup at high risk of poor health). Such males may be at greater risk of experiencing various secondary health conditions such as heart disease, diabetes and obesity (Rimmer & Marques, 2012; Wong, et al., 2013), muscle atrophy and degeneration (Stensrud, Risberg, & Roos, 2015), and mental ill-health (Craig, Tran, & Middleton, 2009; Riches, Parmenter, Wiese, & Stancliffe, 2006).

Health issues experienced by people with functional difficulty or disability could be further compounded by limited social support and a lack of social connections and involvement (Tough et al., 2017). Research has shown that those with disability may have more limited social networks and experience fewer opportunities for getting involved in social activities and environments (Mithen, Aitken, Ziersch, & Kavanagh, 2015; Tough et al., 2017; Verdonschot, de Witte, Reichrath, Buntinx, & Curfs, 2009a). This means they can be more socially isolated than those without disability (Emerson, Fortune, Llewellyn, & Stancliffe, 2021; Mithen et al., 2015). Among people with disability, community participation can be crucial for combating misconceptions and enhancing a sense of agency (Stokes, Turnbull, & Wyn, 2013).

There has been limited research on social support and connectedness among people with functional difficulty and disability in Australia. Using the nationally representative dataset for HILDA, McPhedran (2010) found that people with disability in regional Australia, in 2006, reported lower levels of social support than those without disability, and less contact with family and friends. Llewellyn, Emerson and Honey (2013) found that, between 2001 and 2011, the gap between young Australians (15–29 years) with disability and those without widened across 13 key indicators of social inclusion, including employment, support from family or friends in times of crisis, and feeling safe. Mithen and colleagues (2015) showed that, among adult Australians living in non-remote areas in 2010, those with disability were worse off than those without in relation to formal and informal networks, and self-rated health and social support status.

Research objectives

This chapter uses data from Waves 1 and 2 of *Ten to Men* (TTM) to undertake the following:

- detail the prevalence of functional difficulty among adult Australian males across visual, auditory, movement, cognitive, self-care, and comprehension and communication domains
- explore levels of social connectedness among men with serious difficulty, men with some difficulty, and those without difficulty, across indicators of self-perceived social support, attachment relationships (number of close friends and relatives and household composition), and community integration (employment status)
- conduct a multivariable analysis to investigate whether the experience of functional difficulty is associated with lower self-perceived social support when taking other indicators of social connectedness and key socio-demographic and psychosocial factors into account.

6 Sourcing a current, accurate figure of the global prevalence of functional difficulty or disability is difficult due to increasingly dated data and inconsistent and varied measurements and definitions between – and even within – countries (WHO and World Bank, 2011).

7 More specific age group differences between males and females in relation to estimated prevalence of disability in 2018 among Australians aged 15–64, rounded to whole percentages, included: 15–19: 11% vs 11%; 20–24: 8% vs 8%; 25–29: 7% vs 7%; 30–34: 7% vs 7%; 35–39: 8% vs 10%; 40–44: 10% vs 11%; 45–49: 14% vs 14%; 50–54: 17% vs 18%; 55–59: 23% vs 21%; 60–64: 27% vs 27% (AIHW, 2020).

Box 4.1: Classification of functional difficulty across six core functional domains: Washington Group Short Set (WG-SS) of questions

Functional difficulty among Australian men was assessed in the TTM survey using the Washington Group Short Set of questions on functioning (WG-SS). Developed by the Washington Group on Disability Statistics, the WG-SS is a widely used instrument for assessing difficulty and disability and has been validated in numerous countries (Madans, Loeb, & Altman, 2011). The tool consists of six questions relating to core functional domains (visual, auditory, walking/movement, cognition, self-care, and comprehension and communication), with four response options on a severity scale:[8]

- No difficulty
- Some difficulty
- A lot of difficulty
- Cannot do at all.

The WG-SS is included in TTM survey tools to identify males with functional limitations that have the potential to restrict performance of basic activity functioning and independent participation in society. The brief nature of the WG-SS means it will not identify every participant who might be classified as having disability when using other more intensive or detailed tools, such as the WHO Disability Assessment Schedule (WHODAS 2.0) (WHO, 2010). These tools are often unsuitable for inclusion in health surveys not dedicated to disability, which is the case with TTM. The WG-SS might also not identify specific types of disability, such as psychosocial disability or intellectual disability. It is likely any prevalence estimates would therefore differ to other Australian research with more precise measurements of disability, such as the Survey of Disability, Ageing and Caring (ABS, 2019).[9]

Consistent with previous research (Madans et al., 2011), studies using TTM data have classified TTM participants as having disability if they reported having more than some difficulty (i.e. either a lot of difficulty or cannot do at all) across at least one of the core domains (e.g. King et al., 2020). However, given the aforementioned limitations of the WG-SS, and in consideration of the WG-SS response options listed above, for the purposes of the analyses and findings presented in this chapter, participants were categorised according to level of functional difficulty (none, some, or serious difficulty), as opposed to classifying any as having 'disability'. Participants were classified as having serious functional difficulty if they reported experiencing 'a lot of difficulty' or 'cannot do at all' on any of the six items of the WG-SS.

Difficulty among adult Australian males

Prevalence of functional difficulty among Australian men in 2015/16

In 2015/16, an estimated 8% of adult males aged 18–57 years had serious functional difficulty. In contrast, around 46% of men had some functional difficulty in 2015/16, and another 47% had no difficulty.

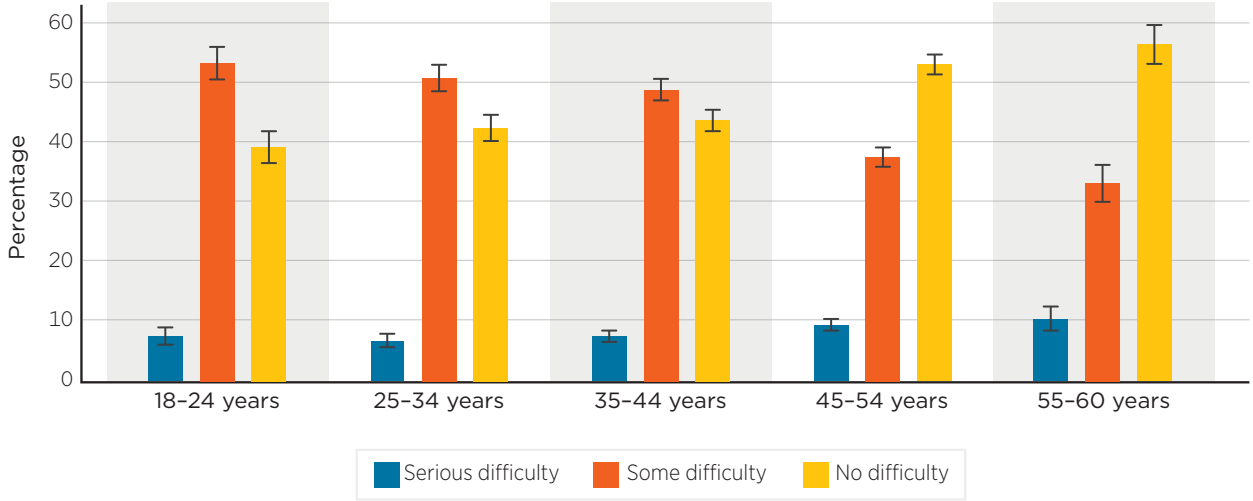
The prevalence of serious difficulty among adult males was similar across all ages (within the 18–60 range) but the prevalence of some difficulty and no difficulty varied. Figure 4.1 presents the estimated prevalence of functional difficulty among men by age group in 2015/16. Although there was a slightly higher percentage of older Australian men who had serious difficulty across at least one of the six core functional domains, the difference between age groups was not significant. For example, approximately 11% of men aged 55–60 had serious difficulty in 2015/16, as did 10% of men aged 45–54, 8% of those aged 18–24, and 7% of men aged both 25–34 and 35–44.

8 See www.washingtongroup-disability.com/fileadmin/uploads/wg/Documents/Questions/Washington_Group_Questionnaire__1_-_WG_Short_Set_on_Functioning.pdf

9 See www.aihw.gov.au/getmedia/f0f1a466-ce97-43c4-86ae-627f5e3ccd01/aihw-dis-72-definitions-of-disability.xlsx.aspx

In contrast, the proportion of men with no difficulty across the six functional domains decreases with age. In 2015/16, around 34% of men aged 55–60 had no difficulty, compared to approximately 53% of men aged 18–24, 52% of those aged 25–34, 49% of those aged 35–44, and 38% of men aged 45–54. Accordingly, significantly more older Australian men experienced some difficulty (but not serious difficulty) on at least one of the six core functional domains than their younger counterparts.

Figure 4.1: No, some and serious difficulty among adult males in 2015/16, as assessed by the WG-SS, by age group



Notes: *n* = 10,088 10,590 participants aged 18 and above at Wave 2; those without valid responses to any of the WG-SS core functional items were excluded from the analyses. 95% Confidence Intervals.

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

Experience of serious functional difficulty across multiple functional domains

Around one-fifth of Australian men with serious functional difficulty in 2015/16 were classified as having serious difficulty across multiple functional domains. Most Australian men with serious difficulty (81%) were classified as having serious difficulty in a single core functional domain. In comparison, around 14% had serious difficulty across two core functional domains, while around 5% of this group experienced serious difficulty across three or more domains.

The percentage of those with multiple types of serious difficulty – i.e. across two or more functional domains – increased with age (Table 4.1). Around 8% of males aged 18–24 with serious difficulty had two or more difficulty types, compared to around one-quarter (24%–25%) of those aged 45–54 and 55–60. The differences in percentages of males with multiple difficulty types between age groups were not significant; however, this is likely due to small numbers of TTM participants classified as having any serious difficulty (and broad CIs).

Table 4.1: Percentage of adult males with two or more difficulty types (among those with serious difficulty) in 2015/16, by age

Age group	%	95% CI
18–24	7.7	[2.7, 20.4]
25–34	11.8	[5.8, 22.5]
35–44	21.3	[13.3, 32.2]
45–54	25.7	[18.7, 34.3]
55–60	23.8	[11.9, 41.9]
All	18.8	[15.0, 23.3]

Notes: *n* = 804 participants aged 18 and above at Wave 2 classified as having serious difficulty; those without valid responses to any of the WG-SS core functional items were excluded from the analyses. CI = Confidence Intervals

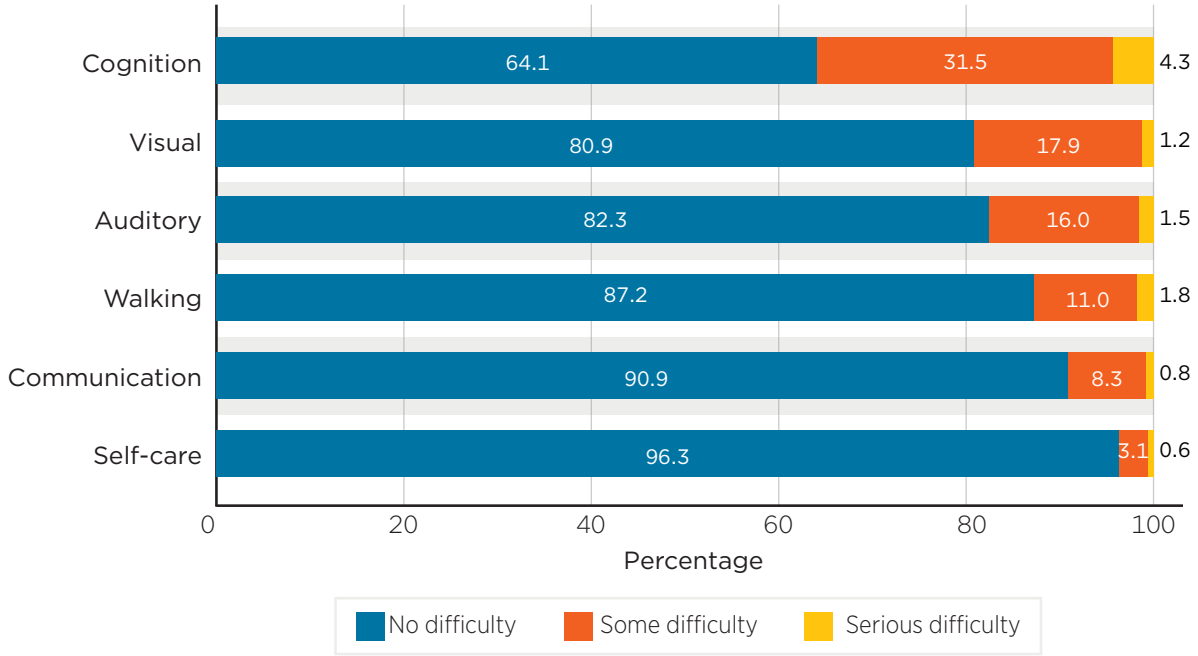
Source: TTM data, Wave 2, adult cohort, weighted

Types of difficulties

The most common serious difficulty among Australian males aged 18–60 in 2015/16 was cognitive difficulty (4%). Figure 4.2[10] details the prevalence of the six types of core functional difficulties among adult males in 2015/16. Two per cent of men had serious difficulty related to both walking/movement and hearing, whereas 1% had serious visual difficulty. Less than 1% of Australian men in this age group were estimated to have serious difficulty relating to self-care or communication and comprehension in 2015/16.

There was minimal significant variation across age groups in the estimated prevalence of experience of type of serious difficulty as per the core functional domains (refer to Table B4.6 in Appendix B). To an extent, this may be due to low numbers of TTM participants classified as having any serious difficulty, which can make it hard to find statistically significant results. For instance, although the estimated prevalence of serious visual difficulty was 0.8% among men aged 18–24 but 3.2% among men aged 55–60, this difference was not statistically significant, perhaps due to the small number of older men in this category. However, significantly more men aged 45–54 had serious auditory difficulty compared to those aged 18–24 (2.5% vs 0.5%, respectively), and significantly more men aged 45–54 and 55–60 had serious difficulty relating to movement (3.1% and 4.4%, respectively) compared to men aged 18–24 and 25–35 (0.3% and 1.0%, respectively).

Figure 4.2: Percentages of adult males with no difficulty, some difficulty, and serious difficulty across six core functional domains in 2015/16



Notes: *n* = 10,590 participants; those without valid responses to any of the WG-SS core functional items were excluded from the analyses.

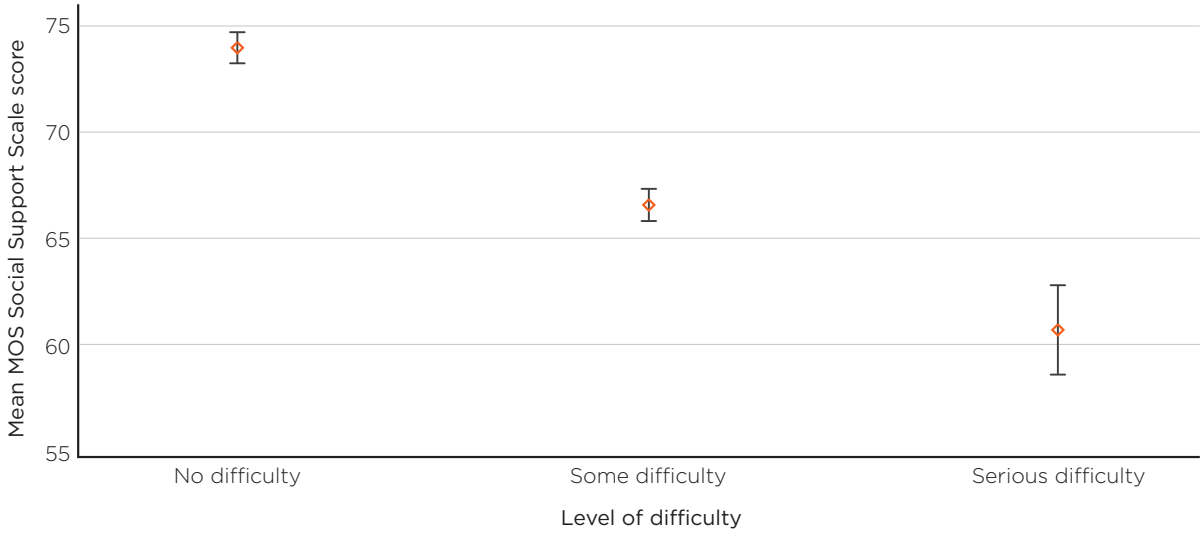
Source: TTM data, Wave 2, adult cohort, weighted

Perceived social support

In general, adult Australian males with any level of functional difficulty across the six WG-SS core functional domains have significantly lower levels of self-perceived social support compared to those without difficulty. Figure 4.3 presents levels of social support broken down by level of difficulty. Specifically, among Australian men aged 18–60 in 2015/16 without difficulty, the mean MOS Social Support Scale score was 73.9, compared to 66.6 for men with some difficulty, and 60.7 for men with serious difficulty.

