

Ten to Men Insights #3

Chapter 3: The two-way relationship between socio-economic status and health conditions for Australian men

Supplementary materials

Measurements

In this chapter, data from Waves 1, 2, 3 and 4 of the Ten to Men study were used. Wave 1 data were collected from October 2013 to July 2014, Wave 2 data from November 2015 to May 2016 and Wave 4 data from August to December 2022. Further information on the study design, questionnaires, statistical considerations, data files and other data resources are available via the *Ten to Men* Data User Guide.

Economic and social indicators

We selected key individual and area-level indicators¹ that reflect both economic and social dimensions as described below. The indicators were also selected with the target population in mind – Australian men who are proficient in English (Swami et al., 2022). Existing research suggests this group is generally employed, educated and falls within the mid-to-high income range (Quinn & Martin, 2022). Moreover, there is an established link between traditional socio-economic indicators and health outcomes. Therefore, this study focuses on factors that offer a deeper understanding of the social gradient in health within this specific population, providing opportunities to intervene through policy changes.

The 5 key indicators selected are:

- financial stress (Australian Bureau of Statistics [ABS], 2017) – capturing economic strain at the individual level including seeking financial assistance from friends or family and not being able to pay bills on time as a result of being short on money
- social support (Sherbourne & Stewart, 1991) – reflecting the protective role of interpersonal relationships
- area-level disadvantage (ABS, 2021) – measuring structural inequalities in local environments
- job quality (Butterworth et al., 2010; 2011) – assessing the psychosocial and material conditions of employment
- social exclusion through experiences of discrimination and unfair treatment (Williams et al., 1997) – highlighting the health impacts of marginalisation.

¹ While traditional socio-economic indicators (e.g. education, employment, education and household income status) have been included in this report, they have been incorporated as covariates in examining the relationship between the selected key SES indicators and outcome measures (see 'Socio-demographic and behavioural factors', below).

These indicators were chosen to complement traditional socio-economic indicators such as education, income, employment, and occupation, which are included in the analysis but are not the primary focus of this report.

Cultural and linguistic diversity

A set of questions were used to determine whether respondents were culturally and/or linguistically diverse. Aligned with the definition of cultural and linguistic diversity recommended by Pham and colleagues (Pham et al., 2021) and the ABS standards (ABS, 2022), respondents were categorised based on:

- country of birth (1 = Australian born; 2 = Immigrant, main English-speaking countries; 3 = Immigrant, other countries)
- language spoken at home (0 = English; 1 = Other language).

Disability

Using the Washington Group (WG) Short Set of Questions on Disability (n.d.), respondents were asked about any disabilities or impairments they may have (No/Yes) on the following. If they answered 'Yes', they were asked how much difficulty they have (some difficulty, a lot of difficulty, cannot do at all). In this report, respondents who answered 'Yes' to at least one of the following were classified as 'with disability', and those who answered 'No' were classified as 'without disability':

- Difficulty seeing, even if wearing glasses
- Difficulty hearing, even if using a hearing aid
- Difficulty walking or climbing steps
- Difficulty remembering or concentrating
- Difficulty with self-care such as washing all over or dressing
- Difficulty understanding or being understood while using your usual (customary) language.

Remoteness

An indicator of region was generated using the Australian Statistical Geography Standard (ASGS) that defines geographical locations in terms of remoteness, based on the 2011 and 2016 Census of Population and Housing. Detailed information about the remoteness structure may be sourced from the [ABS website](#). For the current analyses, remoteness was coded as Major cities, Inner regional, Outer regional and remote (also including very remote).

Sexual identity

Respondents were asked 'Do you think of yourself as:' and asked to select one of the following options 1 = Heterosexual; 2 = Bisexual; 3 = Homosexual; 4 = Not sure; 5 = Other. Those who selected heterosexual were coded as '0 = Heterosexual' and those who selected bisexual, homosexual, not sure or other were coded as '1 = Non-heterosexual'.

Socio-demographic and behavioural factors

In addition to the economic and social indicators noted above, we included the following indicators as covariates: age, employment type, educational attainment, occupation and household income. Relevant behavioural factors included are smoking status, alcohol use, physical activity, frequency of medical check-ups, and dietary habits. Body mass index (BMI) is also included.

Age

Age was categorised as 18-29, 30-39, 40-49, and 50+ mainly based on the distribution of participants in the sample.

Educational attainment

The highest qualification completed ranged from the highest year of secondary school completed (Year 7 or equivalent to Year 12) to higher qualifications (from other non-school qualifications to postgraduate). In this report, the variable was grouped into 4 categories: Up to year 12, Some qualification beyond year 12, Undergraduate, and Postgraduate.

Household income

Respondents were asked about their household income per week or per year in 14 ranges. In this report, household income was grouped into 3 categories due to the small number of observations in some categories: <\$80,000, \$80,000–\$124,999, and \$125,000+.

Employment status and type

Employment status was asked slightly differently across waves. In Wave 4, participants were asked about their employment status: Not employed – not seeking employment, Unemployed – seeking employment, Employed – unpaid worker in family business, Self-employed, Part-time employee, Full-time employee. They were also asked about the form of employment in their main job: Permanent or ongoing, Casual or temporary, Fixed-term, Self-employed – not employing others, Self-employed – also employing others.

For consistency, we combined the 2 variables and measured employment status as follows: Neither working nor looking for work, Unemployed and looking for work, Employed – type unknown, Self-employed, Casual or temporary, Fixed-term contract, Permanent or ongoing. The variable was recategorised into 3 groups: Unemployed/not looking for work, Employed – self/casual/fixed-term, and Permanent or ongoing. These were then grouped into 2 categories: Not working to casual or temporary, and Fixed-term to permanent/ongoing.

Occupation

Among respondents who were employed, they were asked to select their current occupation from a list ranging from managers to labourers. In this report, occupations were grouped into 3 categories: Technicians to labourers, Professionals, and Managers.

Table S1: Health conditions included in the analysis

Health conditions	Questions asked in the surveys
New onset of long-term physical health conditions: Diagnosed between Wave 1 (2013–14) and Wave 4 (2022)	<p>Has a doctor or other health professional ever told you that you had any of the following health conditions?</p> <ol style="list-style-type: none"> 1. Asthma: Diagnosis date (if answer 'Yes') 2. Arthritis Which type of arthritis were you told you had? Select all that apply. <ol style="list-style-type: none"> a. Osteoarthritis: Diagnosis date (if answer 'Yes') b. Psoriatic arthritis: Diagnosis date (if answer 'Yes') c. Rheumatoid arthritis: Diagnosis date (if answer 'Yes') d. Other type of arthritis: Diagnosis date (if answer 'Yes') e. Not sure: Diagnosis date (if answer 'Yes') 3. Autism or Asperger's: Diagnosis date (if answer 'Yes') 4. Back/spine pain or injury: Diagnosis date (if answer 'Yes') 5. Cancer Which type of cancer were you told you had? Select all that apply. <ol style="list-style-type: none"> a. Bowel cancer: Diagnosis date (if answer 'Yes') b. Bladder cancer: Diagnosis date (if answer 'Yes') c. Brain cancer: Diagnosis date (if answer 'Yes') d. Leukemia: Diagnosis date (if answer 'Yes') e. Lymphoma: Diagnosis date (if answer 'Yes') f. Non-Hodgkin's lymphoma: Diagnosis date (if answer 'Yes') g. Prostate cancer: Diagnosis date (if answer 'Yes') h. Skin cancer (e.g. melanoma, basal cell carcinoma (BCC), squamous cell carcinoma (SCC)): Diagnosis date (if answer 'Yes') i. Testicular cancer: Diagnosis date (if answer 'Yes') j. Thyroid cancer: Diagnosis date (if answer 'Yes') k. Other type of cancer: Diagnosis date (if answer 'Yes') l. Not sure which type: Diagnosis date (if answer 'Yes') 6. Chronic lung disease (other than asthma) Which type of chronic lung disease were you told you had? Select all that apply. <ol style="list-style-type: none"> a. Chronic obstructive pulmonary disease (COPD): Diagnosis date (if answer 'Yes') b. Emphysema: Diagnosis date (if answer 'Yes') c. Chronic bronchitis: Diagnosis date (if answer 'Yes') d. Pneumonia: Diagnosis date (if answer 'Yes') e. Sarcoidosis: Diagnosis date (if answer 'Yes') f. Other type of lung disease: Diagnosis date (if answer 'Yes') g. Not sure which type: Diagnosis date (if answer 'Yes') 7. Dementia: Diagnosis date (if answer 'Yes') 8. Diabetes Which type of diabetes were you told you had? Select all that apply. <ol style="list-style-type: none"> a. Type 1 diabetes: Diagnosis date (if answer 'Yes') b. Type 2 diabetes: Diagnosis date (if answer 'Yes') 9. Hearing impairment: Diagnosis date (if answer 'Yes') 10. Heart disease: Diagnosis date (if answer 'Yes') 11. High blood lipids (fats): Diagnosis date (if answer 'Yes') 12. High blood pressure: Diagnosis date (if answer 'Yes') 13. High cholesterol: Diagnosis date (if answer 'Yes') 14. Mild cognitive impairment (MCI): Diagnosis date (if answer 'Yes') 15. Sleep apnoea (interruptions to breathing while sleeping): Diagnosis date (if answer 'Yes')
Two or more new onset of long-term physical health conditions (multiple long-term physical health conditions)	