10 See also Table B4.2 in Appendix B.

Figure 4.3: Mean MOS Social Support Scale score by difficulty status (none, some difficulty, serious difficulty) among adult males aged 18–60 in 2015/16



Notes: *n* = 10,315 participants; those without valid responses to any of the WG-SS core functional items or a total MOS Social Support Scale score were excluded from the analyses. 95% Confidence Intervals

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

Age differences

Regardless of level of difficulty experienced, average levels of self-perceived social support were generally higher among younger vs older Australian men in 2015/16 (refer: Self-perceived social support in Chapter 1). Table 4.2 presents average self-perceived social support scores among adult males by age group and difficulty classification. The data highlight key differences in self-perceived social support by level of difficulty and by age group among adult males. Across each age group, men with no difficulty had significantly higher levels of self-perceived social support. Men with no difficulty aged 18–24 had an average MOS Social Support Scale score of 78.9, compared to a score of 73.9 among men with some difficulty, and 64.7 among men with serious difficulty in the same age group.

Men with no difficulty aged 55–60 had an average MOS Social Support Scale score of 73.3, compared to 66.6 among those with some difficulty, and 48.4 among men with serious difficulty in the same age group.

Looking at self-perceived social support specifically among adult males with serious difficulty in 2015/16 by age (Figure 4.4), there were no significant differences between age groups for men aged 18–54; however, men with serious difficulty aged 55–60 were significantly more likely to have lower average levels of self-perceived social support compared to younger males with serious difficulty.

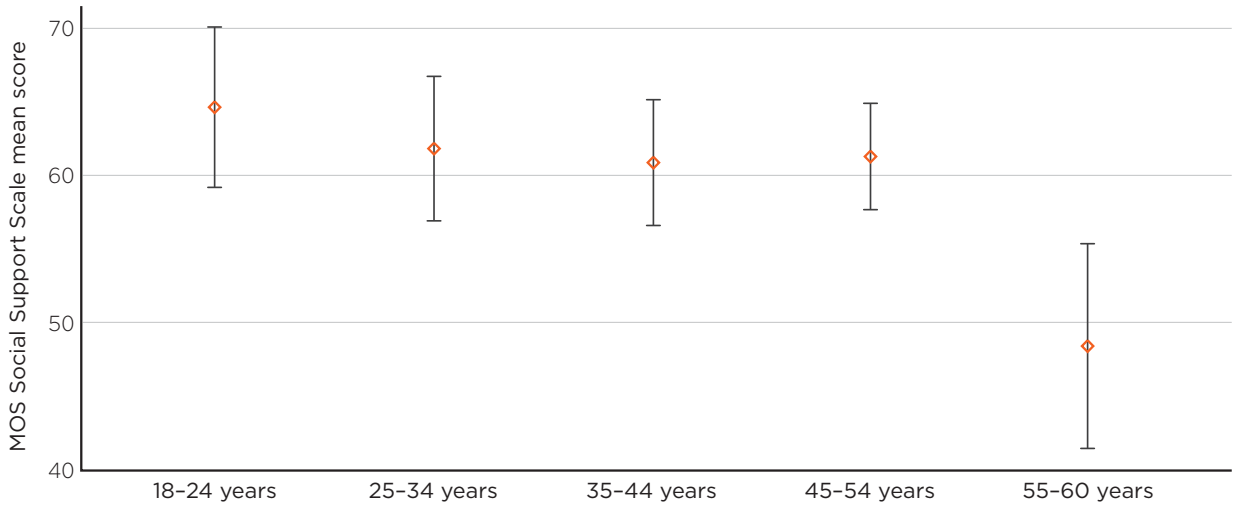
Table 4.2: Self-perceived social support by level of difficulty and age group among adult males in 2015/16: mean MOS Social Support Scale score [95% CI]

Age group (years)	None *n* = 4,637 M [95% CI]	Some difficulty *n* = 4,909 M [95% CI]	Serious difficulty *n* = 769 M [95% CI]	ALL *n* = 10,315 M [95% CI]
18–24	78.9 [77.2, 80.5]	73.9 [71.8, 76.1]	64.7 [59.2, 70.1]	75.8 [74.5, 77.1]
25–34	76.0 [74.5, 77.5]	69.0 [67.2, 70.9]	61.9 [56.9, 66.8]	72.2 [71.1, 73.4]
35–44	70.8 [69.4, 72.2]	65.2 [63.7, 66.6]	60.9 [56.6, 65.2]	67.6 [66.7, 68.6]
45–54	70.9 [69.4, 72.4]	64.1 [62.8, 65.4]	61.3 [57.7, 64.9]	66.4 [65.5, 67.3]
55–60	73.3 [70.3, 76.3]	60.2 [57.6, 62.8]	48.4 [41.4, 55.4]	63.4 [61.4, 65.4]
All	73.9 [73.2, 74.6]	66.6 [65.8, 67.3]	60.7 [58.6, 62.8]	69.5 [69.0, 70.0]

Notes: *n* = 10,315; those without valid responses to any of the WG-SS core functional items or a total MOS Social Support Scale score were excluded from analyses. CI = Confidence Interval; M = Mean.

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

Figure 4.4: Mean MOS Social Support Scale score among adult males aged 18–60 in 2015/16 with disability, by age



Notes: *n* = 769 participants with serious difficulty as per the WG-SS; those without valid responses to any of the WG-SS core functional items or a total MOS Social Support Scale score were excluded from analyses. 95% Confidence Intervals

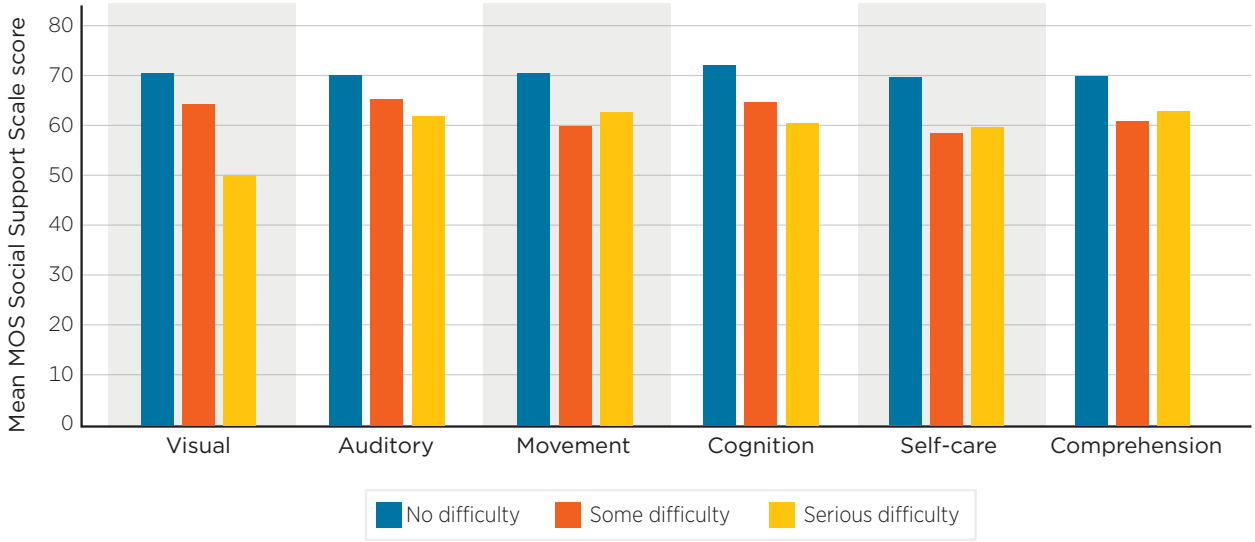
Source: TTM data, Wave 2, adult cohort, weighted

Types of difficulties

Different types of difficulty (e.g. visual vs auditory) might affect levels of self-perceived social support to varying degrees. Figure 4.5 presents the mean level of self-perceived social support among adult Australian males in 2015/16, broken down by type and level of difficulty. Across five of the six core types of functional difficulty (all but comprehension/understanding), the average level of self-perceived social support was significantly lower among both Australian men with some and serious difficulty, compared to men with no difficulty. For example, men with serious visual difficulty had an average self-perceived support score of around 50, compared to 65 among those with some visual difficulty (but not serious difficulty), and 71 for those with no visual difficulty. Men with serious cognitive difficulty had an average self-perceived score of 61, compared to 65 for those with some cognitive difficulty, and 72 among those with no cognitive difficulty. These differences were all found to be statistically significant.

In contrast to the other five domains, the average level of self-perceived social support was not significantly lower among men with serious difficulty in comprehension/understanding compared to those with no difficulty (score of 63 vs 70, respectively). The lack of statistical significance in this finding is likely due to relatively small numbers of TTM participants with serious difficulty in this domain (*n* = 58). However, men with some difficulty in comprehension/understanding did have significantly lower self-perceived social support compared to those with no difficulty (61 vs 70, respectively).

Figure 4.5: Self-perceived social support by level and type of difficulty among adult males in 2015/16: mean MOS Social Support Scale score



Notes: *n* = 10,315. Participants without valid responses to any of the WG-SS core functional items or a total MOS Social Support Scale score were excluded from analyses. See Table B4.4 in Appendix B for exact figures and confidence intervals.

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

Multivariable analysis: Is difficulty associated with lower self-perceived social support?

Table 4.3 presents findings from a multivariable linear regression analysis that examined associations between self-perceived social support (i.e. MOS Social Support Scale score; range = 0–100) and experience of some and serious difficulty across any of the six WG-SS core functional domains. After taking other measures of social integration (employment status), attachment relationships (number of close relatives/friends, household composition), and key socio-demographic and psychosocial factors into account, some and serious difficulty were both negatively associated with self-perceived social support. Compared to Australian men with no difficulty, those with some difficulty had lower social support by an average of 6.39 units. Similarly, compared to men with no difficulty, men with serious difficulty had lower social support by an average of 9.29 units.

Reflecting findings reported in Chapter 1, other factors indicative of being less socially isolated were associated with greater self-perceived social support. In terms of attachment relationships, having one or more close friends or relatives was associated with greater levels of self-perceived social support compared to having no close friends/relatives. Being single but living with family and/or friends, living with a partner but no children, and living with a partner and children were all associated with significantly greater levels of self-perceived social support compared to living alone. There was no significant difference in self-perceived social support between men living alone and those who were single parents living with their children.

In terms of social integration, being unemployed or out of the labour force (vs employed) was significantly associated with lower levels of self-perceived social support.

Again, reflecting findings in Chapter 1, older age and identifying as non-heterosexual were negatively correlated with self-perceived social support. Speaking a language other than English at home and greater socio-economic disadvantage (according to SEIFA classifications) were also associated with reduced levels of self-perceived social support.

Table 4.3: Ordinary least-squares linear regression model: Correlates of self-perceived social support among adult males, 2015/16

Variable	Adjusted Coef.[a]	SE
Level of difficulty (ref. = none)		
Some difficulty	-6.39***	0.56
Serious difficulty	-9.29***	1.20
Alone (no close friends/relatives vs 1+)	45.87***	1.41
Age (continuous)	-0.30***	0.03
Employment status (ref. = employed/working for profit or pay)		
Unemployed, looking for work	-7.06***	1.33
Out of labour force	-2.82*	1.31
Household composition (ref. = single, lives alone)		
Single, lives with family/friends	5.62***	1.47
Couple, no children	7.05***	1.48
Single parent	1.35	1.68
Couple with children	5.88***	1.27
Education level (ref. = ≤Year 12)		
Certificate/diploma	0.15	0.70
University degree	-0.96	0.76
Indigenous Australian (yes; Wave 1)	-2.73	2.52
SEIFA level of disadvantage (ref. = High)		
Middle	2.18**	0.69
Low	1.84*	0.80
ASGS residential region (ref. = major cities)		
Inner regional	1.03	0.67
Outer regional	0.13	0.76
Language OTE spoken at home (yes; Wave 1)	-6.39***	1.19
CMNI score (continuous)	-0.59***	0.05
Sexual orientation: non-heterosexual[b] (ref. = heterosexual; Wave 1)	-4.95***	1.23
cons	97.24***	2.50
adj. R^2	-	0.19

Notes: n = 8,234; observations excluded from analyses included n = 139 responses relating to functional difficulty, n = 37 and n = 269 'other' responses relating to household composition and education level, respectively, 284 missing observations regarding sexual identity, and n = 13 'remote/very remote' ASGS residential region classifications. Depression, as measured by the PHQ, was excluded from the model due to multicollinearity with the difficulty indicator (Kendall's Tau-b = 0.2303, $p < 0.001$). This is commensurate with other studies investigating social support and disability (Emerson & Llewellyn, 2021), including previous research on disability among the TTM cohort (Currier et al., 2016). CI = Confidence Interval; ASGS = Australian Statistical Geography Standard; aOR = adjusted Odds Ratio; CMNI = Conformity to Masculine Norms Inventory; OTE = other than English; SE = Standard error (robust); SEIFA = Socio-Economic Indexes for Areas; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. [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 (MOS Social Support Scale score), assuming that all other variables in the model are held constant; [b] 'Non-heterosexual' included identifying as bisexual, homosexual, unsure and no attraction.

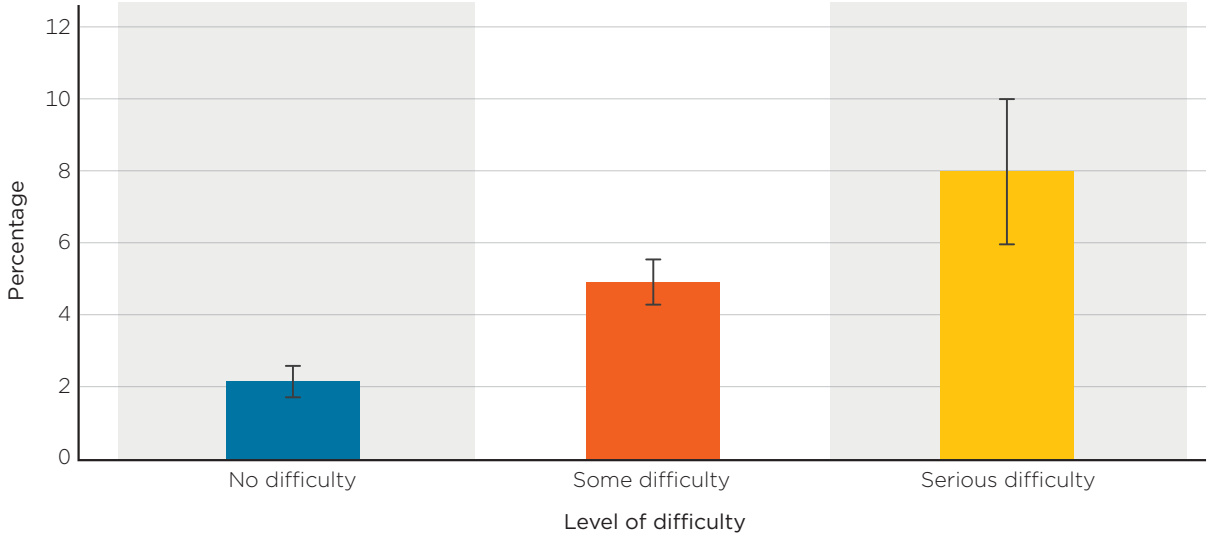
Source: TTM data, Wave 2, adult cohort, unweighted

Attachment relationships

Number of close friends and relatives

Men with any difficulty were significantly more likely to have no close friends or relatives compared to those without difficulty. Figure 4.6 presents the estimated percentages of males aged 18–60 in 2015/16 who were classified as 'alone' by difficulty status. Approximately 8% of men who had serious functional difficulty had no close friends or relatives, compared to 5% of those with some difficulty, and 2% of those with no difficulty.

Figure 4.6: Prevalence of 'aloneness' (no close friends/relatives) among males aged 18–60 years in 2015/16, by level of functional difficulty



Notes: *n* = 9,921 participants; those without valid responses to any of the WG-SS core functional items or their network of close friends/relatives were excluded from the analyses. 95% Confidence Intervals

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

On average, men with any difficulty also had fewer close relatives and friends (Table 4.4). The mean number of close relatives and friends for males aged 18–60 overall in 2015/16 was around nine, but this differed by age: younger men, especially those aged 18–24, typically had a greater number of close friends and relatives compared to their older counterparts. Men with no difficulty had an average number of 10 close relatives/friends, which was significantly more than those with some difficulty (mean = 8), and those with serious difficulty (mean = 7).

Among Australian men with serious difficulty, there was less variation in the number of close friends and relatives by age, which could be due to low numbers of TTM participants classified as having serious difficulty and low numbers with zero close friends or relatives. However, adult males without difficulty typically had a greater average number of close friends and relatives across each age group. The differences between these two groups were significant at each age except for those aged 35–44 and 55–60. Men with no difficulty aged 18–24 and 35–44 had a significantly greater average number of close friends and relatives than those with some difficulty in the same age groups.

Table 4.4: Average number of close friends and relatives by level of functional difficulty and age group among adult males in 2015/16 [95% CI]

Age group (years)	Level of difficulty			
	None *n* = 4,456 M [95%CI]	Some *n* = 4,730 M [95%CI]	Serious *n* = 735 M [95%CI]	All *N* = 9,921 M [95%CI]
18–24	12.9 [11.4, 14.3]	9.6 [8.5, 10.6]	5.5 [4.7, 6.4]	11.0 [10.2, 11.9]
25–34	9.6 [8.4, 10.8]	9.4 [7.3, 11.5]	6.0 [4.7, 7.4]	9.4 [8.3, 10.5]
35–44	9.6 [8.5, 10.7]	7.5 [6.9, 8.2]	8.3 [4.7, 11.8]	8.8 [8.1, 9.5]
45–54	8.3 [7.5, 9.1]	7.5 [7.1, 7.9]	6.4 [5.3, 7.4]	7.7 [7.3, 8.1]
55–60	8.6 [7.2, 10.0]	7.4 [6.6, 8.2]	7.3 [4.1, 10.4]	7.9 [7.2, 8.6]
All	9.9 [9.4, 10.4]	8.2 [7.7, 8.7]	6.7 [5.7, 7.6]	8.9 [8.5, 9.2]

Notes: Those without valid responses to any of the WG-SS core functional items or regarding the number of close friends/relatives score were excluded from analyses. CI = Confidence Interval; M = mean.

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

Household composition

As detailed in Chapter 1, the vast majority (93%) of adult Australian males aged 18–60 lived in a household with at least one other person. Table 4.5 details the household composition or structure of men according to difficulty status. Overall, around half (52%) of adult males lived with a partner and their children, whereas about one-quarter (25%) lived with family and/or friends. Smaller proportions lived with a partner but no children (12%), lived alone (6%), or lived with children but no partner (5%).

Compared to Australian men with no difficulty, those with serious difficulty were significantly more likely to live alone (11% vs 5%, respectively) or to be a single parent living with children (9% vs 4%, respectively). Men with some difficulty were also significantly more likely to be a single parent living with children compared to those without difficulty (6% vs 4%, respectively), and they were less likely to be single and living with others (22% vs 28%, respectively). There were no significant differences in household composition between men with serious difficulty and those with some difficulty.

Table 4.5: Household composition among adult males aged 18–60 in 2015/16, by level of functional difficulty

Household composition	Level of difficulty			
	None *n* = 4,376 % [95% CI]	Some *n* = 4,684 % [95% CI]	Serious *n* = 742 % [95% CI]	Total *N* = 9,802 % [95% CI]
Single, lives alone	5.2 [4.0, 6.7]	6.9 [5.7, 8.2]	11.1 [7.8, 15.6]	6.4 [5.5, 7.5]
Single, lives with others (family, friends)	27.7 [25.5, 30.1]	21.7 [19.7, 24.0]	23.4 [18.3, 29.3]	24.6 [23.1, 26.2]
Couple, no children	13.0 [11.1, 15.1]	10.7 [9.3, 12.2]	10.5 [7.0, 15.4]	11.7 [10.5, 13.1]
Single parent	4.0 [3.2, 4.8]	6.3 [5.3, 7.5]	8.5 [5.8, 12.2]	5.4 [4.7, 6.1]
Couple, with children	50.2 [47.4, 53.0]	54.4 [52.0, 56.9]	46.5 [40.4, 52.8]	51.9 [49.9, 53.8]

Notes: Participants without valid responses to any of the WG-SS core functional items or regarding household composition were excluded from analyses, in addition to those whose household composition was listed as 'other'. CI = Confidence Interval

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

Community integration

Employment status

Most Australian men aged 18–60 (85%) were employed/working for profit or pay in 2015/16 but this differed according to their experience of functional difficulty. Table 4.6 lists the estimated percentages of adult males who were employed by both classification of difficulty and age group.[11] Across every age group, at least 70% of men with no difficulty and those with some difficulty were employed. In comparison, less than 70% of men with serious difficulty were employed in 2015/16, regardless of age. From the age of 25 and up, a significantly higher percentage of men without difficulty and men with some difficulty were employed compared to those with serious functional difficulty.

There were minimal differences in rates of employment between men with no difficulty and those with some difficulty; however, men aged 45–54 with some difficulty were significantly less likely to be employed compared to men with no difficulty in the same age group.

The rate of employment was lowest among older men with serious difficulty; an estimated 38% of those aged 55–60 were employed, compared to around 88% of those with no difficulty and 78% of those with some difficulty.

Table 4.6: Estimated percentage of employed[a] adult males in 2015/16 by age and level of functional difficulty [95% CI]

Age group (years)	Level of difficulty			All
	None % [95% CI]	Some % [95% CI]	Serious % [95% CI]	
18–24	70.3 [63.6, 76.2]	73.0 [66.1, 78.9]	56.2 [39.2, 72.0]	**70.3 [65.9, 74.4]**
25–34	94.6 [91.9, 96.4]	90.5 [86.9, 93.2]	66.2 [50.7, 78.9]	**91.0 [88.6, 93.0]**
35–44	92.7 [88.2, 95.6]	89.3 [85.5, 92.2]	67.5 [51.8, 80.1]	**89.4 [86.4, 91.7]**
45–54	93.2 [91.0, 94.9]	88.5 [85.9, 90.6]	62.9 [53.5, 71.4]	**87.8 [85.8, 89.6]**
55–60	87.7 [79.3, 92.9]	78.2 [70.1, 84.5]	38.2 [20.5, 59.7]	**77.2 [70.7, 82.6]**

Notes: Those without valid employment status data and responses to any of the WG-SS core functional items were excluded from the analyses. [a] Working for profit or pay. CI = Confidence Interval

Source: TTM Adult cohort, Wave 2, weighted

Conclusion

TTM findings presented throughout this chapter provide important insight into the social connectedness of Australian men with functional difficulty. They show that, across multiple indicators of attachment relationships, social integration and perceptions, adult males who experienced various forms of functional difficulty in 2015/16 were typically less socially connected than those without difficulty. For example, a significantly greater percentage of men with serious difficulty lived alone compared to those with no or some difficulty (11% vs 5%, respectively). Men with some or serious difficulty were significantly more likely to have no close friends or relatives than those without difficulty (5%–8% vs 2%, respectively), and also had a lower average number of close friends and relatives (7–8 vs 10, respectively). Findings from a multivariable analysis demonstrated that the experience of difficulty was negatively correlated with self-perceived social support among Australian men compared to males without difficulty, even after taking socio-demographic and psychosocial factors into account.

Older men with at least some difficulty may be particularly vulnerable to being socially disconnected. Specifically, levels of self-perceived social support were generally lower among older vs younger Australian men overall; however, those with any difficulty consistently had less self-perceived social support than men

11 Table B4.5 in Appendix B details the percentages of adult Australian males aged 18–60 in 2015/16 who were employed/working for profit or pay, unemployed and looking for work, and out of the labour force, by level of difficulty.

without difficulty in the same age group. Among adult males with serious functional difficulty, those aged 55–60 had significantly lower levels of self-perceived social support than men in all other age groups.

Men with serious difficulty were also significantly less likely to be employed/working for profit or pay compared to both men with some difficulty and those without difficulty. Again, this discrepancy was more pronounced among older men. For example, among those aged 45–54, 93% of men with no difficulty were employed, compared to 89% of those with some difficulty, and 63% of those with any disability. Among men aged 55–60, 88% of those with no difficulty were employed, compared to 78% of those with some difficulty, and only 38% of those with serious functional difficulty. Work can be an important environment for providing opportunities to form close personal relationships and access social support, including among people with disability and functional difficulty (Friedman & Rizzolo, 2018). Low employment rates among those with functional difficulty or disability may, in turn, negatively affect social connectedness for this group (Brucker, 2015).

These findings add to previous research pointing to different barriers to attachment relationships, community integration and perceptions of social support among people living with functional difficulty and/or disability (Ruhindwa, Randall, & Cartmel, 2016). For some, barriers include the structural aspects of built environments that make it physically difficult – or impossible – to access certain spaces (Verdonschot, de Witte, Reichrath, Buntinx, & Curfs, 2009b). For others, they are social and attitudinal (National Disabilities and Carer Council, 2009; Vornholt et al., 2018). In 2008, community responses informing the development of an Australian National Disability Strategy indicated that social inclusion and community participation were the two most common areas where barriers were experienced, commented on by over half (56%) of the 750 submissions (National Disabilities and Carer Council, 2009). The AIHW's *People with Disability in Australia* report indicated that one-third of Australians aged 15 and over and living with disability – more than one million people – had recently avoided at least one social or public situation due to their disability, most commonly visiting family or friends (39%) (AIHW, 2020).[12]

Avoidance of social or public situations was more common among people who had experienced discrimination related to their disability and also those with more profound disability. The latter point aligns with findings presented in this chapter, in the sense that men with serious difficulty recorded lower levels of social connectedness compared to men with some difficulty across various indicators, including self-perceived social support, 'aloneness', and employment status. Importantly, research suggests that social connectedness among people with disability and difficulty can be enhanced when barriers to social inclusivity are addressed. For example, online platforms have been shown to help people who are deaf or hard of hearing develop social identities and form friendships, in addition to enhancing wellbeing (Blom, Marschark, Vervloed, & Knoors, 2014).

Further approaches to addressing barriers to low social connectedness among Australian men with difficulty and disability, especially in employment contexts, are discussed further in this report's Policy and practice implications section.

12 Other situations avoided included going to shops and banks (34%), going to restaurants, cafes or bars (32%), using public transport (25%), work (22%), and using public parks or recreation venues (20%).

5 Community engagement and participation among adult Australian males

Brendan Quinn, Jennifer Prattley, Neha Swami, Sonia Terhaag and Bosco Rowland

Key messages

- Men who engaged in community-based activities such as volunteering and sport had significantly greater average levels of self-perceived social support compared to those who did not take part.
- Involvement in community-based activities directly improved personal wellbeing, while also enhancing self-perceived social support, which, in turn, increased positive wellbeing.
- Community service involvement increased with age: around one-quarter of men aged 35 and above participated in community service activities vs around one-fifth of younger men.
- In contrast, membership of community-based sports or hobby clubs or associations decreased with age (43% of those aged 18–24 vs 35%–36% of older men).

Overview

While limited social connectedness is associated with adverse health outcomes, certain types of social or community integration or involvement – such as volunteering, club membership or participation in regular sporting activities – have been shown to be associated with a range of positive health and social outcomes, including the expansion of social networks and social capital. For example, Yeung and colleagues (2018) recently showed that, among around 1,500 Texan adults, volunteering[13] was predictive of better mental and physical health, in addition to enhanced life satisfaction and social wellbeing. Specifically, it was associated with increased feelings of social integration and acceptance and satisfaction with relationships with others.

Similarly, there is substantive, consistent evidence that sports participation is associated with health and social benefits (Hoye, Nicholson, & Brown, 2015), particularly club- or team-based sports due to the social nature of participation (Eime et al., 2013). A systematic review of the social and psychological health outcomes of team sports participation in adults found that the most reported benefits were improved social support, sense of belonging, social interaction, higher self-esteem and enhanced social networks (Andersen, Ottesen, & Thing, 2019). Prolonged involvement in such activities has been associated with a greater experience of positive health and social outcomes vs more temporary exposure (Oosterhoff, Kaplow, Wray-Lake, & Gallagher, 2017).

Only a small proportion of Australians are involved with volunteering and sport. The most recent national data indicate approximately three in 10 Australians (31%) aged 15 and over have undertaken some type of voluntary work (AIHW, 2019a). Rates of volunteering are lower among males (46%) compared to females (54%).

13 'Volunteering' comprises altruistic services (e.g. participation in the voluntary services of health, education, public/social benefits) and self-actualisation or self-serving behaviours (e.g. participation in the voluntary services of recreation, arts or culture, political campaigns).

An analysis of involvement in Victorian club-based sports during 2017 indicated that participation rates fell with age: around 32% of 15–19 year olds were involved with 12 major club-based sports,[14] compared to 15% of those aged 20–24, and less than 10% of Victorians aged 30–85+ (Sport Participation Research Project, 2019). However, overall, participation rates were higher among males (20%) compared to females (11%).

Despite the established associations between community engagement activities and positive health outcomes, few studies have investigated possible pathways that provide further context for relationships and mechanisms between certain types of community participation and health and wellbeing (Malinauskas & Malinauskiene, 2018; Mellor et al., 2008; Yeung et al., 2018). One exception is Brown, Hoye, and Nicholson (2012), who found that, among a random sample of adult Victorians (*N* = 2,990), engaging in volunteering was positively associated with social connectedness, which then improved personal wellbeing.

Identifying the characteristics of adult males who are less likely to get involved in community-based activities such as volunteering and sport could inform targeted initiatives to improve participation rates, with flow-on effects including improved social connectedness, health and wellbeing among Australian men.

Research objectives

This chapter uses data from Wave 1 of *Ten to Men* (TTM).[15] It focuses on exploring the community integration domain of social connectedness among adult Australian males; specifically, involvement in community-based activities such as volunteering and sport in 2013/14. It sought to:

- outline the extent of community engagement, involvement or participation among adult Australian males, with a focus on community service activities (e.g. volunteering) and membership of sporting or hobby clubs or associations
- explore whether involvement in community service activities and membership of sporting or hobby clubs/associations is associated with greater levels of self-perceived social support
- investigate the socio-demographic and psychosocial characteristics of males who were more likely to participate in such activities
- examine pathways to wellbeing: specifically, whether community engagement affects self-perceived social support and whether this, in turn, enhances personal wellbeing.

Box 5.1: Key community engagement measures

At Wave 1 of *Ten to Men* (TTM) (2013/14), adult TTM participants were asked about their involvement in different types of social or community engagement activities. Specific items included:

- 'Do you participate in any ongoing community service activity? (e.g. volunteering at a school, coaching a sports team or working with a church or neighbourhood)' (Yes/No).
- 'Are you currently an active member of a sporting, hobby or community-based club or association?' (Yes/No).

Ongoing community service activity and membership of community-based sports or hobby clubs or associations are the main exposures considered in this chapter.

As these measures were not included in the Wave 2 TTM survey, the investigation of changes in involvement in community engagement activities over time is not included here.

14 Data were sourced from Victorian State Sporting Associations covering 12 major sports: Australian Football League, basketball, bowls, cricket, golf, gymnastics, hockey, netball, sailing, soccer, swimming and tennis.

15 Items eliciting information on such community engagement activities were only included in the Wave 1 TTM survey; see Box 5.1.

Community integration: Participation in community-based activities among adult males in 2013/14

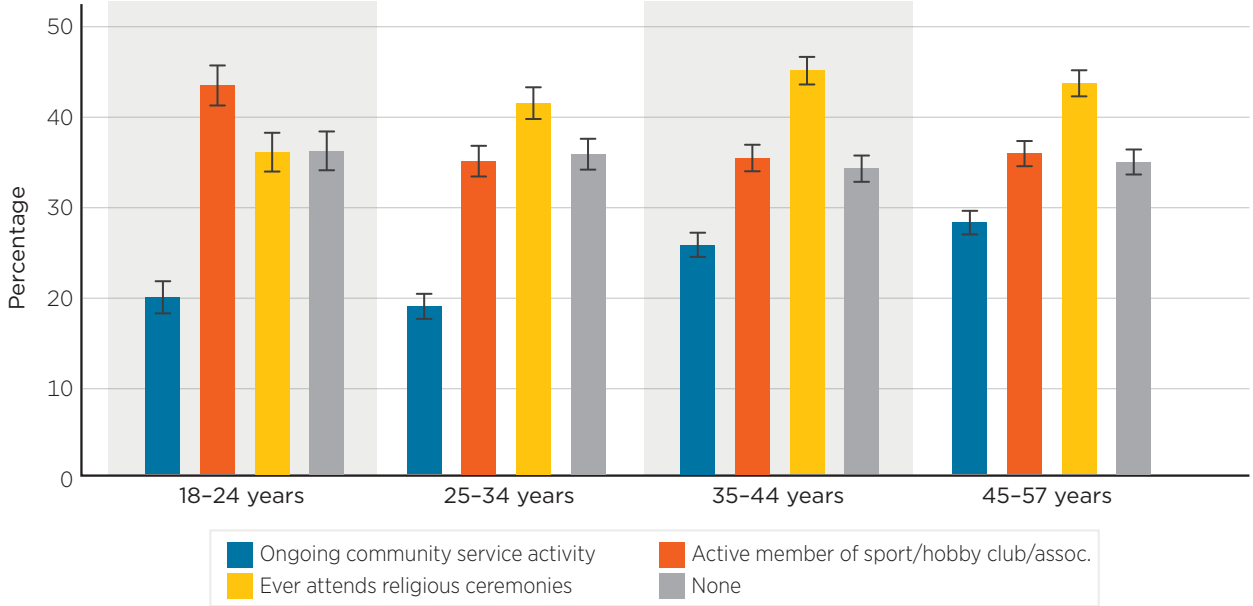
Types of community-based activities

Rates of involvement in different community-based activities among Australian men aged 18–55 in 2013/14 are detailed in Chapter 1 (Table 1.2); however, Figure 5.1 shows that participation rates vary by age. Overall, less than one-quarter of all adult males took part in any sort of ongoing community service activity, such as volunteering, whereas around 37% were active members of a sports, hobby or community-based club or association.