Health conditions	Questions asked in the surveys
	<p>16. Stroke: Diagnosis date (if answer 'Yes')</p> <p>17. Would you describe yourself as having 'long COVID' now or in the past? Diagnosis date (if answer 'Yes')</p> <ol style="list-style-type: none"> Yes and I am still experiencing symptoms Yes, but I no longer have symptoms No Not applicable – it has not been 4 weeks since I first had COVID-19 <p>18. <u>Other health condition</u> Which other health conditions has a doctor or other health professional ever told you that you had?</p> <ol style="list-style-type: none"> dhdoth1tx: Diagnosis date (if answered condition 1) dhdoth2tx: Diagnosis date (if answered condition 2) dhdoth3tx: Diagnosis date (if answered condition 3) dhdoth4tx: Diagnosis date (if answered condition 4) dhdoth5tx: Diagnosis date (if answered condition 5) <p>When were you diagnosed with this health condition?</p>
<p>New onset of mental health conditions: Diagnosed between 2013-14 and 2022</p> <p>One or more new onset of mental health</p>	<p>Has a doctor or other health professional ever told you that you had any of the following health conditions?</p> <p>19. <u>Depression</u> Which type of depression were you told you had? Select all that apply.</p> <ol style="list-style-type: none"> Cyclothymic disorder: Diagnosis date (if answer 'Yes') Dysthymic disorder: Diagnosis date (if answer 'Yes') Major depression/major depressive order: Diagnosis date (if answer 'Yes') Melancholia: Diagnosis date (if answer 'Yes') Postnatal depression (PND): Diagnosis date (if answer 'Yes') Psychotic depression: Diagnosis date (if answer 'Yes') Seasonal affective disorder (SAD): Diagnosis date (if answer 'Yes') Other type of depression: Diagnosis date (if answer 'Yes') <p>20. <u>An anxiety disorder</u> Which type of anxiety disorder were you told you had? Select all that apply.</p> <ol style="list-style-type: none"> Generalised anxiety disorder (GAD): Diagnosis date (if answer 'Yes') Obsessive compulsive disorder (OCD): Diagnosis date (if answer 'Yes') Panic disorder: Diagnosis date (if answer 'Yes') Post-traumatic stress disorder (PTSD): Diagnosis date (if answer 'Yes') Social anxiety disorder: Diagnosis date (if answer 'Yes') Other anxiety disorder: Diagnosis date (if answer 'Yes') Not sure which type: Diagnosis date (if answer 'Yes') <p>21. <u>Any other mental health condition</u> Which type of mental health condition were you told you had? Select all that apply.</p> <ol style="list-style-type: none"> Bipolar: Diagnosis date (if answer 'Yes') Personality disorder: Diagnosis date (if answer 'Yes') Schizophrenia: Diagnosis date (if answer 'Yes') Other mental health condition: Diagnosis date (if answer 'Yes') Not sure which type: Diagnosis date (if answer 'Yes')

Health conditions	Questions asked in the surveys
<p>PHQ9 Score</p> <p>PhQ-9 is a derived variable based on response to the 9 items.</p> <p>It ranges from 0 (answered 'Not at all' to all items) to 27 (answered 'Nearly every day' to all items)</p>	<p>Each item</p> <p>Over the last 2 weeks, how often have you been bothered by any of the following problems?</p> <ol style="list-style-type: none"> Feeling down, depressed, irritable or hopeless Little interest or pleasure in doing things Trouble falling asleep, staying asleep or sleeping too much Poor appetite, weight loss or overeating Feeling tired or having little energy Feeling bad about yourself - or feeling that you are a failure, or that you have let yourself or your family down Trouble concentrating on things, such as reading the newspaper or watching television Moving or speaking so slowly that other people could have noticed / Or the opposite - being so fidgety or restless that you were moving around a lot more than usual Thoughts that you would be better off dead, or of hurting yourself in some way <p>Response options for a to i</p> <ol style="list-style-type: none"> Not at all Several days More than half the days Nearly every day
<p>PHQ9 depression severity category (derived)</p>	<ol style="list-style-type: none"> No or minimal depression Mild depression Moderate depression Moderately severe depression Severe depression

Table S2: Economic and social indicators included in the analysis

Key economic and social indicators	Questions asked in the surveys
<p>Social support - MOS Emotional/Information subscale score</p> <p>Mean score</p> <p>Range: 0-5</p> <ol style="list-style-type: none"> None/a little of the time (1-2.99) Some of the time (3-3.99) Most of the time (4-4.99) All of the time 	<p>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?</p> <ol style="list-style-type: none"> Someone you can 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 or talk to about yourself or your problems Someone whose advice you really want Someone to share your most private worries and fears with Someone to turn to for suggestions about how to deal with a personal problem Someone who understands your problems <ol style="list-style-type: none"> None of the time A little of the time Some of the time Most of the time All of the time

Key economic and social indicators	Questions asked in the surveys
Financial stress 0. No 1. Yes	Experiencing one or more of the following: <ol style="list-style-type: none"> Could not fill or collect a prescription medicine Could not get a medical test, treatment or follow-up that was recommended by a doctor Could not go to the doctor when you needed to Could not afford to heat your home Could not pay electricity, gas or telephone bills on time Could not pay the mortgage or rent on time Asked for financial help from friends or family ABS, 2023
Job quality scores	12 items Leach et al., 201
Job demands and complexity	Average score of the following: <ul style="list-style-type: none"> Item 1: My job is more stressful than I ever imagined Item 7: My job is complex and difficult Item 8: My job requires learning new skills Item 9: I use my skills in current job
Job control	Average score of the following: <ul style="list-style-type: none"> Item 10: I have freedom to decide how I do work Item 11: I have a lot of say about what happens Item 12: I have freedom to decide when I do work
Job security	Average score of the following: <ul style="list-style-type: none"> Item 4: I have a secure future in my job Item 5: Company I work for will be in business in 5 years Item 6: I worry about the future of my job (reversed)
Effort-reward fairness	Item 3: I get paid fairly for the things I do in my job
Experienced discrimination 0. No 1. Yes (very often to rarely)	Over the past 2 years how often have you experienced discrimination? <ul style="list-style-type: none"> • Very often • Fairly often • Occasionally • Rarely • Never
SEIFA index (IRSD) 1. High disadvantage (bottom 25%) 2. Middle disadvantage (middle 50%) 3. Low disadvantage (top 25%) ABS, 2021	Based on SEIFA Index of Relative Socio-Economic Disadvantage - Percent (2011 Census based for Waves 1 and 2 and 2016 Census based for Waves 3 and 4)

Notes: SEIFA = Socio-economic Index for Areas; IRSD = Index of Relative Socio-economic Disadvantage.