Involvement in ongoing community service was significantly higher among males aged 35 and above (around 26%–28%) compared to those aged 18–34 (19%–20%). In contrast, younger men aged 18–24 were significantly more likely to be active members of sporting, hobby or community-based clubs or associations (43%) compared to those aged 25 and above (35%–36%).

Around one-third (35%) of adult males aged 18–55 did not participate in any of the community-based activities assessed here..

Figure 5.1: Estimated prevalence of participation in three types of community-based activities among adult males in 2013/14, by age



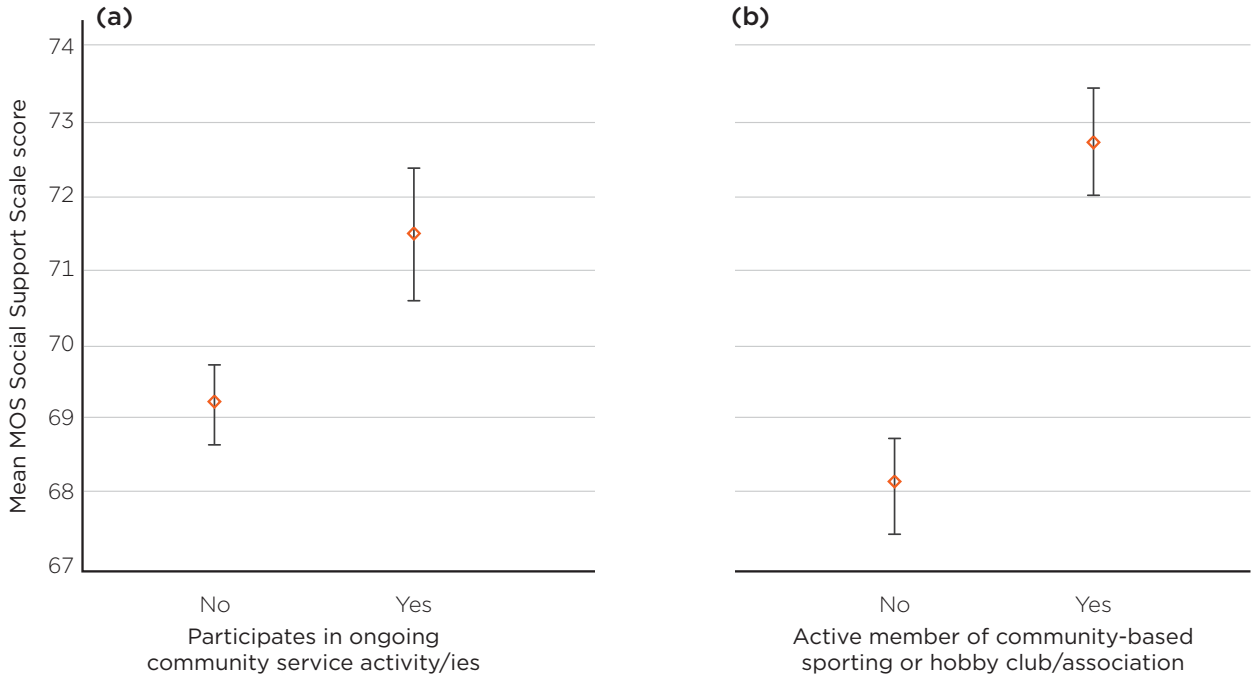
Notes: Ongoing community service activity – *n* = 13,399; Active member of sport/hobby club/assoc. – *n* = 13,394; Ever attends religious ceremonies – *n* = 13,450; None – *n* = 13,428. 95% Confidence Intervals

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

Social support by community engagement

As outlined in Chapter 1 and this report's methodology (Appendix A), subjective perceptions of levels of social support among TTM participants were measured using the MOS Social Support Scale (Sherbourne & Stewart, 1991). Figures 5.2a and 5.2b show that, on average, adult males who participated in certain community-based activities had significantly higher levels of self-perceived social support compared to those who did not. Men who participated in ongoing community service activities had an average self-perceived social support score of 71, compared to 69 among those not engaged in community service activities (Figure 5.2a). Likewise, Australian men who held active memberships with community-based sports or hobby clubs or associations had significantly greater levels of self-perceived social support compared to those without such memberships (mean = 73 vs 68, respectively) (Figure 5.2b).

Figure 5.2: Average MOS Social Support Scale score by level and type of community engagement among adult males aged 18–55 in 2013/14



Notes: a) *n* = 13,220; b) *n* = 13,216. 95% Confidence Intervals
Source: TTM data, Wave 1, adult cohort, weighted

Characteristics of adult males who participated in community-based activities in 2013/14

The TTM surveys collect information on a variety of socio-demographic, health and psychosocial measures. Two multivariable analyses examining associations between some of these factors and the following two outcomes were undertaken:

1. ongoing community service activity
2. active membership of a community-based sports or hobby club or association.

These analyses enable examination of whether particular groups or characteristics were associated with increased or decreased likelihoods of participating in community activities, and identification of who may benefit from additional or different avenues for participation. Findings are presented in Table 5.2.

Ongoing community service activity

Older men were more likely to be involved in ongoing community service activities compared to younger men. The odds of participating in community service also increased with greater levels of education; university-educated participants were 90% more likely to engage in community service compared to those with an education level of Year 12 or lower.

Other factors significantly associated with increased odds of participating in community service activities included living in inner or outer regional areas of Australia (compared to major cities; aOR = 1.38 and 1.42, respectively), having high personal wellbeing (aOR = 1.02), and living in areas classified as being of moderate socio-economic disadvantage (vs high disadvantage; aOR = 1.17). Men living with their partner and children were 30% more likely to participate in an ongoing community service activity compared to those living alone.

Men who spoke a language other than English at home had around a 29% lower likelihood of being involved in an ongoing community service activity. Greater conformity to masculine norms was also associated with a significantly reduced likelihood of engaging in community service (aOR = 0.99).

Employment status, having Aboriginal and Torres Strait Islander status, and experiencing depression were not associated with involvement in any ongoing community service activity when adjusting for other socio-demographic and psychosocial characteristics.

Active membership of community sports or hobby club/association

Table 5.1 also presents findings from the multivariable analysis investigating factors associated with community sports or hobby club participation. As opposed to ongoing community service activity, older age was consistently associated with a significantly reduced likelihood of having an active membership of a community-based sports or hobby club or association among Australian men. Compared to those aged 18–24, adult males aged 25 and above had around a 25% reduced likelihood of being an active member of a community sports or hobby club/association.

Unemployed men and those out of the labour force were 20%–30% less likely to have an active membership of a community-based sports or hobby club/association, while those with moderate to high depression were around 15% less likely to be members of sports or hobby clubs/associations. Adult males who spoke a language other than English at home were around 51% less likely to be an active member of a community sports or hobby club/association than those who only spoke English at home.

In contrast, higher levels of education, less socio-economic disadvantage, greater personal wellbeing, and living in inner or outer regional areas (vs major cities) were associated with an increased likelihood of being an active member of a community sports or hobby club/association. For example, adult males living in areas of middle or low disadvantage both had around a 22% greater likelihood of having an active membership with a community-based sports or hobby club/association compared to those living in areas classified as being of high disadvantage.

Conformity to masculine norms, identifying as Aboriginal and Torres Strait Islander and household composition were not significantly associated with membership of community-based sports or hobby clubs/associations.

Table 5.1: Multivariable analyses: Socio-demographic and psychosocial characteristics associated with 1) Involvement in ongoing community service activity, and 2) Active membership of community-based sport or hobby club/association among adult males aged 18–55 in 2013/14

	1) Ongoing community service activity[a] *n* = 11,151		2) Active membership of community-based sports or hobby club/association *n* = 11,148	
Variable	aOR	SE	aOR	SE
Age group (ref. = 18–24)				
25–34	0.80*	0.08	0.75***	0.06
35–44	1.28*	0.13	0.76**	0.07
45–57	1.43**	0.15	0.78**	0.07
Employment status (ref. = employed)				
Unemployed, looking for work	1.02	0.10	0.83*	0.07
Out of labour force	1.02	0.11	0.71**	0.07
Household composition (ref. = single, lives alone)				
Single, living with family and/or friends	1.19	0.15	1.28*	0.14
Couple, no children	0.84	0.11	0.95	0.109
Single parent	1.03	0.14	1.05	0.12
Couple plus children	1.30*	0.14	1.05	0.10
Education level (ref. = ≤Year 12)				
Certificate/diploma	1.19**	0.07	1.17**	0.06
University degree	1.90***	0.13	1.44***	0.08

Table continued over page →

Variable	1) Ongoing community service activity[a] *n* = 11,151		2) Active membership of community-based sports or hobby club/association *n* = 11,148	
	aOR	SE	aOR	SE
SEIFA level of disadvantage (ref. = high)				
Middle	1.17**	0.07	1.22***	0.06
Low	1.05	0.07	1.23**	0.07
ASGS residential region (ref. = major cities)				
Inner regional	1.38***	0.08	1.29***	0.07
Outer regional	1.42***	0.08	1.24***	0.07
PHQ classification (depression; ref. = none)				
Mild	1.06	0.06	1.10	0.06
Moderate–Moderately severe	1.13	0.10	0.85*	0.06
PWI score (continuous)	1.02***	0.00	1.02***	0.00
Language OTE spoken at home (yes; W1)	0.71***	0.07	0.49***	0.04
Aboriginal and Torres Strait Islander status (yes; W1)	0.93	0.16	0.87	0.13
CMNI score (continuous)	0.99**	0.00	1.01	0.00
_cons	0.05***	0.01	0.13***	0.03d

Notes: Observations excluded from analyses included 55 participants living in an 'other' type of household composition and 742 with missing data for this variable, respectively. [a] Includes volunteering at a school, coaching a sports team, working with a church or neighbourhood association. aOR = adjusted Odds Ratio; ASGS = Australian Statistical Geography Standard; CMNI = Conformity to Masculine Norms Inventory; OTE = Other than English; PHQ = Patient Health Questionnaire; PWI = Personal Wellbeing Index; SE = (robust) Standard Error; SEIFA = Socio-Economic Indexes for Areas; W1 = Wave 1 status; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

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

Mediation analysis of community participation on personal wellbeing through self-perceived social support

Determining how different types of community participation affect health outcomes, including the magnitude and direction of specific pathways and other contributing factors, is important for understanding which types of activities are beneficial for improving the health and wellbeing of males in Australia. A mediation analysis aims to examine a hypothesised causal relationship or pathway between an observed independent variable/predictor/exposure (hereafter: 'independent variable') and a dependent variable/outcome via the inclusion of a third variable, known as a mediator (MacKinnon, Fairchild, & Fritz, 2007). The following mediation analyses first used unadjusted[16] models to investigate whether the association between involvement in two types of community-based activities – ongoing community service, such as volunteering, and active membership with sports or hobby clubs or associations – and personal wellbeing among Australians were either partially or fully mediated[17] by self-perceived social support.

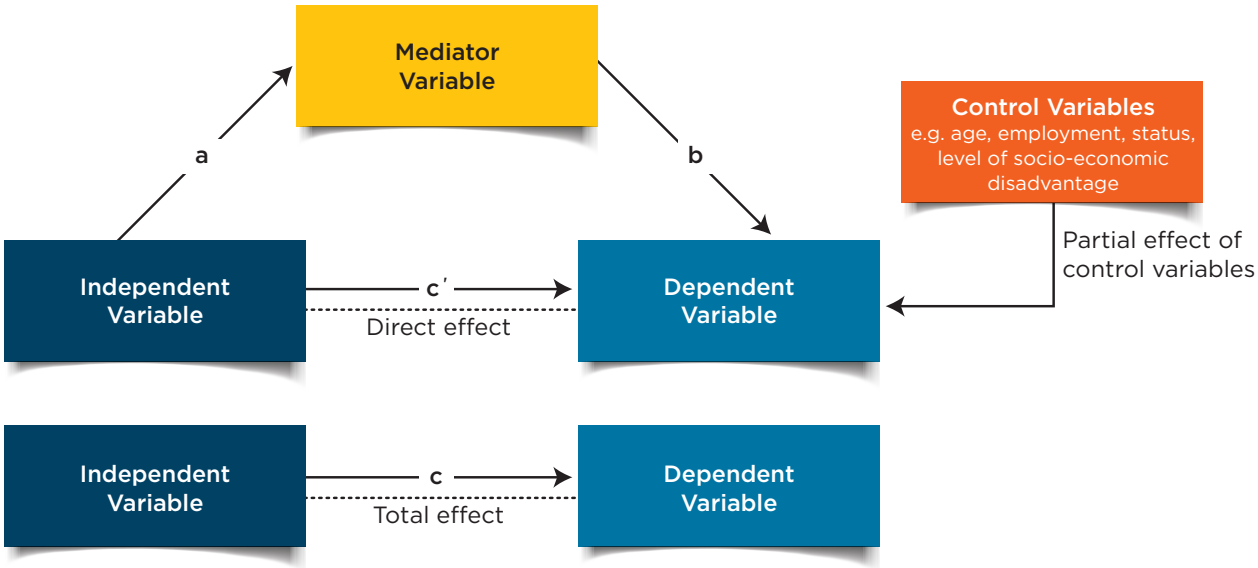
Figure 5.3 details the nature of each of the three key variables (i.e. independent, mediator and dependent), in addition to the pathways to be examined between the variables (a, b, c and c'). Specifically, analyses aimed to determine the effect (direction – positive or negative – and amount) the independent variable (community-based activity involvement) had on the dependent variable (personal wellbeing), and how much of this relationship was due to the effect of the mediator (social support).

The subsequent multivariable analyses further investigated these relationships in consideration of various socio-demographic and psychosocial characteristics.

16 Unadjusted analyses test the relationship between an independent/predictor/exposure variable and dependent/outcome variable without controlling for other factors (e.g. socio-demographic characteristics).

17 Partial mediation means that the mediating variable (social support) accounts for some, but not all, of the relationship between community involvement and personal wellbeing. Full mediation means that social support overrides the relationship between the independent and dependent variables.

Figure 5.3: Hypothetical mediation model: Independent Variable = Community participation activity; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing



Notes: Self-perceived social support was assessed using the MOS Social Support Scale; Personal wellbeing was measured using the Personal Wellbeing Index (refer: Methods section). The Total Effect (c) of different types of community participation [Independent Variables (exposures/predictors)] on personal wellbeing [Dependent Variable (outcome)] is determined by any direct effects between these two variables (c'), while also considering any relationships between the Independent Variable and Mediator (social support), and social support and the Dependent Variable: ***c = c' + (a*b)***

Unadjusted mediation analysis: Community service participation (e.g. volunteering)

On an unadjusted level (i.e. not taking other factors into account, such as socio-demographic characteristics),[18] men's participation in ongoing community service activity was positively associated with increased personal wellbeing. This relationship was partly mediated by social support.

As presented in Table 5.2, the overall – total – effect of participation (path c) was an average increase of 5.2 points on the PWI scale for adult males who engaged in ongoing community service activity compared to those who did not.

There were two components to this overall effect. Firstly, there was a significant direct effect (path c'; see Figure 5.4) of participation in ongoing community service on personal wellbeing, which comprised the majority – 86% – of the overall association. Secondly, 14% of the association between community service activity and personal wellbeing was mediated through social support. Stated another way, there is an indirect effect in which participation in ongoing community service increased men's perceived level of social support; this, in turn, had a positive impact on wellbeing and accounted for the remaining 14% of the overall/total effect.

Table 5.2: Bivariate mediation analysis: Participation in community service activities

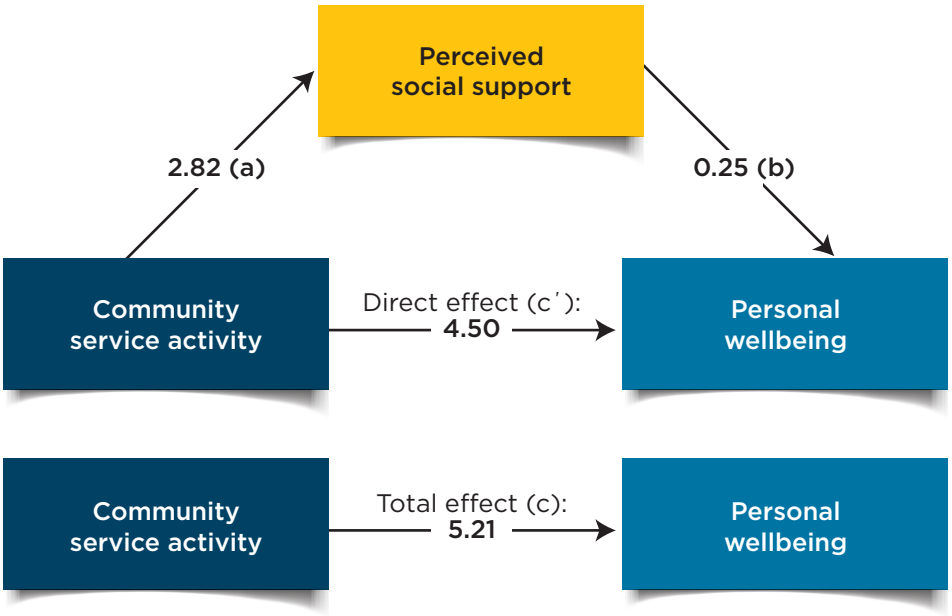
Path	Coef.	SE	95% CI
a (community service activity → social support)	2.82***	0.54	[1.75, 3.88]
b (social support → personal wellbeing)	0.25***	0.01	[0.24, 0.26]
c' (Direct effect: community service activity → personal wellbeing)	4.50***	0.32	[3.87, 5.13]
c (Total = c' + [a*b])	5.21***	0.35	[4.53, 5.91]

Notes: n = 12,712; ***p < 0.001. CI = Confidence Intervals

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

18 A depiction of an unadjusted mediation model comprising three variables – independent/predictor/exposure, dependent/outcome and mediator – is included in the Methodology in Appendix A.

Figure 5.4: Unadjusted mediation model: Independent Variable = Community service activity; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing



Unadjusted mediation analysis: Active membership of sports or hobby-based clubs or associations

Table 5.3 shows that active membership of sports or hobby clubs or associations was also positively associated with personal wellbeing, and this relationship was partly mediated by social support. The overall — total — effect of participation was an average increase of 5.7 points on the PWI scale for Australian men who were active members of sports or hobby-based clubs or associations compared to those who were not (Figure 5.5; path c). As above, there were two components to the overall effect. Firstly, there was a significant direct effect between sports or hobby club/association membership and personal wellbeing, which comprised 82% of the overall association. Secondly, there was an indirect effect in which sports or hobby club/association membership increased men's perceived level of social support which, in turn, positively affected personal wellbeing and accounted for the remaining 18% of the overall/total effect.

In consideration of these findings, and those above pertaining to ongoing involvement in community service activities, self-perceived social support appears to be an important mechanism through which community engagement improves wellbeing. Involvement in community-based activities such as volunteering and sports/hobby club membership increased men's social connections, which improved their sense of social support, and this had a flow-on positive impact on their overall wellbeing.

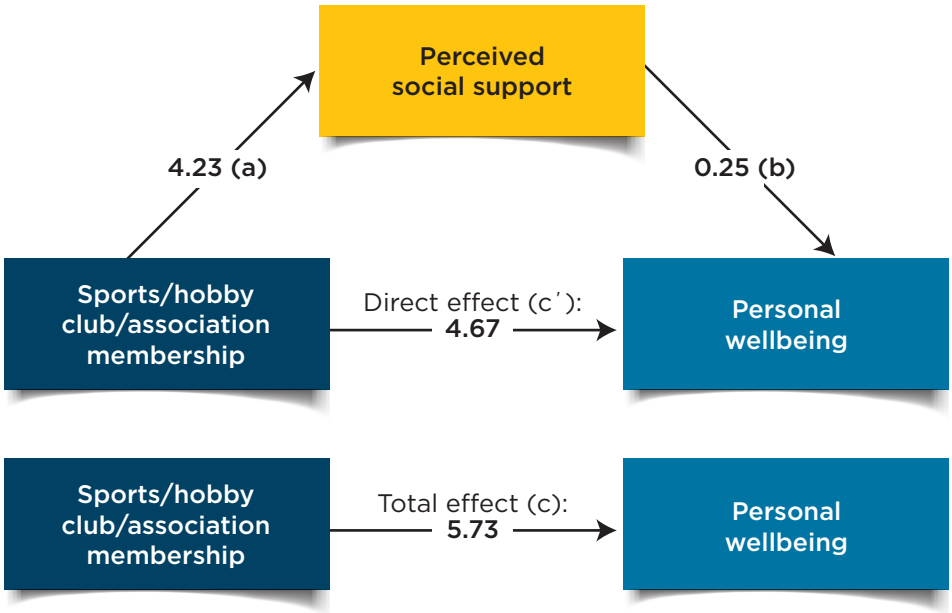
Table 5.3: Unadjusted mediation analysis: Active membership of sports or hobby-based clubs or associations

Path	Coef.	SE	95% CI
a (sports/hobby club/assoc. membership → social support)	4.23***	0.48	[3.30, 5.18]
b (social support → personal wellbeing)	0.25***	0.01	[0.24, 0.26]
c' (**Direct effect**: sports/hobby club/assoc. membership → personal wellbeing)	4.67***	0.29	[4.11, 5.24]
c (Total = c' + [a*b])	5.73***	0.31	[5.13, 6.34]

Notes: n = 12,710; ***p < 0.001. CI = Confidence Intervals

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

Figure 5.5: Unadjusted mediation model: Independent Variable = Sports/hobby club/association membership; Mediator Variable = Self-perceived social support; Dependent Variable = Personal wellbeing



Multivariable mediation analyses

Table 5.4 summarises two multivariable analyses investigating whether self-perceived social support mediates the relationship between community participation and personal wellbeing. As above, community participation was defined in the two respective models as: 1) ongoing involvement in community service activities such as volunteering; and 2) active membership of a sports, hobby or community-based club or association. Figures 5.6 and 5.7 depict the pathways between the independent, dependent and mediator variables, in addition to the socio-demographic and psychosocial characteristics taken into consideration in both multivariable models.

Overall, the findings of both models indicated that, after controlling for various socio-demographic and psychosocial characteristics, community participation is positively associated with self-perceived social support ('a' path), and self-perceived social support is positively related to personal wellbeing ('b' path). The total effect ('c' path) of both independent variables on personal wellbeing was also positive and significant ($p < 0.001$) in each instance ($\beta = 4.03$ and 4.01 in Models 1 and 2, respectively), meaning that involvement in ongoing community service activities and active membership with a sports/hobby club have indirect and positive associations with personal wellbeing through higher levels of self-perceived social support.

When examining the partial effects of the covariates, in both Models 1 and 2, all socio-demographic and psychosocial characteristics were significantly associated with personal wellbeing, except Aboriginal and Torres Strait Islander status. In both models, being employed, being married or in a de facto relationship, having a higher level of education, having less disadvantage, and speaking a language other than English at home had positive partial effects on personal wellbeing; employment status had the largest positive effect size in both models. In contrast, older age, living in a metropolitan area and having no close friends or relatives were negatively correlated with personal wellbeing; being alone had the largest negative effect size in both models.

Table 5.4: Multivariable mediation analyses: Participation in community service activities (Model 1) and sports or hobby-based clubs or associations (Model 2) on personal wellbeing[b] through self-perceived social support[c]

Variable	Model 1: Ongoing community service activities[a] *n* = 11,366[a]		Model 2: Active sports/hobby club/ association membership *n* = 11,363[b]	
	Coef.	SE	Coef.	SE
a path; IV to M; community participation activity → social support	1.89***	0.52	2.14***	0.46
b path; M to DV; social support → personal wellbeing	0.21***	0.01	0.21***	0.01
c' path; Direct effect; IV to DV; community participation activity → personal wellbeing	3.63***	0.32	4.47***	0.30
c path; Total effect; c' + (a*b)	4.03***	0.34	4.01***	0.29
Indirect effect (ab path)	0.40***	0.11	0.45***	0.10
Partial effect of CVs on wellbeing:				
Age	-0.15***	0.01	-0.13***	0.01
Employed (vs unemployed/out of labour force)	8.51***	0.43	8.17***	0.43
Married/de facto (vs other)	6.09***	0.34	6.24***	0.34
Level of education (University degree vs Year 12 or less/certificate/diploma)	1.05***	0.20	1.09***	0.20
Aboriginal and Torres Strait Islander status	-1.09	0.99	-0.99	0.99
Low level of disadvantage (vs middle–high)	2.79***	0.33	2.69***	0.33
ASGS classification (major city vs inner/outer regional)	-1.11***	0.29	-1.11***	0.29
Language other than English spoken at home	2.60***	0.54	3.01***	0.54
Alone (no close friends/relatives vs >1)	-5.31***	0.86	-5.16***	0.86
CMNI score	-0.11***	0.03	-0.12	0.03
Model summary (R^2)		0.27		0.27

Notes: ASGS = Australian Statistical Geography Standard; CMNI = Conformity to Masculine Norms Inventory; CV = Covariate; DV = Dependent variable; IV = Independent variable; M = Mediator; SE = Standard error; SEIFA = Socio-Economic Indexes for Areas *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. [a] Includes volunteering at a school, coaching a sports team, working with a church or neighbourhood association; [b] Assessed using the Personal Wellbeing Index; [c] Assessed using the MOS Social Support Scale

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

Figure 5.6: Multivariable mediation analyses: Participation in community service activities on personal wellbeing through self-perceived social support

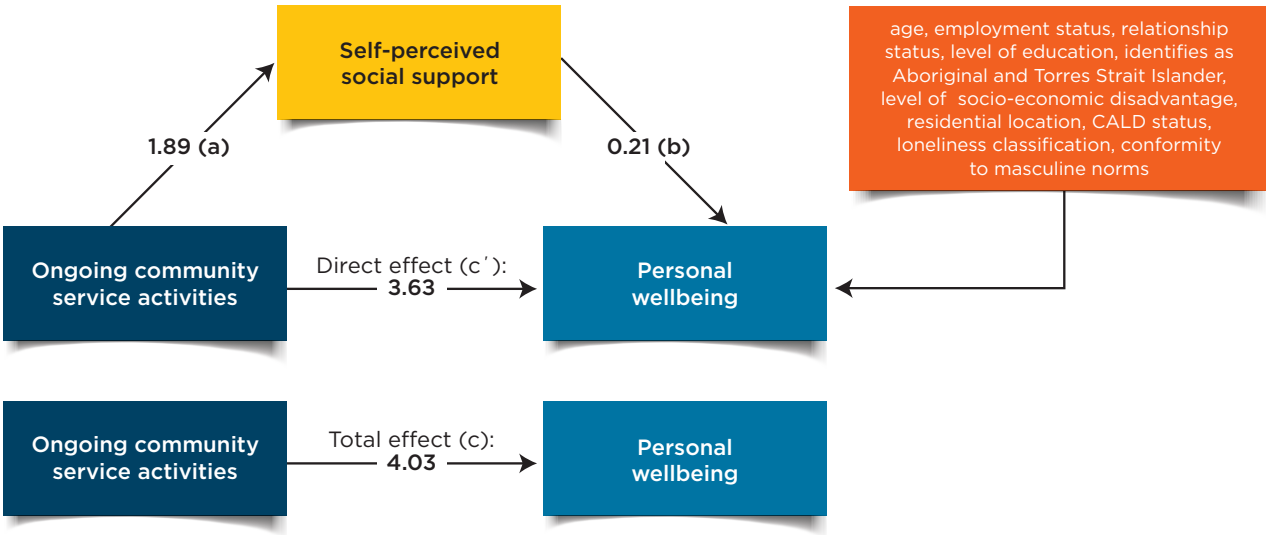
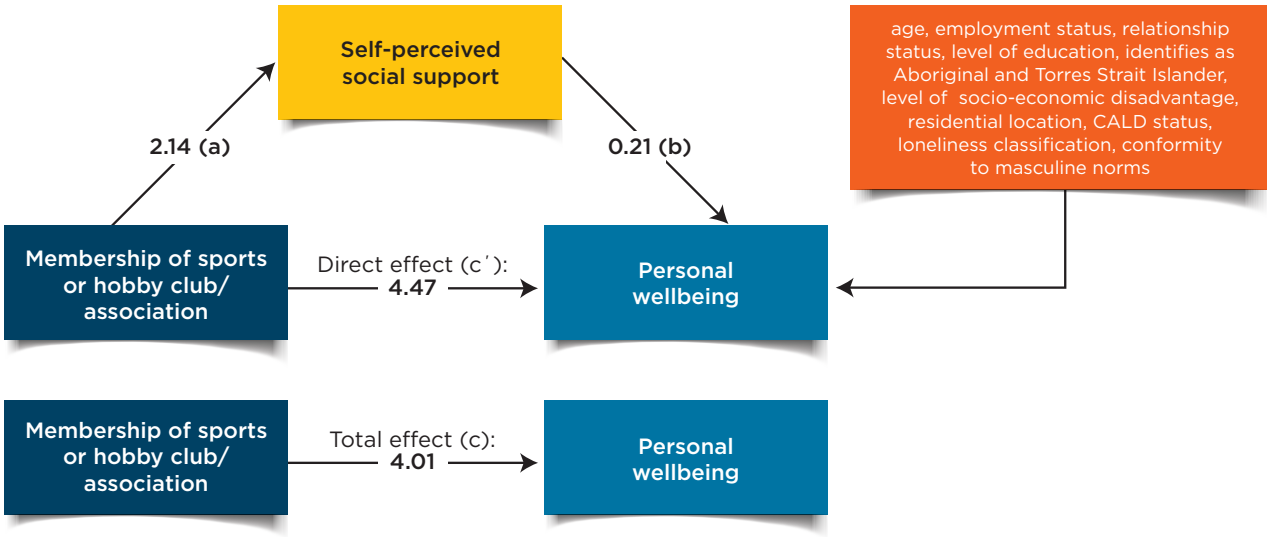


Figure 5.7: Multivariable mediation analyses: Active sports or hobby club or association membership on personal wellbeing through self-perceived social support



Conclusion

TTM findings presented in this chapter provide support for the experience of enhanced social connectedness among adult Australian males due to community integration or participation, primarily in the form of ongoing community service activities such as volunteering, and active membership of sports or hobby clubs or associations. In 2013/14, men who engaged in such community-based activities reported significantly greater average levels of self-perceived social support compared to those who did not take part. These findings align with those of other research (e.g. Andersen et al., 2019; Brown et al., 2012; Dias, Geard, Campbell, Warr, & McVernon, 2018).

This chapter investigated the cross-sectional relationship between involvement in ongoing community service activities and active membership of sports or hobby clubs/associations and personal wellbeing among Australian men, as mediated by self-perceived social support and controlling for various socio-demographic and psychosocial characteristics. Findings indicated that involvement in these community-based activities directly improved personal wellbeing, while also enhancing self-perceived social support, which further indirectly and positively affected wellbeing.

This builds on previous Australian and international findings, including those of Brown and colleagues (2012), who found that the relationship between volunteering and wellbeing was mediated by social connectedness among a random sample of around 3,000 Victorian adults surveyed in 2010. Similarly, Haugen, Säfvenbom, and Ommundsen (2013) found that the link between sports participation and loneliness was mediated by perceived social competence among around 2,000 secondary students in Norway.

Importantly, findings detailed in this chapter point to specific subgroups of Australian men with lower rates of engagement in certain social activities in 2013/14, such as men from non-English speaking or CALD backgrounds. CALD men were less likely to both participate in ongoing community service activities and be active members of sports or hobby clubs/associations. It is possible that TTM findings underestimate the extent of community service involvement among CALD men; for example, Australian research has indicated that people from CALD communities often participate in informal or unofficial volunteering activities – such as child care, helping with domestic tasks, and care of older people or those with long-term illness and disability – which might not be captured by surveys asking about specific types of volunteering (AIHW, 2017; Cultural & Indigenous Research Centre Australia, 2016). Nevertheless, research has shown that barriers exist to volunteering for CALD communities in Australia, including English language requirements, lack of time (especially to partake in volunteering activities outside local/CALD communities), and potential exploitation and racism (Cultural & Indigenous Research Centre Australia, 2016).

Regarding age differences, active memberships with sports and hobby clubs/associations were significantly higher among Australian men aged 18–24 compared to older cohorts. This reflects study findings relating to involvement in organised Victorian club-based sports at the same time of Wave 2 TTM data collection (and in the years following), which consistently indicate that participation rates among both males and females in Victoria fall with age (Eime, Harvey, & Charity, 2016; Victorian Health Promotion Foundation, 2021). Research points to numerous barriers to sports participation for Australian adults, with the main one being a lack of time or too many other commitments (37%) (AIHW, 2018). Having a job was also a key barrier to sports participation for 13% of 18–64 year olds. For around one-quarter of older adults aged 45–54 and 55–64 (25% and 28%, respectively), poor health or injury prevented participation in sporting activities.