Table S3: Priority population groups

Priority population groups	Questions asked in the surveys
Remoteness 1. Major cities 2. Inner regional 3. Outer regional/remote	Remoteness based on area of residence
Disability - Some difficulty/a lot of difficulty/cannot do at all 0. No 1. Yes	How much difficulty do you have .. a. Seeing, even if wearing glasses? b. Hearing, even if using a hearing aid? c. Walking or climbing steps? d. Remembering or concentrating? e. With self-care such as washing all over or dressing? f. Understanding or being understood while using your usual (customary) language? 1 No difficulty 2 Some difficulty 3 A lot of difficulty 4 Cannot do at all Washington Group on Disability Statistics
Sexuality	How do you describe your sexual orientation 1. Straight (Heterosexual) 2. Bisexual 3. Gay or lesbian 4. Asexual 5. I use a different term (please specify) 6. Pansexual 7. Queer
Country of birth 1. Australian born 2. Immigrant, main English-speaking countries 3. Immigrant, other countries	In which country were you born? <ul style="list-style-type: none"> • Australia • England • New Zealand • Italy • Vietnam • India • Scotland • Other (please specify)
Language spoken at home 0. English 1. Other language	What language do you mainly speak at home? (Mark one answer only) <ul style="list-style-type: none"> • English • Italian • Greek • Cantonese • Arabic • Mandarin • Vietnamese • Other (please specify)
Proficiency 0. Proficient (speak well/very well) 1. Not proficient (speak not well/not at all)	How well do you speak English? <ul style="list-style-type: none"> • Very well • Well • Not well • Not at all

Table S4: Socio-demographic and behavioural indicators

Other covariates	Questions asked in the surveys
Age group 1. 18–29 years 2. 30–39 years 3. 40–49 years 4. 50+ years	Age at the time of the survey
Education 1. Less than year 12 2. Up to some qualification 3. Undergraduate or more	What is the level of the highest qualification that you have completed? 1. Postgraduate degree 2. Graduate diploma/Graduate certificate 3. Bachelor degree (with or without honours) 4. Advanced diploma/diploma 5. Certificate III/IV (including trade certificate) 6. Certificate I/II 7. Other non-school qualification 8. Year 12 or equivalent 9. Year 11 or equivalent 10. Year 10 or equivalent 11. Year 9 or equivalent 12. Year 8 or below
Employment 1. Unemployed/not looking for work 2. Employed self/casual/fixed term 3. Employed permanent or ongoing	Of the following categories, which best describes your current employment status? 1. Full-time employee 2. Part-time employee 3. Self-employed 4. Employed – unpaid worker in family business 5. Unemployed – seeking employment 6. Not employed – not seeking employment (e.g. due to injury or disability, retired, primary caregiver) 7. What is your form of employment in your main job? 8. Permanent or ongoing 9. Casual or temporary 10. Fixed-term contract (employed for a specific period of time) 11. Self-employed – not employing others 12. Self-employed – also employing others
Occupation 1. Technicians to others 2. Professionals or managers	What is your current occupation in your main job?

Other covariates	Questions asked in the surveys
Household income 1. <\$80,000 2. \$80,000-\$124,999 3. \$125,000+	Which of these categories contains the combined income in your household, before tax and other deductions are taken out, during the last financial year 1. \$3,840 or more per week (\$200,000 or more per year) 2. \$2,880-\$3,839 per week (\$150,000-\$199,999 per year) 3. \$2,400-\$2,879 per week (\$125,000-\$149,999 per year) 4. \$1,920-\$2,399 per week (\$100,000-\$124,999 per year) 5. \$1,530-\$1,919 per week (\$80,000-\$99,999 per year) 6. \$1,150-\$1,529 per week (\$60,000-\$79,999 per year) 7. \$960-\$1,149 per week (\$50,000-\$59,999 per year) 8. \$770-\$959 per week (\$40,000-\$49,999 per year) 9. \$580-\$769 per week (\$30,000-\$39,999 per year) 10. \$380-\$579 per week (\$20,000-\$29,999 per year) 11. \$190-\$379 per week (\$10,000-\$19,999 per year) 12. \$1-\$189 per week (\$1-\$9,999 per year) 13. Nil income 14. Negative income
Smoking (current) 0 No 1 Yes	Do you currently smoke?
Alcohol: AUDIT Score 1. Low risk (0 to 7) 2. Increasing risk (8 to 15) 3. Higher risk (16 to 19) 4. Possible dependence (20+)	By WHO and modified for use in the UK (UK GOV)
1. Body mass index (BMI) 2. <25 3. 25 to less than 30 4. 30+ WHO	How tall are you without shoes? _____ Centimetres OR _____ Feet OR _____ Inches How much do you weigh? _____ Kilograms OR _____ Stones OR _____ Pounds
Check-ups with GP 1. Never 2. Less frequently 3. Once a year 4. More than once a year	How often do you see your family doctor just for a check-up? That is not because you are sick or injured but to check on your general health 1. More than once a year 2. Once a year 3. Less frequently 4. Never 5. Don't know 6. Prefer not to say
Fruit and veg serves – 2 servings of fruits and 3 servings of vegetables per day 0 No 1 Yes Godman, 2021	About how many serves of fruit do you usually eat each day? • Number of serves of fruit each day: (Write 0 if you eat less than one serve a day) About how many serves of vegetables do you usually eat each day? • Number of serves of vegetables each day: (Write 0 if you eat less than one serve a day)

Other covariates	Questions asked in the surveys
Vigorous physical activity: 0. No 1. Yes (1.25 to 2.5 hours of vigorous intensity physical activity per week) Department of Health, 2021	In the past week, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant (e.g. jogging, cycling, aerobics, competitive tennis, etc.)? 0. None Times _____ -4. Don't know -3. Prefer not to say

Notes: AUDIT = Alcohol Use Disorders Identification Test; GP = General Practitioner; UK = United Kingdom; WHO = World Health Organization.

Data analysis

Research question 1

The number of incident cases of each condition, as well as mental health and multiple long-term health conditions, is presented using rate per person-time. The study population included men aged 18–55 years at Wave 1, not diagnosed with any mental health, long-term multiple physical health conditions, multiple long-term health conditions (physical or mental) as of Wave 1 survey completion date, and who participated at least in Wave 4 (see Figure S1 and Table S5).

Proportions were described by the key economic and social indicators, priority population groups and other covariates. We assessed the association between key economic and social indicators at Wave 1 (treated as exposures) and each of the outcomes using both unadjusted and adjusted Cox proportional hazards models (see assumption checks below). VIF was used to check collinearity. In the adjusted models, each key socio-economic indicator of interest was adjusted for all covariates discussed above but not for other key socio-economic indicators due to collinearity between them.

Definition of health outcomes

Incidence of mental health conditions: diagnosed with 1+ mental health condition/s during the study period.

Incidence of multiple long-term physical conditions: diagnosed with 2+ long-term physical health conditions during the study period.

Incidence of multiple long-term health conditions: diagnosed with 2+ mental health and/or long-term physical health conditions during the study period.

We also applied propensity score analysis (Austin, 2011) to determine the causal effect of the key socio-economic factors at Wave 1 on the incidence of mental health or multiple long-term conditions over the 9-year period. We applied inverse probability weighting (IPW). IPW is a statistical technique used to address biases in observational data, particularly when estimating causal effects. It works by assigning weights to each observation based on the inverse of the probability of receiving a particular treatment or exposure, given the observed covariates. For researchers and policy makers, IPW offers a robust approach to derive more reliable causal estimates from observational data.

By accounting for differences in exposure assignment, it enables the estimation of counterfactual outcomes – what would have happened if a different exposure was experienced. This is particularly valuable in policy development or evaluation, where understanding the causal impact of a range of factors is critical for informed decision making.

Incidence per person-years

In Wave 4, participants were asked if they were ever diagnosed with any of the 13 main mental health or long-term conditions and 51 sub-categories. If the respondent answered 'No' to the question, 'Has a doctor or other health professional ever told you that you had the health condition?', they were counted as not having the condition during the study period. If they answered 'Yes', we used the diagnosis date ('When were you diagnosed with this health condition?') to determine whether the person was diagnosed during the study period (after Wave 1 survey completion date) or prior to the study period (i.e. as of Wave 1 survey completion date). See Figure S1 and Table S5.