6 Policy and practice implications

The findings in this report suggest that adult males in Australia are typically well-socially connected across indicators of attachment relationships, community integration, and self-perceived social support. Previous studies have depicted men as being fundamentally different from women with regard to the types of social support and interactions they seek and maintain; that is, males are focused more on connections that are practical, tangible or transactional, whereas females place more emphasis on emotional support (e.g. Fiori & Denckla, 2012; Grav, Hellzen, Romild, & Stordal, 2012). However, international research has also demonstrated that males are a heterogenous group; many do desire more emotional support but barriers to obtaining this might include embarrassment about doing so (e.g. due to alignment with traditional masculine norms) or limited – or no – available sources of support (e.g. Bryant-Bedell & Waite, 2010; McKenzie et al., 2018; Sixsmith & Boneham, 2003).

Enhancing emotional support and a sense of community among men can be dependent on a responsiveness to identity change and reduced adherence to masculine norms (Reddin & Sonn, 2003). TTM data presented in this report point to the heterogeneity of Australian men and indicate that most have access to multiple types of emotional social support, ranging from someone who could be counted on to listen to them when they needed to talk to someone with whom they could share their most private worries and fears.

Perhaps unsurprisingly, Australian men who were more socially isolated (e.g. unemployed, lived alone) typically experienced significantly lower social support and satisfaction with relationships. Further analyses identified certain subgroups of men who were more likely to have fewer close relationships with family and friends, experience lower levels of self-perceived social support, and be less engaged with the community. Some of these are discussed below.

Given the established benefits of being socially connected (Abbott et al., 2018; Hawkley & Capitanio, 2015; Mushtaq et al., 2014; Saeri et al., 2018), such as greater levels of personal wellbeing as a result of involvement in certain community-based activities (as explored in Chapter 5), identifying ways of improving community participation over the life course to prevent declines in social support and adverse health, wellbeing and emotional outcomes needs to be part of any comprehensive approach to men's health.

Implications of this research in relation to key subgroups – and Australian men overall – are outlined below.

Lower social connectedness among older men

A relatively consistent finding across chapters was that, among Australian men aged 18–60 in 2015/16, the older males in this group appeared particularly vulnerable to being socially disconnected. For example, after controlling for other socio-demographic and psychosocial characteristics, older age was associated with significantly lower levels of self-perceived social support and satisfaction with relationships, and a decreased likelihood of being an active member of a community-based sports or hobby club or association.

Providing opportunities for physical activity and other types of social engagement in accessible or incidental contexts is possibly an easily implementable policy solution to address low social connectedness among this group of men who are still of working age. For example, enhancing sports participation in workplace environments could lead to improved health and better social connectedness among men not

undertaking such activities outside of employment contexts (Brinkley, McDermott, & Munir, 2017; Gard et al., 2017; Gayman, Fraser-Thomas, Dionigi, Horton, & Baker, 2017). This approach could also be beneficial for enhancing social engagement among other subgroups of employed Australian males shown to be less likely to participate in certain community-based activities, including those from CALD backgrounds.

Research indicates that interventions aiming to improve social connectedness among older adults do not have to be intensive, in-person endeavours. A recent randomised controlled trial showed that a lay-coach-facilitated, video-conferenced, behavioural activation intervention delivered once weekly over five weeks resulted in significantly increased social interaction and satisfaction with social support, and reduced loneliness and depression, among older homebound males and females compared to the control group (Choi, Pepin, Marti, Stevens, & Bruce, 2020).

Established and emerging initiatives in Australia for enhancing social connectedness

Workplace initiatives, however, will not be appropriate for engaging all males, missing those such as unemployed men and those who have retired. One established initiative that addresses limited social connectedness among Australian males in general involves Men's Sheds,[19] non-profit, community-based organisations with the primary goal of providing friendly and safe environments for men to undertake meaningful projects in the company of other men. The findings of numerous studies have indicated that involvement in Men's Sheds can result in positive outcomes such as increased self-esteem and empowerment and a sense of community belonging (e.g. Moylan, Carey, Blackburn, Hayes, & Robinson, 2015; Taylor, Cole, Kynn, & Lowe, 2018), further to providing opportunities to promote male health and wellbeing (Ballinger, Talbot, & Verrinder, 2009; Kelly, Steiner, Mason, & Teasdale, 2021).

Participation in the Men's Sheds program is currently skewed towards older males (Moylan et al., 2015). Local government could be supported and funded to develop and implement initiatives aimed at enhancing community integration and social connectedness more broadly among adult males. This could include targeting younger men, especially with a focus on maintaining social connectedness as they age.

Recent research has also pointed to the success of the Australian campaign Neighbour Day[20] for enhancing community involvement and social connectedness among the general community (Fong et al., 2021). Findings from surveys with over 400 hosts of neighbourhood events in 2019 found that hosting a Neighbour Day led to a significant increase in neighbourhood identification, which was sustained six months after the event. This increase in social identification reduced loneliness, improved wellbeing and increased social cohesion. Such research highlights the effectiveness of social identity-building interventions at enhancing community engagement and improving social connectedness to benefit public health.

Focusing on social connectedness to address mental ill-health

The bi-directional relationship between the experience of depressive symptoms and self-perceived social support identified in Chapter 3 highlighted the important role of social connectedness in facilitating prevention and treatment/recovery of depression among Australian men. Research has shown that low levels of social support can lead to protracted recovery from mental ill-health and even exacerbate depressive symptoms over time (Hames et al., 2013). Clinical and prevention approaches that focus on promoting or enhancing social connectedness might assist with improving mental wellbeing, and preventing poor health outcomes, among adult men. Accordingly, researchers have advocated strengths-based approaches that prioritise establishing close, supportive social relationships and improving coping strategies to maintain good mental and physical health (Smith, Watkins, & Griffit, 2020).

19 See mensshed.org/about-amsa/what-is-amsa

20 See neighbourday.org

Given evidence from TTM showed that only around half of Australian men with depression or anxiety would be likely or very likely to seek help from mental health professionals about mental ill-health (Terhaag et al., 2020), it is important for health care workers to highlight the importance of accessing appropriate professional support for mental health conditions. It is also important for health care workers interacting with male clients to understand that patterns of social connectedness among men are diverse. Many are interested in building emotional and supportive relationships with others and could benefit from assistance and guidance in achieving this (McKenzie et al., 2018; Sixsmith & Boneham, 2003).

There is a need for initiatives to promote realistic mechanisms Australian males can use to form social connections and emotionally supportive relationships with both women and men. Research suggests there is value in developing and implementing mental health initiatives that encompass diverse portrayals of men and masculinity, including those who do not conform to stereotypical ideals, and that promote positive social relationships between men (McKenzie et al., 2018; Sixsmith & Boneham, 2003).

Addressing low social connectedness among men with functional difficulty

Chapter 4 iindicated a need for tailored programs to address discrepancies in social connectedness among Australian males experiencing functional difficulty. Research has shown that community participation among people with intellectual or cognitive difficulty or disability can be facilitated by improving access to assistive technology and transport, and purposeful design of accommodation (e.g. smaller facilities, variety in residential environments, resident involvement in policy making) (Verdonschot et al., 2009b). Digital platforms, such as social media and social network sites, have also shown to be effective mechanisms for enhancing social connectedness and mental health among some people with difficulty and disability (Kim & Zhu, 2020); however, barriers to positive social media experiences for others with difficulty and disability include problems related to literacy and communication skills, cyber-etiquette and accessibility (e.g. a lack of appropriate equipment) (Caton & Chapman, 2016; Dobransky & Hargittai, 2006).

Employment rates are low among men with disability, and findings in this report indicate an association between being employed and greater levels of self-perceived social support and relationship satisfaction. Improving opportunities for people with difficulty and/or disability to enter – and remain in – the workforce could be an additional, important focus to improve social connectedness (Fulloon, 2020). Australia's *2010–2020 National Disability Strategy* (Commonwealth of Australia, 2011) identified increasing access to employment opportunities as key to improving economic security and wellbeing among people with difficulty and disability, in addition to their carers and families. At the time of writing, a new National Disability Strategy was due for finalisation in late 2021, and a National Disability Employment Strategy was in development.

A number of mechanisms have been identified to facilitate opportunities to enter and remain in the workforce for people with functional difficulty or disability. Key examples – which also apply to many non-workplace settings – include using consistent and up-to-date definitions of difficulty and disability, addressing stigma and negative attitudes among employers and coworkers through education, emphasising strengths and capabilities (e.g. better matching roles and tasks to capabilities), and developing and implementing initiatives to attract and retain people with difficulty and/or disability, such as creating a variety of 'non-complex' roles and tasks within organisations that suit people of different capabilities (Vornholt et al., 2018).

Better integration of people with intellectual and developmental difficulty or disability is important (Friedman & Rizzolo, 2018). Initiatives need to be undertaken in inclusive workplace contexts to enable the generation of positive relationships and social connectedness, rather than fostering segregation. There is a need for employers to be proactive and planned in the employment of people with difficulty and/or disability, with clearly defined policies (Ruhindwa et al., 2016). Employers should also comprehensively investigate the physical and social aspects of workplaces to identify barriers to employing people with functional difficulty and/or disability. National awareness campaigns are recommended to encourage employers to recruit people with difficulty and disability.

Future research directions

The analyses presented in this report used data collected in Waves 1 and 2 of TTM (2013/14 and 2015/16, respectively). This was prior to the COVID-19 pandemic. Research has shown that restrictions related to COVID-19 affected the social connectedness of people in Australia throughout 2020 and 2021 (e.g. reduced frequency and quality of interactions with family and friends), with some subgroups such as older people and those living in non-metropolitan areas, affected more than others (Budinski, Baxter, Carroll, & Hand, 2020; Carroll, Hand, Budinski, & Baxter, 2020). Given that Wave 3 of TTM data collection was undertaken throughout the second half of 2020, including during periods of intense 'lockdown' in Australia, future analyses will be able to assess the social connectedness of males during COVID-19 and associations with health, wellbeing and behavioural outcomes.

Data collected at Wave 3 – and any future waves of TTM – will also allow for research which builds on the findings presented in this report, including more comprehensive investigations of trajectories of social connectedness among Australian males, changes in levels of social connectedness among Australian men as they age, and factors that could enhance community integration and self-perceived social support among this group. For example, monitoring the effects of social life events on self-perceived social support and indicators of community integration – and associated health and wellbeing outcomes – over time. Future studies could also explore relationships between levels of social connectedness and factors such as service utilisation (including linkage with Medicare and Pharmaceutical Benefits Schedule data), involvement in risk behaviours such as alcohol and other substance use and gambling, and shifting employment contexts (e.g. uptake of non-office-based work arrangements). In consideration of findings presented in this report indicating that greater conformity to masculine norms was associated with decreased levels of social support (Chapter 1), further research using TTM data could work to improve the understanding of the ways in which the interplay between masculinity and men's social connectedness can impact their health and wellbeing and interactions with health and social support services (McKenzie et al., 2018).

Lastly, there remains a need to address existing gaps in Australian data sources that preclude the investigation of issues specific to certain population subgroups with difficulty and/or disability, including those who identify as Aboriginal and Torres Strait Islander, people living in rural and remote areas of the country, homeless individuals, and those who identify as LGBTQI+ (AIHW, 2020). Further analyses using TTM data, and additional waves of data collection for the study, could facilitate the investigation of these – and other – areas.

Appendix A: Methodology

Study design and sample

TTM is a national prospective cohort study of over 16,000 males commissioned by the Commonwealth Department of Health. 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.

The Human Research Ethics Committee at the University of Melbourne approved TTM pilot studies and the first wave of data collection. At recruitment, the sample comprised three distinct cohorts: 'boys' (aged 10–14 years), 'young men' (15–17 years), and 'adults' (18–57 years). Each cohort was administered distinct tailored surveys at Waves 1 and 2; that is, participants in the boys and young men cohorts were sometimes asked different questions to adult participants.

The sample was recruited using a stratified, multi-stage, cluster random sampling approach. Further details on the methodology used for TTM are published elsewhere (e.g. Currier et al., 2016; Daraganova & Quinn B. [Eds.], 2020; Pirkis et al., 2017), including in the study's Data User Guide (Bandara et al., 2019).

Data collection for the research conducted in this report was undertaken by the University of Melbourne across two waves in 2013/14 and 2015/16 (Waves 1 and 2, respectively). In consideration of the survey content for each of the three cohorts at the first two waves, this report focuses solely on adult participants. At Wave 1 there were 13,896 adult men; at Wave 2 there were 10,729 adult participants. Around three-quarters (74%; n = 10,339) of adult participants at Wave 1 were also surveyed at Wave 2.

Measures of social connectedness

The measures detailed below were asked at both Waves 1 and 2 unless otherwise indicated. Additional information on certain measures is included in the empirical chapters if they are a key focus of analyses.

Self-perceived social support

Self-perceived social support is one of the main variables of interest in analyses presented throughout this report. It was assessed in Waves 1 and 2 using the Emotional/Informational Support subscale from the Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991). The subscale comprises eight items (Box A1). Respondents indicated how often each type of emotional or informational support was available to them if needed, using the options: (1) None of the time; (2) A little of the time; (3) Some of the time; (4) Most of the time and (5) All of the time. The minimum possible score for a respondent over all eight items was 8, and the maximum possible was 40. As is standard practice, MOS Emotional/Informational Support scores were only calculated if valid responses were provided for all eight items.

To create an overall self-perceived social support score ranging 0–100, where higher scores indicate greater levels of support, the following formula was used:

$$\frac{100 * (\textit{observed score} - \text{minimum } \textit{possible score})}{\textit{maximum possible score} - \textit{minimum possible score}}$$

Box A1: Emotional/Informational Support subscale items from the MOS Social Support Scale

Self-perceived social support scale items

Adult TTM participants were asked the following question in Waves 1 and 2:

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it?

- Someone to count on to listen to you when you need to talk
- Someone to give you good advice about a crisis
- Someone to give you information to help you understand a situation
- Someone to confide in/talk to about yourself or your problems
- Someone whose advice you really want
- Someone to share your most private worries/fears with
- Someone to turn to for suggestions about how to deal with a personal problem
- Someone who understands your problems

Response options for each item were: (1) None of the time; (2) A little of the time; (3) Some of the time; (4) Most of the time and (5) All of the time.

Attachment relationships

Marital status

Adult TTM participants were asked to classify their marital status as: (1) Never married; (2) Widowed; (3) Divorced; (4) Separated but not divorced or (5) Married/de facto.

Number of children

TTM participants were asked to report how many children (including adult children) they had. Responses were then divided into four categories: (1) No children; (2) One child; (3) Two to four children and (4) Five or more children.

Participants with children were asked how many were aged under 18. A binary variable was generated indicating that they had (1) No children under 18 or (2) One or more child under 18.

Respondents with children under 18 were asked if any of those children sometimes or always lived elsewhere. Response options were: (1) No – always live with me; (2) Yes – sometimes live elsewhere and (3) Yes – always live elsewhere.

Household composition

Household composition was determined using data collected on a) Marital status, b) Number of children, and c) Number of people respondents lived with. A variable was generated comprising the following categories: (1) Single, lives alone; (2) Couple, no children; (3) Couple with children; (4) Single parent; (5) Single, living with others (e.g. other family, friends, share house) and (6) Other (e.g. couple lives apart).

Satisfaction with personal relationships

As part of the Personal Wellbeing Index (PWI; see Subjective wellbeing under the health-related measures) (International Wellbeing Group, 2013), adult participants were asked: 'On a scale of 0 to 10 where 0 means you feel completely dissatisfied, 10 means you feel completely satisfied and 5 means you feel neutral, neither satisfied or dissatisfied, how satisfied are you with your personal relationships?'

Number of close friends or family ('Aloneness')

Participants were asked to estimate how many close friends and relatives they had, defined as 'people you feel at ease with and can talk to about what is on your mind'. For analytic purposes, participants were categorised as having (1) No close friends or relatives (i.e. experiencing 'aloneness') or (2) At least one close family member or friend. In accordance with previous literature (Andersson, Denhov, Bülow, & Topor, 2015; Heinrich & Gullone, 2006), the concept of aloneness used here indicates the absence of social contacts. Importantly, it is not necessarily a problematic, unpleasant or undesired experience; in contrast, loneliness is a lack of desired social relationships and an unwanted situation.

Community integration

Employment status

Current employment status was indicated using the following options: (1) Employed/working for profit or pay; (2) Unemployed and looking for work; or (3) Neither working nor looking for work. Employed participants indicated if their status was: (1) Permanent; (2) Casual work; (3) Self-employment or (4) Fixed-term contract work.