Participants were counted as incident cases if diagnosed after Wave 1 survey completion date. Those diagnosed with at least one condition as of Wave 1 or with missing diagnosis dates for all 64 conditions were excluded. The follow-up period for multiple long-term health conditions was the time gap between Wave 1 survey completion date (2013-14) and the earliest diagnosis date of 2 or more conditions. The follow-up period for one or more mental health condition was the time gap between the Wave 1 survey completion date (2013-14) and the earliest diagnosis date of any of the mental health conditions. For those not diagnosed with any condition, the follow-up period ended at Wave 4 survey completion date (2022).

Figure S1: Study inclusion status of participants over survey waves

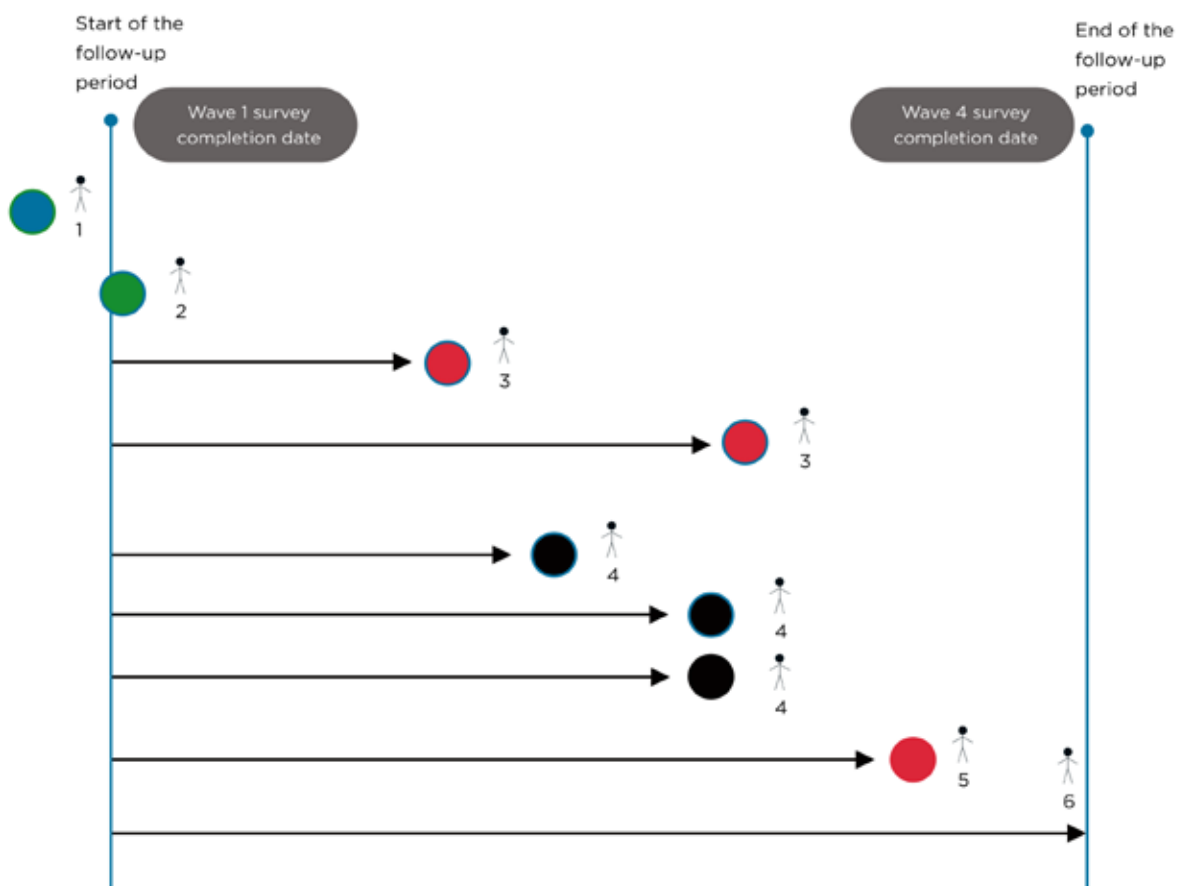


Table S5: Study inclusion status of participants over survey waves

Person	Diagnosis status	Included in the study?	New multiple long-term physical health conditions?	New mental health condition?	New multiple long-term health conditions?
1	Diagnosed with any mental health or long-term physical health condition prior to Wave 1 survey completion date	No	NA	NA	NA
2	Diagnosed with any mental health or long-term physical health condition at Wave 1 survey completion date	No	NA	NA	NA
3	Diagnosed with 2 long-term physical health conditions, at different periods, after Wave 1 survey completion date	Yes	Yes	No	Yes
3	Diagnosed with 1 long-term physical health and 1 mental health condition, at different periods, after Wave 1 survey completion date	Yes	No	Yes	Yes
3	Diagnosed with 2 mental health conditions, at different periods, after Wave 1 survey completion date	Yes	No	Yes	Yes
4	Diagnosed with 3 long-term physical conditions after Wave 1 survey completion date, the last 2 on the same date	Yes	Yes	No	Yes
4	Diagnosed with 2 long-term physical health and 1 mental health conditions after Wave 1 survey completion date, the last 2 on the same date	Yes	Yes	Yes	Yes
4	Diagnosed with 1 long-term physical health and 2 mental health conditions after Wave 1 survey completion date, the last 2 on the same date	Yes	No	Yes	Yes
4	Diagnosed with 3 mental health conditions after Wave 1 survey completion date, the last 2 on the same date	Yes	No	Yes	Yes
5	Diagnosed with 1 long-term physical health condition after Wave 1 survey completion date	Yes	No	No	No
5	Diagnosed with 1 mental health condition after Wave 1 survey completion date	Yes	No	Yes	No
6	Not diagnosed with any condition until Wave 4 survey completion date	Yes	No	No	No

Note: NA = Not applicable. Applied Cox proportional hazards to examine the association between the key economic and social indicators at Wave 1 (treated as exposures) and each of the outcomes.

Proportional hazards

We applied Cox proportional hazards to examine the association between the key economic and social indicators at Wave 1 (treated as exposures) and each of the outcomes.

Proportional hazards assumptions

1. Initial regression:

We ran the initial regression for each socio-economic indicator, adjusting for all other factors.

2. Global test:

We applied the global test to check the overall proportional hazards assumption. If the global test was not significant, it suggested that the overall model met the proportional hazards assumption.

3. Individual covariates:

We checked individual covariates using Schoenfeld residuals to identify specific covariates that violated the assumption. Covariates with p values less than 0.05 were considered to violate the proportional hazards assumption.

4. Stratification and model rerun:

We stratified by the covariates that violated the assumption and reran the model to account for non-proportional hazards. Stratification allows the model to create separate baseline hazard functions for different levels of the stratified covariates. This means that the effect of these covariates on the hazard rate is allowed to vary over time, addressing the violation of the proportional hazards assumption. For example, if education was a stratified variable, the model would estimate different baseline hazards for each level of education, ensuring that the effect of education on the hazard rate is appropriate.

Research question 2

We described trends in key economic and social indicators using weighted percentage and 95% confidence intervals (CI) across time. We used rate difference to compare the difference between priority and non-priority population groups in each wave and assessed statistical significance using the chi-square test. We tracked participants across each category of the key socioeconomic indicators, such as financial stress (yes/no), to determine if their status changed over time. We graphically represented the patterns for each category, illustrating how their status changed in each wave.

Health predictors included number of long-term physical health conditions the person has ever been diagnosed with, whether the person has ever been diagnosed with mental health conditions, and whether the person has experienced depression in the 2 weeks prior to the survey.

Outcomes included whether the person experienced financial stress in the 12 months preceding the survey, whether the person had low social support (on average social support none or a little of the time to each item), and whether the person was treated unfairly in the 6 months preceding the survey.