Community engagement

TTM participants were asked, at Wave 1 only, about their involvement in different types of social, community-based activities:

- Ongoing community service activity; for example, volunteering at a school, coaching a sports team or working with a church or neighbourhood (Yes/No).
- Active membership of a sporting, hobby or community-based club or association (Yes/No).
- Frequency of attendance at religious services; for example, going to church, temple, mosque, or other religious institutions or activities ('Never', 'About once or twice a year', 'About once every few months', 'About once or twice a month', 'About once a week or more often').
- Frequency of attendance at events that bring people together such as fetes, festivals or other community events ('Never', 'Rarely', 'Occasionally', 'Sometimes', 'Often', 'Very often').

Health-related measures

Subjective wellbeing

General life satisfaction was measured using the Personal Wellbeing Index (PWI; International Wellbeing Group, 2013), a tool intended to capture satisfaction across various life domains (e.g. health, relationships, safety, future security, life achievements). PWI scores provide an indicator of subjective wellbeing (higher scores indicate greater overall life satisfaction). The score distribution for the TTM sample (range: 1–99) was divided into quartiles indicating classifications of low (bottom 25%), middle 50%, and high (top 25%) satisfaction. Analyses for this report used a binary variable indicating low vs middle-high satisfaction.

Depression

Experience of depression was assessed using the Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001), which measures frequency of experiencing the following depressive symptoms over the past two weeks:

- Little interest/pleasure in doing things
- Feeling depressed/hopeless
- Trouble with sleep
- Tired/little energy
- Poor appetite/overeating
- Feeling of being failure
- Trouble with concentration
- Moving slower or being more restless
- Thinks better off dead/of hurting self.

Responses include: (0) Not at all; (1) Several days; (2) More than half of days and (3) Nearly every day. Individual item scores were added to create a total PHQ score that ranged 0–27; higher scores indicate greater depression severity.

Disability

Functional difficulty among Australian men was assessed in TTM using the Washington Group Short Set of questions on functioning (WG-SS). The WG-SS is a widely used instrument for assessing difficulty and disability and has been validated in numerous countries (Madans et al., 2011). The tool consists of six questions relating to core functional domains (vision, hearing, walking/movement, cognition, self-care, and comprehension and communication), with four response options on a severity scale:

- No difficulty
- Some difficulty
- A lot of difficulty
- Cannot do at all.

TTM participants were classified as having serious disability if they reported having more than some difficulty (i.e. either a lot of difficulty or cannot do at all) across at least one of the core domains. In other research (Currier et al., 2016; Madans et al., 2011) this would correspond with a 'disability' classification.

Socio-demographic and other personal characteristics

Area level of disadvantage

The area level of socio-economic disadvantage of TTM respondents' residential locations was assessed using the Socio-Economic Indexes for Areas (SEIFA),[21] developed by the ABS. Scores were divided into three categories: (1) Lowest quartile (25%); (2) Middle 50% and (3) Highest 25%.

Residential region

Participants' residential locations were classified according to the Australian Statistical Geography Standard (ASGS):[22] (1) Major cities; (2) Inner regional areas; (3) Outer regional areas and (4) Remote/very remote areas.

21 See www.abs.gov.au/websitedbs/censushome.nsf/home/seifa

22 See www.abs.gov.au/websitedbs/d3310114.nsf/home/australian+statistical+geography+standard+(asgs)

Indigenous status

Participants were asked if they identified as Aboriginal, Torres Strait Islander, both, or neither. A binary variable was generated indicating Indigenous status: (1) Aboriginal and Torres Strait Islander or (2) Non-Indigenous.

Language background

TTM participants who reported mainly speaking a language other than English at home were classified as culturally and linguistically diverse (CALD).

Education

TTM participants were asked about the highest qualification completed 'after leaving school'. A variable was derived comprising four categories:

1. Year 12 or less (includes those who have not completed any additional qualification)
2. Certificate/diploma (includes trade certificate, non-trade certificate, associate diploma, undergraduate diploma)
3. University degree (includes bachelor's degree, masters or postgraduate degree, doctorate
4. Other.

Sexual orientation

At Wave 1 of TTM, participants aged 15 and older 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 either (1) Non-heterosexual (i.e. identified as bisexual, homosexual, not sure, or other) or (2) Heterosexual.

Conformity to masculine norms

The extent of conformity to traditional masculine roles was measured using 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, sexual behaviours and attitudes, self-reliance, primacy of work, power over women, attitudes towards homosexuality, and pursuit of status. Each item is answered on a four-point scale: (0) Strongly disagree; (1) Disagree; (2) Agree and (3) Strongly agree. Total scores ranged 0–66, with higher scores indicating greater conformity with masculine norms. Men were categorised into one of three groups depending on their total score: (1) those in the lowest quartile (25%), (2) the middle 50% and (3) the highest 25%.

Statistical methods and terms

This section provides an overview of the statistical methods and terms used throughout this report. The definitions here draw on the Statistical Language Glossary produced by the ABS.[23] More detailed explanations for some techniques, such as the cross-lagged panel and mediation models, are provided in the respective chapters where they have been used.

Measures of central tendency and spread

The most common measures of central tendency are the arithmetic mean, the median and the mode. Measures of spread include the range, quartiles and the interquartile range, variance and standard deviation (SD). Each of these are described in detail below.

23 See Language Glossary, ABS website. Retrieved from www.abs.gov.au/websitedbs/D3310114.nsf/home/statistical+language+-+statistical+language+glossary

Mean, median and mode

The mean, median and mode are three measures that represent the middle or typical value of a dataset of values. The 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. The median is the middle value obtained when the values are arranged in order from smallest to largest. The mode is the most commonly occurring value in the dataset.

Range and quartiles

The range is the difference between the largest and smallest values in a set of data.

Quartiles divide the data (when ordered from smallest to largest) into four equal parts. The lowest or first quartile is the value below which 25% of the data values lie, and the upper or third quartile is the value above which 25% of the data lie. Half of the data points (50%) fall between the first and third quartile.

Variance and standard deviation

The variance and standard deviation (SD) are measures that summarise how close data values are to the mean. The SD is the square root of the variance. If all data values are close to the mean, then the variance and standard deviation will be small. Both measures will be higher if data values are more spread out and dispersed further away from the mean. The smaller the variance and standard deviation, the more representative the mean is of all values.

Skewness

Skewness is the tendency for data values to be clustered around either the high or low end of a dataset, rather than the centre. It is a measure of symmetry. Positive skewness indicates there is a longer right 'tail' to the dataset; that is, fewer higher than lower values. Negative skewness indicates a longer left 'tail'; that is, fewer lower than higher values. A rule of thumb for interpreting the measure of skewness:

- If skewness = 0, the data are perfectly symmetrical around the centre.
- If skewness is between −½ and +½, the distribution is **approximately symmetric**.
- If skewness is between −1 and −½ or between +½ and +1, the distribution is **moderately skewed**.
- If skewness is less than −1 or greater than +1, the distribution is **highly skewed**.

Modelling techniques

Linear regression

Linear regression models are used to estimate the effects of one or more factors (also called independent or predictor variables or exposures) on a continuous dependent (outcome) variable. If an effect is found, then we say there is a relationship or association between the relevant factor and the dependent variable. Estimates (also referred to as regression coefficients, denoted by the symbol β) from linear regression models are interpreted as the impact of a one-unit change in the predictor on the dependent variable, if all other variables are held constant.

For example, to investigate the effect of age on total MOS Social Support Scale score we could fit a linear regression model to the sample data and obtain an estimated age effect of $\beta = -0.31$. This means that there is an association between age and the social support score, and for every additional year in age, an individual's score decreases by an estimated average 0.31 points (assuming values of all other variables are unchanged).

Linear regression could also be used to estimate the effects of employment status, for example, which is a categorical exposure, on the social support score. In this case, one category of the employment variable would be designated as the reference category. If the variable had two categories of 'employed' and

'unemployed', and 'employed' was the reference, then a one-unit change would mean a switch from that to the unemployed category. The results of the linear regression model would include an estimate of the effect on the social support score of being unemployed vs employed.

Multivariable linear regression models are more complex models that 'adjust' (i.e. take into account) for the effects of one or more other variables, termed 'covariates', on the dependent variable. Adding to the above example, investigating the effect of employment on total MOS Social Support Scale score, examples of covariates that could be added to generate a multivariable model include residential location, education level and gender. This allows the effect of the main predictor of interest (in this example, employment) to be separated from any effect that those other factors might have on the outcome (example, social support score). Results from a multivariate model include estimates of the effect that the main predictor and each of the other covariates have on the dependent variable.

Logistic regression and odds ratios (OR)

Logistic regression models are used to estimate the effects of one or more factors on a binary dependent (outcome) variable (a variable with only two distinct values such as 0 and 1). For example, a logistic regression model could be used to estimate the effect of age and highest level of education on a binary indicator (yes/no) of involvement in a community-based activity like volunteering, or the probability that an individual regularly attends religious services (vs not attending religious services).

Estimated coefficients from logistic regression models are referred to as odds ratios (ORs). ORs are a measure of association between an exposure and an outcome; they represent the odds that an outcome (e.g. experience of depressive symptoms) will occur given a particular exposure (e.g. having at least one close family member or friend) compared to the odds of the outcome occurring in the absence of that exposure (no close family members or friends). The OR can 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.

As described above, in relation to linear regression models, multivariable logistic regression models adjust for the effects of one or more other covariates on the dependent variable.

Cross-lagged panel models

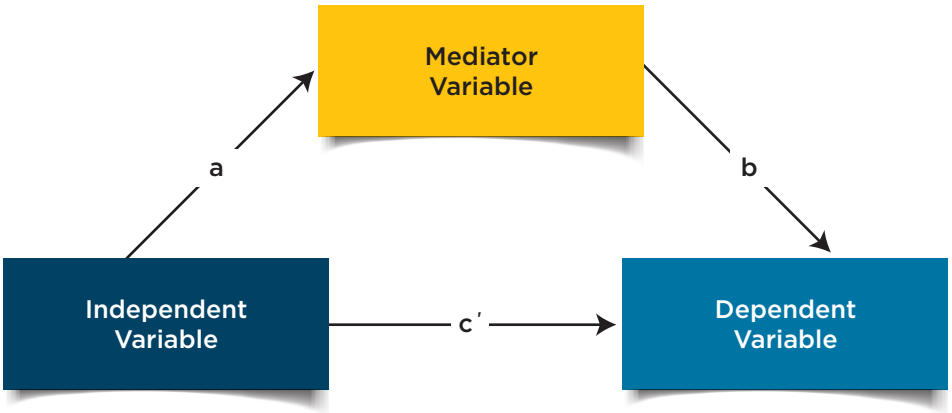
Cross-lagged panel models allow us to identify and describe reciprocal and causal relationships (Zyphur et al., 2020). Using longitudinal data, results from a cross-lagged panel model can tell us how the levels of a variable measured at one point in time are influenced by past levels of that same variable (i.e. an autoregressive relationship). We can also examine whether and how two variables are influenced by past and concurrent levels of each other. A general version of the model is used in this report (Chapter 3) to examine the autoregressive and bi-directional relationships between self-perceived social support and experience of depression between Waves 1 and 2. As with the linear regression models described above, the cross-lagged panel model can be adjusted for the effects of other covariates on the dependent variable.

Mediation models

A simple unadjusted[24] mediation model is depicted in Figure A1. A mediation analysis aims to examine a hypothesised causal relationship or pathway between an observed independent variable/exposure/predictor and a dependent variable/outcome via the inclusion of a third variable, known as a mediator (MacKinnon et al., 2007).

24 That is, not controlling for covariates or confounding variables.

Figure A1.1: Simple unadjusted mediation model



In this report (Chapter 5), mediation models are used to explore the role that social support (mediator) plays in the relationship between community participation (independent variable/exposure) and personal wellbeing (dependent variable/outcome). An adjusted mediation model included additional covariates to control for other factors (such as gender and employment status), as described for the regression models above.

Statistical inference

In this report we draw on different methods and approaches to inference, which allow conclusions to be drawn about the wider population of Australian men by testing hypotheses and deriving estimates.

Use of weights

Sample weights 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 analysis, greater emphasis is given to population groups that are under-represented in the sample, and less to groups that are over-represented. Weighting therefore ensures that the study sample more accurately represents the population of interest, enabling the generation of prevalence estimates and the inference of results to Australian males in general.

Weights were used in analyses presented in the five empirical chapters of this report, unless stated otherwise. Cross-sectional weights were applied when using data from only one wave, whereas longitudinal weights were used in analyses involving data from two waves. 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. Unweighted analyses were conducted when the primary interest was in examining and describing aspects of the selected analytic sample, rather than estimating or inferring results and findings to the population level.

Statistical significance

In the context of modelling produced for this report, a finding is considered 'statistically significant' if it is unlikely that the relationship or association found in the sample data between the independent/predictor/exposure variable of interest and the dependent/outcome variable is caused by chance. In other words, it is likely that the relationship is present in the wider population of Australian men and is not just unique to the sample that has been analysed.

A test statistic known as the *p*-value is used to determine whether or not a finding is statistically significant. If the *p*-value falls below a chosen level (typically either 0.01, 0.05, or 0.1, i.e. 1%, 5% or 10%), then the finding (e.g. relationship between two variables) is regarded as statistically significant. In this report, a significance level of 0.05/5% is used unless otherwise stated. Note that if a significant result is found from modelling, this does not necessarily indicate evidence of a large effect or difference, but it does imply, fairly confidently, that there is a difference.

Confidence interval

A confidence interval (CI) is a range in which it is estimated the true population value lies. CIs of different sizes represent different levels of confidence that the true population value will lie between a set of values. The most common CIs used are 95% and 99%. Unless otherwise specified, the analyses in this report used a 95% CI.

CIs can be calculated for different types of statistics, including means, proportions and regression coefficients or estimated modelling effects. These intervals can be used to guide decisions on statistical significance in a similar way to *p*-values (see above); if the confidence interval includes 0, this provides some evidence that the value or relationship in question has been found by chance in the analysed sample and may not be inferred to the wider population.

CIs are used to compare statistics and characteristics of two different groups; for example, the mean income of men aged 35 or more compared to those aged less than 35. A CI would be calculated for the income measure of each group; if the intervals overlap, there is evidence that the difference in mean income of men aged 35+ vs <35 is not statistically significant. That is, there is no evidence that the mean income differs between the two groups.

Chi-square test

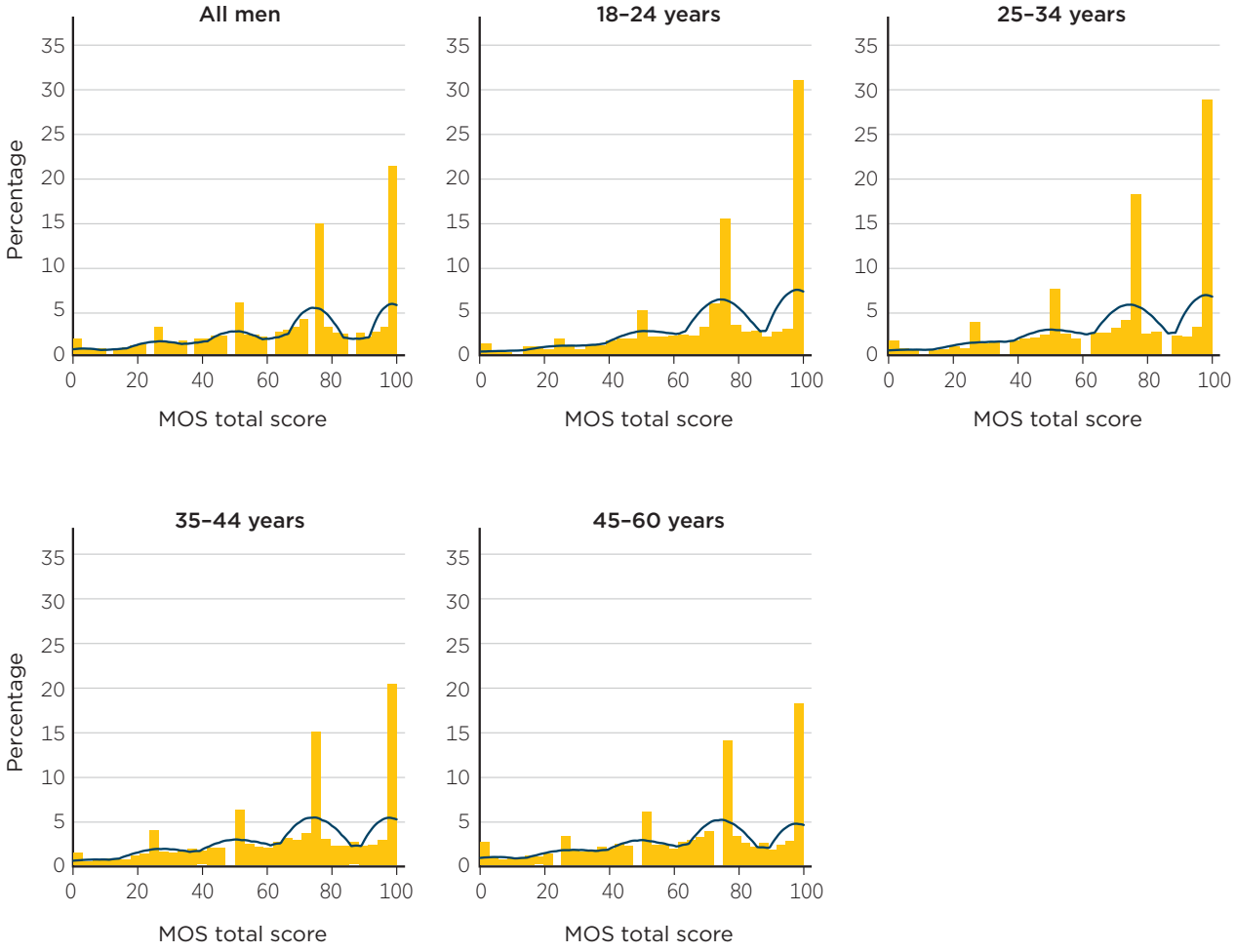
A chi-square (X^2) test is used to investigate whether distributions of categorical variables differ from one another. For example, a chi-square test could be used to investigate whether married men are more likely to play sport than unmarried men.