We used mixed effects models to assess the association between health predictors and key socio-economic outcome indicators. For financial stress, predictors were taken from the previous wave to ensure exposures were prior to the outcome. For social support, we used predictors and outcomes from the same wave. For unfair treatment (data available for Waves 3 and 4), we applied Modified Poisson regression using predictors from Wave 3 and outcome from Wave 4. We also calculated the predicted probability of experiencing financial stress for each of the health predictors based on the adjusted models.

Results

Table S6: Difference in baseline socio-demographic characteristics, priority population groups of *Ten to Men* respondents according to whether the respondents have participated in Waves 2, 3 and 4

	Wave 2 survey non-participation (%)		Obs.	p value	Wave 3 survey non-participation (%)		Obs.	p value	Wave 4 survey non-participation (%)		Obs.	p value
	No	Yes			No	Yes			No	Yes		
Soci-demographic characteristics												
Experienced financial stress												
No	77.5	22.5	9,249	<0.001	55.4	44.6	9,249	<0.001	50.0	50.0	9,249	<0.001
Yes	70.8	29.2	4,248		42.5	57.5	4,248		37.9	62.1	4,248	
Discrimination												
Never	77.7	22.3	7,093	<0.001	54.0	46.0	7,093	<0.001	48.7	51.3	7,093	<0.001
Rarely to very often	73.0	27.0	6,196		48.6	51.4	6,196		43.8	56.2	6,196	
MOS Emotional/Information subscale score												
None of the time	72.9	27.1	842	0.007	45.5	54.5	842	<0.001	39.5	60.5	842	<0.001
A little of the time	74.1	25.9	1,957		50.9	49.1	1,957		45.0	55.0	1,957	
Some of the time	75.1	24.9	3,314		52.1	47.9	3,314		47.6	52.4	3,314	
Most of the time	77.3	22.7	4,373		53.8	46.2	4,373		49.4	50.6	4,373	
All of the time	74.8	25.2	2,888		49.5	50.5	2,888		43.7	56.3	2,888	
MOS Emotional/Information subscale score												
None or a little of the time	72.8	27.2	1,196	0.026	46.5	53.5	1,196	<0.001	39.5	60.5	1,196	<0.001
Some, most or all of the time	75.7	24.3	12,178		52.0	48.0	12,178		47.1	52.9	12,178	
Age group												
18-29 years	63.3	36.7	3,429	<0.001	38.6	61.4	3,429	<0.001	34.4	65.6	3,429	<0.001
30-39 years	73.4	26.6	3,685		48.4	51.6	3,685		43.7	56.3	3,685	
40-49 years	78.9	21.1	4,292		55.3	44.7	4,292		49.8	50.2	4,292	
50+ years	83.6	16.4	2,487		60.9	39.1	2,487		55.1	44.9	2,487	
Education - Highest qualification												
Up to some qualification	74.1	25.9	9,978	<0.001	46.8	53.2	9,978	<0.001	41.5	58.5	9,978	<0.001
Undergraduate and above	79.5	20.5	3,362		65.3	34.7	3,362		60.9	39.1	3,362	
Employment type binary W1												
Not working to casual or temporary	71.7	28.3	5,602	<0.001	46.2	53.8	5,602	<0.001	41.1	58.9	5,602	<0.001
Fixed term to permanent/ongoing	77.9	22.1	7,964		54.7	45.3	7,964		49.7	50.3	7,964	

	Wave 2 survey non-participation (%)		Obs.	p value	Wave 3 survey non-participation (%)		Obs.	p value	Wave 4 survey non-participation (%)		Obs.	p value
	No	Yes			No	Yes			No	Yes		
Current occupation												
Technicians to others	74.2	25.8	6,805	<0.001	47.4	52.6	6,805	<0.001	42.2	57.8	6,805	<0.001
Professionals or managers	82.3	17.7	4,216		64.2	35.8	4,216		59.6	40.4	4,216	
Combined household income												
<\$80,000	71.6	28.4	4,535	<0.001	43.8	56.2	4,535	<0.001	39.2	60.8	4,535	<0.001
\$80,000-\$124,999	79.2	20.8	3,425		55.7	44.3	3,425		49.9	50.1	3,425	
\$125,000+	81.5	18.5	3,844		62.5	37.5	3,844		57.8	42.2	3,844	
Priority population groups												
SEIFA IRSD												
High disadvantage	69.5	30.5	3,641	<0.001	41.8	58.2	3,641	<0.001	36.8	63.2	3,641	<0.001
Middle disadvantage	75.8	24.2	6,986		51.3	48.7	6,986		46.0	54.0	6,986	
Low disadvantage	77.0	23.0	3,264		57.8	42.2	3,264		53.3	46.7	3,264	
Born in non-English-speaking country or speaks a language other than English												
No	76.0	24.0	11,766	<0.001	52.0	48.0	11,766	<0.001	47.2	52.8	11,766	<0.001
Yes	65.8	34.2	2,105		41.6	58.4	2,105		35.2	64.8	2,105	
Remoteness												
Major cities	74.1	25.9	8,194	<0.001	51.0	49.0	8,194	0.037	46.0	54.0	8,194	0.005
Inner regional	77.3	22.7	3,075		50.7	49.3	3,075		46.0	54.0	3,075	
Outer regional/remote	72.2	27.8	2,622		48.1	51.9	2,622		42.5	57.5	2,622	
Some difficulty/a lot of difficulty/cannot do												
No	74.1	25.9	6,898	0.098	50.2	49.8	6,898	0.495	45.4	54.6	6,898	0.814
Yes	75.3	24.7	6,892		50.8	49.2	6,892		45.6	54.4	6,892	
Sexuality or gender												
Heterosexual	76.1	23.9	12,435	<0.001	52.3	47.7	12,435	<0.001	47.3	52.7	12,435	<0.001
Not heterosexual	66.3	33.7	902		41.5	58.5	902		35.5	64.5	902	
Aboriginal and/or Torres Strait Islander												
No	74.9	25.1	13,457	<0.001	51.0	49.0	13,457	<0.001	45.9	54.1	13,457	<0.001
Yes	55.6	44.4	329		28.3	71.7	329		24.9	75.1	329	
AUDIT Score WHO category binary												
Low risk	76.2	23.8	8,140	0.004	53.6	46.4	8,140	<0.001	48.0	52.0	8,140	<0.001
Increasing/higher risk or possible dependence	73.9	26.1	4,461		48.4	51.6	4,461		44.3	55.7	4,461	

	Wave 2 survey non-participation (%)		Obs.	p value	Wave 3 survey non-participation (%)		Obs.	p value	Wave 4 survey non-participation (%)		Obs.	p value
	No	Yes			No	Yes			No	Yes		
Behavioural factors												
BMI												
Less than 25	74.4	25.6	4,073	0.024	51.8	48.2	4,073	0.372	47.4	52.6	4,073	0.970
25 to less than 30	76.4	23.6	5,298		52.7	47.3	5,298		47.7	52.3	5,298	
30 or greater	77.0	23.0	2,983		53.5	46.5	2,983		47.4	52.6	2,983	
Smoking (current)												
No	77.2	22.8	10,886	<0.001	54.9	45.1	10,886	<0.001	49.7	50.3	10,886	<0.001
Yes	65.7	34.3	2,767		34.8	65.2	2,767		30.3	69.7	2,767	
Check-ups with GP - frequency												
Less frequently or never	75.8	24.2	8,103	0.202	51.9	48.1	8,103	0.104	47.4	52.6	8,103	0.001
At least once a year	74.9	25.1	5,219		50.5	49.5	5,219		44.6	55.4	5,219	
Vegetable and fruit serves per day												
No	74.4	25.6	10,236	0.003	50.0	50.0	10,236	<0.001	44.8	55.2	10,236	<0.001
Yes	76.9	23.1	3,344		54.2	45.8	3,344		49.4	50.6	3,344	
AAS Vigorous physical activity												
No	74.2	25.8	11,010	<0.001	49.9	50.1	11,010	<0.001	44.8	55.2	11,010	<0.001
Yes	79.5	20.5	2,259		56.9	43.1	2,259		51.7	48.3	2,259	
Health conditions												
Number of long-term conditions												
No condition	69.1	30.9	2,641	<0.001	43.4	56.6	2,641	<0.001	38.8	61.2	2,641	<0.001
1 condition	73.8	26.2	5,412		50	50.0	5,412		44.6	55.4	5,412	
2 conditions	76.8	23.2	3,382		53	47.0	3,382		48.6	51.4	3,382	
3 conditions	78.9	21.1	1,470		55	45.0	1,470		49.9	50.1	1,470	
4 or more conditions	78.9	21.1	949		56.3	43.7	949		49.8	50.2	949	
Mental health conditions												
No	74.3	25.7	10,448	0.144	49.9	50.1	10,448	0.004	44.9	55.1	10,448	0.003
Yes	75.6	24.4	3,184		52.9	47.1	3,184		47.9	52.1	3,184	
Overall	74.4	25.6	13,891		50.4	49.6	13,891		45.3	54.7	13,891	

Notes: AAS = Active Australia Survey; AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; GP = general practitioner; MOS = Medical Outcomes Study; Obs. = Observations; p = probability; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage; WHO = World Health Organization

Source: Ten to Men Waves 1 to 4

Table S7: Participant characteristics by Wave 4 participation and mental health/long-term condition status at Wave 1

Population group	All adult respondents in Wave 1	Did not participate in Wave 4	Participated in Wave 4	
	Freq. (%)	Freq. (%)	Diagnosed with 1+ mental health or long-term conditions as of Wave 1 Freq. (%)	Study subjects -never diagnosed with any condition as of Wave 1 Freq. (%)
Priority population groups - Wave 1				
Sexuality				
Heterosexual	12,435 (93.2)	6,549 (91.8)	2,040 (95.3)	3,836 (94.6)
Not heterosexual	902 (6.8)	582 (8.2)	101 (4.7)	218 (5.4)
Born in non-English-speaking country or speaks a language other than English				
No	11,759 (84.8)	6,205 (81.9)	2,017 (93.1)	3,529 (85.7)
Yes	2,113 (15.2)	1,370 (18.1)	149 (6.9)	589 (14.3)
Disability				
No	6,898 (50.0)	3,768 (50.1)	881 (40.8)	2,243 (54.7)
Yes	6,892 (50.0)	3,751 (49.9)	1,276 (59.2)	1,858 (45.3)
Aboriginal and/or Torres Strait Islander				
No	13,457 (97.6)	7,281 (96.7)	2,119 (98.4)	4,045 (98.9)
Yes	329 (2.4)	247 (3.3)	35 (1.6)	47 (1.1)
Remoteness				
Major cities	8,194 (59.0)	4,426 (58.3)	1,248 (57.6)	2,510 (61.0)
Inner regional	3,075 (22.1)	1,660 (21.9)	529 (24.4)	885 (21.5)
Outer regional/remote	2,622 (18.9)	1,508 (19.9)	389 (18.0)	723 (17.6)
Economic indicators - Wave 1				
Financial stress				
No	9,249 (68.5)	4,621 (63.7)	1,547 (72.0)	3,073 (75.4)
Yes	4,248 (31.5)	2,639 (36.3)	601 (28.0)	1,003 (24.6)
SEIFA IRSD - socio-economic disadvantage areas				
High	3,641 (26.2)	2,301 (30.3)	499 (23.0)	835 (20.3)
Middle	6,804 (49.0)	3,686 (48.5)	1,036 (47.8)	2,148 (52.2)
Low	3,446 (24.8)	1,607 (21.2)	631 (29.1)	1,135 (27.6)
Social indicators - Wave 1				
Low social support				
No	12,178 (91.1)	6,440 (89.9)	1,961 (91.6)	3,768 (92.9)
Yes	1,196 (8.9)	723 (10.1)	179 (8.4)	290 (7.1)
Discrimination				
No	7,093 (53.4)	3,639 (51.1)	1,142 (53.8)	2,307 (57.2)
Yes	6,196 (46.6)	3,482 (48.9)	979 (46.2)	1,727 (42.8)
Job control (Mean, SD)	3.7 (1.4)	3.6 (1.4)	3.7 (1.3)	3.7 (1.3)
Socio-demographic and behavioural factors				
Age				
18-29 years	3,429 (24.7)	2,250 (29.6)	244 (11.3)	933 (22.7)
30-39 years	3,685 (26.5)	2,076 (27.3)	471 (21.7)	1,132 (27.5)

Population group	All adult respondents in Wave 1	Did not participate in Wave 4	Participated in Wave 4	
	Freq. (%)	Freq. (%)	Diagnosed with 1+ mental health or long-term conditions as of Wave 1 Freq. (%)	Study subjects -never diagnosed with any condition as of Wave 1 Freq. (%)
40-49 years	4,292 (30.9)	2,153 (28.3)	799 (36.9)	1,336 (32.4)
50+ years	2,487 (17.9)	1,117 (14.7)	652 (30.1)	717 (17.4)
Employment type				
Neither working nor looking for work	828 (6.1)	488 (6.7)	152 (7.1)	186 (4.5)
Unemployed and looking for work	1,134 (8.4)	788 (10.8)	128 (6.0)	216 (5.3)
Employed/type unknown	205 (1.5)	154 (2.1)	15 (0.7)	36 (0.9)
Self-employed	1,763 (13.0)	915 (12.5)	294 (13.7)	551 (13.5)
Casual or temporary	1,215 (9.0)	738 (10.1)	140 (6.5)	335 (8.2)
Fixed-term contract	457 (3.4)	216 (3.0)	69 (3.2)	172 (4.2)
Permanent or ongoing	7,964 (58.7)	4,009 (54.9)	1,353 (62.9)	2,598 (63.5)
Educational attainment				
Up to year 12	4,164 (30.9)	2,638 (36.5)	462 (21.5)	1,059 (26.0)
Some qualification beyond Year 12	5,934 (44.1)	3,276 (45.3)	975 (45.4)	1,676 (41.2)
Undergraduate	2,115 (15.7)	842 (11.6)	426 (19.9)	846 (20.8)
Postgraduate	1,247 (9.3)	474 (6.6)	283 (13.2)	490 (12.0)
Occupation				
Machinery operators, drivers or other	2,827 (25.7)	1,742 (30.9)	339 (18.7)	744 (20.9)
Service, clerical, admin or sales works	1,310 (11.9)	641 (11.4)	247 (13.6)	421 (11.8)
Technicians and trades workers	2,668 (24.2)	1,553 (27.5)	350 (19.3)	762 (21.4)
Professionals	2,181 (19.8)	797 (14.1)	483 (26.7)	900 (25.3)
Managers	2,035 (18.5)	907 (16.1)	391 (21.6)	735 (20.6)
Household income				
<\$40,000 per year	1,332 (11.3)	898 (14.7)	165 (8.2)	267 (7.2)
\$40,000-\$79,999	3,203 (27.1)	1,860 (30.5)	457 (22.7)	883 (23.9)
\$80,000-\$124,999	3,425 (29.0)	1,715 (28.1)	607 (30.2)	1,102 (29.9)
\$125,000+	3,844 (32.6)	1,621 (26.6)	782 (38.9)	1,437 (39.0)
Smoking (current)				
No	10,886 (79.7)	5,480 (74.0)	1,850 (86.1)	3,547 (86.9)
Yes	2,767 (20.3)	1,928 (26.0)	299 (13.9)	536 (13.1)
Alcohol use (AUDIT Score)				
Low risk	8,140 (64.6)	4,231 (63.0)	1,356 (66.9)	2,547 (66.2)
Increasing risk	3,356 (26.6)	1,844 (27.5)	508 (25.0)	1,001 (26.0)
Higher risk	603 (4.8)	334 (5.0)	97 (4.8)	172 (4.5)
Possible dependence	502 (4.0)	307 (4.6)	67 (3.3)	127 (3.3)

Notes: AUDIT = Alcohol Use Disorders Identification Test; Freq. = frequency; SD = standard deviation; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage.