Data visualisations

Data visualisation elements such as charts, graphs, figures and maps are used throughout the report to provide an accessible way to show and understand data trends and relationships. Most of the data visualisations throughout this report were generated using Stata software (StataCorp, 2019); however, some in Chapters 1 and 2 were created using Power BI (Power BI, 2021) and R package (R Core Team, 2013).

Appendix B: Supplementary figures and tables

Figure B1.1: Distribution of MOS Social Support Scale scores among adult TTM participants overall and by age group, 2015/16



Notes: *N* = 10,384; participants without valid responses to MOS Social Support Scale items were excluded from analyses.

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

Table B1.1: Prevalence of availability of social support across individual MOS Social Support Scale items among adult males, 2015/16

Emotional/Informational support items	Support available most – all of the time (%)	Support available none – a little of the time (%)
Someone you can count on to listen to you when you need to talk	72.4	11.9
Someone to give you information to help you understand a situation	67.6	12.4
Someone to give you good advice about a crisis	68.2	13.1
Someone to confide in or talk to about yourself or your problems	67.7	15.3
Someone whose advice you really want	62.6	17.2
Someone to share your most private worries and fears with	61.2	22.9
Someone to turn to for suggestions about how to deal with a personal problem	63.8	18.4
Someone who understands your problems	62.3	18.0

Notes: *N* = 10,384. Each MOS Social Support Scale item is rated on a five-point scale (1–5; refer: Methodology). Row percentages do not add to 100.0% because TTM participants who reported 'Some of the time' are not represented here.

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

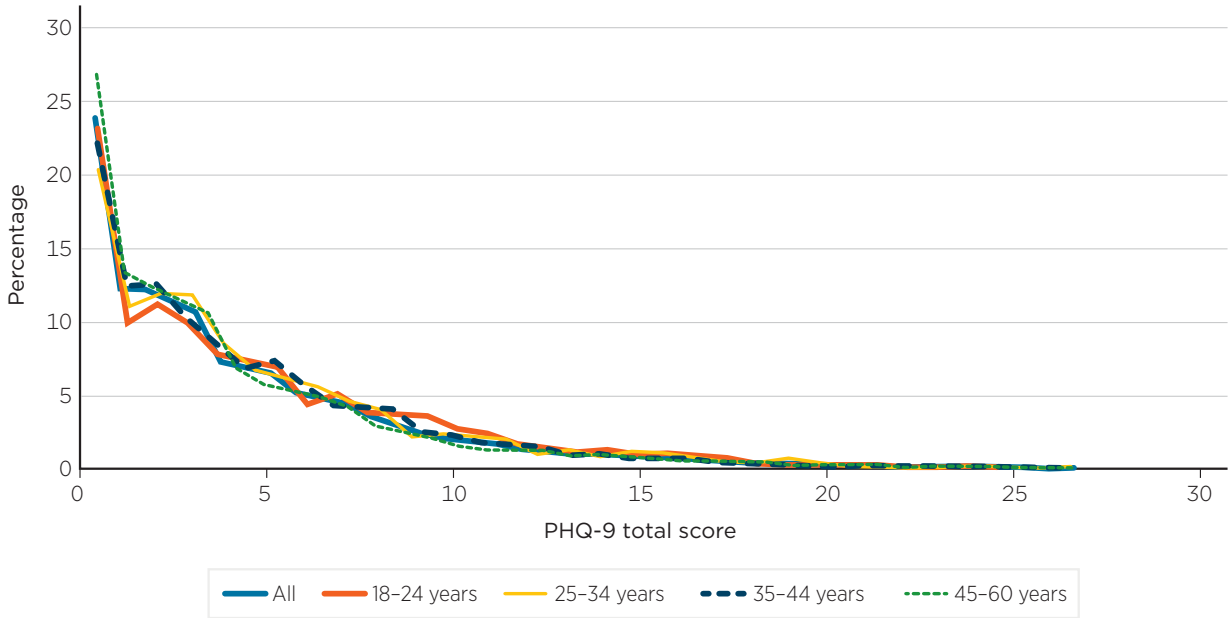
Table B3.1: Characteristics of the distribution of PHQ-9 scores among adult TTM participants overall and by age group, 2015/16

Age group	Number	Mean	SD	Variance	Skewness	Kurtosis	Median	90th percentile
All	10,461	4.13	4.69	21.98	1.76	6.48	3	10
18–24	1,273	4.51	4.77	22.73	1.42	4.98	3	11
25–34	1,952	4.50	4.85	23.52	1.69	6.15	3	11
35–44	2,915	4.22	4.67	21.79	1.75	6.65	3	10
45–60	4,321	3.78	4.58	20.97	1.91	7.13	2	10

Notes: *N* = 10,461; those without valid responses to PHQ-9 items were excluded from analyses. SD = Standard Deviation.

Source: TTM data, Wave 2, unweighted

Figure B3.1: Distribution of PHQ-9 scores among adult *Ten to Men* participants in 2015/16, by age group



Notes: *N* = 10,461 participants aged 18 to 60 years; those without valid responses to PHQ-9 items were excluded from analyses.

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

Table B4.1: Percentages of adult males aged 18–60 in 2015/16 with no difficulty, some difficulty, and serious difficulty by age group

Age group	Level of difficulty % [95% CI]		
	None *n* = 4,772	Some *n* = 5,014	Serious *n* = 804
18–24	53.4 [48.8, 57.9]	39.1 [34.7, 43.7]	7.5 [5.4, 10.3]
25–34	52.1 [48.3, 56.0]	41.2 [37.3, 45.2]	6.7 [5.1, 8.7]
35–44	49.0 [45.7, 52.3]	43.8 [40.6, 47.0]	7.3 [5.4, 9.6]
45–54	37.5 [34.9, 40.0]	53.1 [50.5, 55.6]	9.5 [8.0, 11.2]
55–60	34.2 [28.3, 40.5]	55.3 [49.1, 61.3]	10.5 [6.9, 15.8]
Total	46.5 [44.9, 48.1]	45.5 [43.9, 47.1]	8.0 [7.1, 8.9]

Notes: *N* = 10,590 participants; those without valid responses to any of the WG-SS core functional items were excluded from the analyses (*n* = 139).

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

Table B4.2: Percentages [95% CIs] of adult males with no, some or serious difficulty across each of the WG-SS core functional domains in 2015/16

Age group	Level of difficulty % [95% CI]		
	None *n* = 4,772	Some *n* = 5,014	Serious *n* = 804
Self-care	96.3 [95.6, 96.8]	3.1 [2.6, 3.7]	0.6 [0.4, 0.9]
Communication	90.9 [90.0, 91.7]	8.3 [7.5, 9.2]	0.8 [0.6, 1.2]
Walking/climbing steps	87.2 [86.1, 88.2]	11.0 [10.1, 12.1]	1.8 [1.5, 2.2]
Auditory	82.3 [81.3, 83.6]	16.0 [14.9, 17.1]	1.5 [1.2, 1.9]
Visual	80.9 [79.7, 82.1]	17.9 [16.8, 19.1]	1.2 [0.9, 1.7]
Cognition	64.1 [62.7, 65.6]	31.5 [30.2, 32.9]	4.3 [3.7, 5.1]

Notes: *N* = 10,590 participants. Serious difficulty was classified by having more than 'some' difficulty ('a lot of difficulty' or 'cannot do at all') across the six WG-SS core domains. Participants without valid responses to any of the MOS Social Support Scale or WG-SS core functional items were excluded from the analyses.

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

Table B4.3: Mean MOS Social Support Scale scores (95% CI) among adult males in 2015/16 by difficulty classification and age group

Age group	Serious difficulty *n* = 769 % [95% CI]	No or some difficulty *n* = 9,534 % [95% CI]
18–24	64.7 [58.4, 70.9]	76.8 [75.0, 78.5]
25–34	61.9 [55.9, 67.8]	73.0 [71.1, 74.8]
35–44	60.9 [53.6, 68.2]	68.1 [66.7, 69.6]
45–57	58.4 [54.3, 62.4]	66.6 [65.2, 67.9]
All ages	60.7 [58.0, 63.4]	70.3 [69.4, 71.1]

Notes: *N* = 10,303. Serious difficulty was classified by having more than 'some' difficulty ('a lot of difficulty' or 'cannot do at all') across the six WG-SS core domains. Participants without valid responses to any of the MOS Social Support Scale or WG-SS core functional items were excluded from the analyses.

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

Table B4.4: Self-perceived social support by level and type of difficulty among adult males in 2015/16: mean MOS Social Support Scale score [95% CI]

Type of difficulty/disability	Level of difficulty		
	None	Some	Serious
Visual	70.9 [70.3, 71.4]	64.6 [63.4, 65.8]	50.3 [43.7, 57.0]
Auditory	70.4 [69.9, 71.0]	65.5 [64.3, 66.7]	62.2 [57.9, 66.5]
Movement	70.8 [70.3, 71.4]	60.2 [58.6, 61.8]	63.0 [58.9, 67.0]
Cognition	72.4 [71.7, 73.0]	64.9 [64.0, 65.9]	60.7 [57.9, 63.6]
Self-care	69.9 [69.4, 70.5]	58.8 [55.5, 62.1]	60.0 [51.4, 68.6]
Comprehension	70.3 [69.8, 70.9]	61.1 [59.1, 63.0]	63.2 [55.8, 70.6]

Notes: *N* = 10,315. Serious difficulty was classified by having more than 'some' difficulty ('a lot of difficulty' or 'cannot do at all') across the six WG-SS core domains. Participants without valid responses to any of the MOS Social Support Scale or WG-SS core functional items were excluded from the analyses.

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

Table B4.5: Employment status of adult males aged 18–60 in 2015/16, by level of difficulty (none vs some vs serious difficulty)

Household composition	Level of difficulty			
	None *n* = 4,755 % [95% CI]	Some *n* = 4,993 % [95% CI]	Serious *n* = 796 % [95% CI]	Total *N* = 10,544 % [95% CI]
Employed/working for profit or pay	88.7 [87.0, 90.2]	86.0 [84.3, 87.5]	61.4 [55.4, 67.1]	85.3 [84.1, 86.5]
Unemployed and looking for work	7.0 [5.7, 8.5]	7.6 [6.4, 8.9]	16.4 [12.1, 21.7]	8.0 [7.1, 9.0]
Out of labour force	4.3 [3.5, 5.4]	6.4 [5.4, 7.6]	22.3 [17.4, 28.0]	6.7 [5.9, 7.6]

Notes: Serious difficulty was classified by having more than 'some' difficulty ('a lot of difficulty' or 'cannot do at all') across the six WG-SS core domains. Participants without valid responses to any of the WG-SS core functional items or regarding their household composition were excluded from analyses. CI = Confidence Interval.

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

Table B4.6: Estimated percentages [95% CI] of adult males aged 18–60 with serious difficulty across the six WG-SS core functional domains in 2015/16

Functional domain	18–24 *n* = 1,295 % [95% CI]	25–34 *n* = 1,965 % [95% CI]	35–44 *n* = 2,967 % [95% CI]	45–54 *n* = 3,466 % [95% CI]	55–60 *n* = 897 % [95% CI]	All *N* = 10,590 % [95% CI]
Visual	0.8 [0.3, 2.0]	0.4 [0.2, 0.9]	1.2 (0.5, 3.1)	1.7 [1.1, 2.6]	3.2 [1.1, 9.4]	**1.2 [0.9, 1.7]**
Auditory	0.5 [0.1, 1.7]	0.7 [0.3, 1.4]	1.7 (0.9, 3.1)	2.5 [1.9, 3.4]	2.7 [1.3, 5.6]	**1.5 [1.2, 1.9]**
Cognition	5.9 [4.0, 8.6]	4.3 [3.1, 6.1]	4.3 (3.1, 5.9)	3.9 [2.9, 5.2]	2.5 [1.5, 4.3]	**4.3 [3.7, 5.1]**
Communication	1.0 [0.4, 2.5]	1.1 [0.4, 3.0]	0.4 (0.2, 1.1)	0.9 [0.5, 1.6]	0.6 [0.2, 1.9]	**0.8 [0.6, 1.2]**
Movement	0.3 [0.1, 1.5]	1.0 [0.5, 1.8]	1.6 (1.0, 2.5)	3.1 [2.4, 4.1]	4.4 [2.4, 8.0]	**1.8 [1.5, 2.2]**
Self-care	0.4 [0.2, 1.9]	0.4 [0.2, 1.1]	0.6 (0.3, 1.4)	1.0 [0.5, 1.7]	0.7 [0.2, 2.1]	**0.6 [0.4, 0.9]**

Notes: Serious difficulty was classified by having more than 'some' difficulty ('a lot of difficulty' or 'cannot do at all') across the six WGSS core domains. Participants without valid responses to any of the WG-SS core functional items were excluded from the analyses.

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

Table B4.7: Ordinary least-squares linear regression model: Correlates of self-perceived social support among adult males, 2015/16

Variable	Coef.[a]	SE	Adjusted Coef.[a]	SE
Level of difficulty/disability (ref. = none)				
Some difficulty/no disability	-7.94***	0.54	-6.39***	0.56
Any disability	-14.11***	1.13	-9.29***	1.20
Alone (no close friends/relatives vs 1+)	0.34***	1.31	45.87***	1.41
Age (continuous)	-0.31***	0.02	-0.30***	0.03
Employment status (ref. = employed/working for profit or pay)				
Unemployed, looking for work	-9.09***	1.12	-7.06***	1.33
Out of labour force	-7.32***	1.09	-2.82*	1.31
Household composition (ref. = single, lives alone)				
Single, lives with family/friends	11.53***	1.37	5.62***	1.47
Couple, no children	12.24***	1.47	7.05***	1.48
Single parent	1.99	1.70	1.35	1.68
Couple with children	7.95***	1.26	5.88***	1.27
Education level (ref. = ≤Year 12)				
Certificate/diploma	0.22	0.67	0.15	0.70
University degree	0.73	0.73	-0.96	0.76
Indigenous Australian (yes; Wave 1)	-4.24	2.25	-2.73	2.52
SEIFA level of disadvantage (ref. = High)				
Middle	4.17***	0.67	2.18**	0.69
Low	4.83***	0.76	1.84*	0.80
ASGS residential region (ref. = major cities)				
Inner regional	0.83	0.65	1.03	0.67
Outer regional	-0.78	0.72	0.13	0.76
Language OTE spoken at home (yes; Wave 1)	-7.00***	1.04	-6.39***	1.19
CMNI score (continuous)	-0.59***	0.05	-0.59***	0.05
Sexual orientation: non-heterosexual[b] (ref. = heterosexual; Wave 1)	-7.15***	1.13	-4.95***	1.23
cons	-	-	97.24***	2.50
adj. R^2	-	-	-	0.19

Notes: *n* = 8,234; observations excluded from analyses included *n* = 139 responses relating to functional difficulty/disability, *n* = 37 and *n* = 269 'other' responses relating to household composition and education level, respectively, 284 missing observations regarding sexual identity, and *n* = 13 'remote/very remote' ASGS residential region classifications. Depression, as measured by the PHQ, was excluded from the model due to multicollinearity with the disability indicator (Kendall's Tau-b = 0.2303, $p < 0.001$). This is commensurate with other studies investigating social support and disability (Emerson & Llewellyn, 2021), including previous research on disability among the TTM cohort (Currier et al., 2016). CI = Confidence Interval; ASGS = Australian Statistical Geography Standard; aOR = adjusted Odds Ratio; CMNI = Conformity to Masculine Norms Inventory; OTE = other than English; SE = Standard error (robust); SEIFA = Socio-Economic Indexes for Areas; *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. [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 (MOS Social Support Scale score), assuming that all other variables in the model are held constant; [b] 'Non-heterosexual' included identifying as bisexual, homosexual, unsure and no attraction.

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

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