Table S8: Participant characteristics among disease-free men at the start of the follow-up period (2013-14)

Variable	2013-14 Freq.(%)	2015-16 Freq. (%)	2020-21 Freq. (%)	2022 Freq. (%)
Experienced financial stress				
No	3,074 (75.22)	2,974 (77.88)	2,973 (85.22)	2,889 (84.9)
Yes	1,013 (24.78)	844 (22.12)	516 (14.78)	514 (15.1)
MOS Emotional/Information subscale score				
None of the time	198 (4.85)	211 (5.53)	313 (9.02)	325 (9.55)
A little of the time	535 (13.14)	531 (13.93)	525 (15.12)	510 (14.99)
Some of the time	982 (24.14)	945 (24.8)	865 (24.9)	711 (20.89)
Most of the time	1,518 (37.32)	1,226 (32.17)	1,102 (31.72)	1,067 (31.36)
All of the time	836 (20.54)	898 (23.57)	668 (19.24)	789 (23.2)
Discrimination - frequency (past 12 months)				
Never	2,222 (54.93)			
Rarely	1,195 (29.54)			
Very often - occasionally	628 (15.53)			
SEIFA IRSD				
High disadvantage	1,104 (26.74)	1,077 (28.02)	943 (27.95)	1,166 (29.43)
Middle disadvantage	2,094 (50.7)	1,918 (49.93)	1,703 (50.47)	1,945 (49.07)
Low disadvantage	931 (22.56)	847 (22.05)	728 (21.58)	852 (21.49)
Age group				
18-29 years	1,211 (29.34)	1,028 (26.66)	620 (17.36)	492 (11.9)
30-39 years	1,166 (28.24)	1,126 (29.2)	998 (27.96)	1,144 (27.71)
40-49 years	1,163 (28.17)	1,014 (26.31)	974 (27.28)	1,126 (27.27)
50+ years	589 (14.26)	687 (17.83)	978 (27.4)	1,368 (33.12)
Education - Highest qualification				
Up to some qualification	2,549 (62.79)	2,256 (59.53)	2,057 (59.38)	2,361 (59.2)
Undergraduate and above	1,510 (37.21)	1,534 (40.47)	1,407 (40.62)	1,627 (40.8)
Education				
Less than year 12	315 (7.77)	242 (6.39)	280 (8.09)	418 (10.48)
Up to some qualification	2,233 (55.02)	2,014 (53.14)	1,777 (51.29)	1,943 (48.71)
Undergraduate or more	1,510 (37.21)	1,534 (40.47)	1,407 (40.62)	1,627 (40.8)
Employment type				
Unemployed/not looking for work	477 (11.62)	388 (10.11)	249 (7.18)	327 (8.17)
Self-employed/casual/fixed term	1,080 (26.3)	983 (25.65)	849 (24.44)	1,336 (33.39)
Permanent or ongoing	2,548 (62.08)	2,462 (64.24)	2,374 (68.38)	2,338 (58.44)
Current occupation				
Technicians to others	1,900 (53.24)	1,788 (52.95)	1,576 (50.58)	1,818 (52.09)
Professionals or managers	1,669 (46.76)	1,588 (47.05)	1,540 (49.42)	1,673 (47.91)
Combined household income				
<\$80,000	1,188 (32.12)	975 (27.56)	896 (27.56)	757 (23.83)
\$80,000-\$124,999	1,070 (28.92)	1,057 (29.85)	868 (26.69)	719 (22.66)
\$125,000+	1,441 (38.96)	1,508 (42.6)	1,488 (45.76)	1,699 (53.51)
Remoteness				
Major cities	3,180 (77.02)	2,960 (76.96)	2,584 (76.4)	2,987 (75.1)
Inner regional	627 (15.19)	589 (15.31)	556 (16.45)	663 (16.65)

Variable	2013-14 Freq.(%)	2015-16 Freq. (%)	2020-21 Freq. (%)	2022 Freq. (%)
Outer regional/remote	322 (7.79)	297 (7.73)	242 (7.15)	328 (8.25)
Disability				
No	2,282 (55.5)	1,965 (51.16)	2,348 (65.92)	2,623 (63.66)
Yes	1,830 (44.5)	1,876 (48.84)	1,214 (34.08)	1,497 (36.34)
Born in non-English-speaking country or speaks a language other than English				
No	3,394 (82.21)	3,119 (80.92)	2,901 (81.29)	3,311 (80.18)
Yes	735 (17.79)	736 (19.08)	668 (18.71)	818 (19.82)
Sexuality				
Heterosexual	3,814 (93.86)	3,549 (93.41)	3,173 (91.9)	3,136 (93.19)
Non-heterosexual	249 (6.14)	250 (6.59)	280 (8.1)	229 (6.81)
Smoking (current)				
No	3,563 (87.03)	3,354 (87.53)	3,173 (88.97)	3,565 (87.36)
Yes	531 (12.97)	478 (12.47)	393 (11.03)	513 (12.58)
Alcohol - AUDIT Score				
Low risk	2,553 (61.82)	2,371 (61.51)	2,458 (68.86)	2,490 (60.31)
Increasing/higher risk or possible dependence	1,317 (31.9)	1,081 (28.03)	1,097 (30.74)	940 (22.76)
BMI				
Less than 25	1,553 (40.54)	1,403 (39.03)	1,130 (32.99)	1,194 (30.28)
25 to less than 30	1,571 (41.01)	1,477 (41.08)	1,485 (43.37)	1,740 (44.14)
30 or greater	707 (18.45)	715 (19.89)	810 (23.64)	1,008 (25.58)
Check-ups with GP				
Less frequently or never	2,782 (68.73)	2,439 (64.05)	1,885 (54.61)	1,775 (52.53)
At least once a year	1,265 (31.27)	1,369 (35.95)	1,566 (45.39)	1,605 (47.47)
Vegetable and fruit serves per day				
No	3,021 (73.97)			
Yes	1,063 (26.03)			
AAS Vigorous physical activity (time spent and no. of times)				
No	3,259 (81.6)	2,978 (79.75)	1,882 (55.29)	1,921 (58.01)
Yes	735 (18.4)	756 (20.25)	1,521 (44.71)	1,390 (41.99)

Notes: AAS = Active Australia Survey; AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; GP = general practitioner; MOS = Medical Outcomes Study; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage

Source: Ten to Men survey data

Table S9: Incidence rate of individual mental health and long-term conditions per 1,000 person-years

Health condition	Person-time	Failures	Rate [95% CI]
Two or more mental health or long-term conditions	33	689	20.8 [19.3, 22.4]
Two or more long-term conditions	34	532	15.8 [14.5, 17.2]
New mental health condition/s	33	315	9.5 [8.5, 10.6]
High BP	31	374	12.2 [11.1, 13.5]
Long COVID	27	296	11 [9.8, 12.4]
High cholesterol	31	340	11 [9.8, 12.2]
Back/spine pain or injury	31	214	6.9 [6, 7.9]
Depression	31	213	6.9 [6, 7.8]
Anxiety	32	169	5.3 [4.5, 6.1]
Sleep apnoea	33	161	4.9 [4.2, 5.7]
Other health condition	34	158	4.7 [4, 5.5]
Arthritis	32	130	4.0 [3.4, 4.8]
High blood lipids	34	127	3.7 [3.1, 4.4]
Heart disease	34	95	2.8 [2.3, 3.4]
Cancer	34	87	2.6 [2.1, 3.2]
Type 2 diabetes	33	81	2.4 [1.9, 3.01]
Hearing impairment	33	81	2.4 [1.9, 3.01]
Other mental health	32	48	1.5 [1.1, 1.98]
Asthma	32	35	1.1 [0.8, 1.6]
Stroke	34	17	0.49 [0.31, 0.79]
Chronic lung disease	34	8	0.23 [0.12, 0.47]
Autism	34	6	0.17 [0.08, 0.39]
Mild cognitive impairment	35	3	0.09 [0.03, 0.27]
Dementia	35	2	0.06 [0.01, 0.23]

Notes: BP = blood pressure; CI = confidence interval.

Source: Ten to Men survey data

Table S10: Incidence rate of 1+ mental health conditions, multiple long-term physical health conditions, and multiple long-term health conditions by selected exposure variables (socio-economic indicators and priority population groups)

Exposure variable	Mental health conditions			Multiple long-term physical health conditions			Multiple long-term health conditions		
	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years
Socio-economic indicators									
Experienced financial stress									
No	24.92	210	8.43 [7.36, 9.65]	25.27	385	15.24 [13.79, 16.84]	23.77	494	20.78 [19.03, 22.70]
Yes	7.90	106	13.42 [11.09, 16.23]	8.14	148	18.17 [15.47, 21.35]	7.6	193	25.4 [22.06, 29.25]
Social support									
None of the time	1.58	18	11.43 [7.20, 18.14]	1.64	32	19.46 [13.76, 27.51]	1.49	43	28.93 [21.45, 39.00]
A little of the time	4.45	44	9.89 [7.36, 13.29]	4.55	71	15.61 [12.37, 19.69]	4.25	95	22.33 [18.26, 27.30]
Some of the time	8.01	68	8.49 [6.69, 10.77]	8.17	145	17.74 [15.08, 20.88]	7.66	174	22.71 [19.58, 26.35]
Most of the time	11.68	122	10.45 [8.75, 12.48]	11.86	188	15.85 [13.74, 18.29]	11.12	249	22.38 [19.77, 25.34]
All of the time	6.97	59	8.46 [6.56, 10.92]	7.04	95	13.5 [11.04, 16.51]	6.72	121	18.02 [15.08, 21.53]
Discrimination									
Never	18.53	187	10.09 [8.75, 11.65]	18.99	275	14.48 [12.87, 16.30]	17.86	364	20.38 [18.39, 22.58]
Any (Rarely, often or always)	13.99	122	8.72 [7.30, 10.42]	14.09	251	17.82 [15.74, 20.16]	13.21	310	23.46 [20.99, 26.22]
SEIFA IRSD									
High disadvantage	6.69	60	8.97 [6.96, 11.55]	6.81	113	16.59 [13.80, 19.95]	6.37	142	22.28 [18.90, 26.26]
Middle disadvantage	17.36	167	9.62 [8.27, 11.2]	17.62	286	16.23 [14.45, 18.22]	16.51	368	22.28 [20.12, 24.68]
Low disadvantage	9.12	90	9.87 [8.02, 12.13]	9.33	135	14.46 [12.22, 17.12]	8.83	179	20.27 [17.50, 23.46]
Priority population groups									
Remoteness									
Major cities	20.14	201	9.98 [8.69, 11.46]	20.66	295	14.28 [12.74, 16.01]	19.48	385	19.77 [17.89, 21.84]
Inner regional	7.2	71	9.86 [7.81, 12.44]	7.24	129	17.81 [14.99, 21.17]	6.74	169	25.06 [21.55, 29.14]
Outer regional	5.83	45	7.72 [5.76, 10.33]	5.87	110	18.74 [15.54, 22.59]	5.5	135	24.54 [20.73, 29.05]
Language spoken at home									
English	30.45	311	10.21 [9.14, 11.41]	31.03	504	16.24 [14.89, 17.73]	29.06	656	22.57 [20.91, 24.37]
Other than English	2.45	5	2.04 [0.85, 4.90]	2.47	28	11.34 [7.83, 16.42]	2.4	30	12.52 [8.75, 17.91]

Exposure variable	Mental health conditions			Multiple long-term physical health conditions			Multiple long-term health conditions		
	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years
Country of birth									
Australian born	25.55	276	10.8 [9.60, 12.16]	26.05	431	16.54 [15.05, 18.18]	24.37	561	23.02 [21.20, 25.01]
Immigrant, English-speaking countries	3.00	29	9.66 [6.71, 13.9]	3.04	53	17.44 [13.32, 22.82]	2.83	71	25.06 [19.86, 31.62]
Immigrant, other countries	4.62	12	2.60 [1.48, 4.58]	4.68	50	10.69 [8.10, 14.11]	4.52	57	12.61 [9.72, 16.34]
Aboriginal and or Torres Strait Islander									
No	32.58	309	9.48 [8.48, 10.6]	33.18	523	15.76 [14.47, 17.18]	31.18	673	21.58 [20.01, 23.28]
Yes	0.37	7	18.81 [8.97, 39.46]	0.38	7	18.42 [8.78, 38.64]	0.35	11	31.83 [17.63, 57.47]
Disability									
No	32.58	309	8.08 [6.88, 9.50]	18.52	248	13.39 [11.82, 15.17]	17.63	326	18.49 [16.59, 20.61]
Yes	0.37	7	11.33 [9.74, 13.19]	15.1	284	18.80 [16.74, 21.12]	13.96	359	25.72 [23.19, 28.52]
Sexuality									
Heterosexual	30.94	300	9.70 [8.66, 10.86]	31.45	500	15.90 [14.56, 17.35]	29.53	646	21.88 [20.25, 23.63]
Non-heterosexual	1.72	16	9.30 [5.70, 15.18]	1.79	27	15.09 [10.35, 22.01]	1.68	36	21.41 [15.45, 29.69]
Other factors									
Age									
18-29 years	7.38	105	14.22 [11.75, 17.22]	7.86	50	6.36 [4.82, 8.39]	7.49	103	13.76 [11.34, 16.69]
30-39 years	9.01	101	11.21 [9.22, 13.62]	9.4	119	12.66 [10.58, 15.16]	8.82	170	19.28 [16.59, 22.41]
40-49 years	10.91	78	7.15 [5.73, 8.93]	10.84	210	19.38 [16.93, 22.18]	10.19	243	23.85 [21.03, 27.04]
50+ years	5.87	33	5.62 [4.00, 7.91]	5.67	155	27.34 [23.35, 32.00]	5.23	173	33.09 [28.51, 38.40]
Education									
Up to some qualification	21.76	220	10.11 [8.86, 11.54]	22.12	370	16.73 [15.11, 18.53]	20.67	484	23.42 [21.42, 25.60]
Undergraduate and above	10.84	91	8.39 [6.83, 10.31]	11.07	160	14.46 [12.38, 16.88]	10.49	198	18.88 [16.43, 21.70]
Employment									
Not working to casual or temporary	11.93	122	10.22 [8.56, 12.21]	12.37	174	14.07 [12.13, 16.33]	11.67	234	20.06 [17.65, 22.80]
Fixed term to permanent or ongoing	21.04	193	9.17 [7.97, 10.56]	21.2	360	16.98 [15.32, 18.83]	19.86	453	22.81 [20.80, 25.01]

Exposure variable	Mental health conditions			Multiple long-term physical health conditions			Multiple long-term health conditions		
	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years	Person-time	Failures	Rate/1,000 person-years
Occupation									
Technicians to others	15.53	154	9.91 [8.47, 11.61]	15.79	252	15.96 [14.11, 18.06]	14.75	333	22.58 [20.28, 25.14]
Professionals or managers	13.31	119	8.94 [7.47, 10.70]	13.37	237	17.72 [15.60, 20.13]	12.58	286	22.73 [20.24, 25.52]
Household income									
<\$80,000 per year	9.20	88	9.56 [7.76, 11.79]	9.43	159	16.86 [14.44, 19.70]	8.82	205	23.24 [20.27, 26.65]
\$80,000-\$124,999	8.93	88	9.86 [8.00, 12.15]	9.02	146	16.19 [13.77, 19.04]	8.44	190	22.51 [19.53, 25.95]
\$125,000+	11.66	108	9.26 [7.67, 11.18]	11.75	197	16.77 [14.59, 19.28]	11	250	22.72 [20.07, 25.72]
Smoking									
No	28.61	278	9.72 [8.64, 10.93]	29.13	455	15.62 [14.25, 17.12]	27.33	593	21.70 [20.02, 23.52]
Yes	4.27	38	8.90 [6.48, 12.23]	4.34	78	17.96 [14.39, 22.42]	4.1	95	23.15 [18.93, 28.31]
Alcohol - AUDIT									
Low risk	20.56	185	9.00 [7.79, 10.39]	20.86	339	16.26 [14.61, 18.08]	19.58	425	21.70 [19.73, 23.87]
Increasing/higher risk or possible dependence	10.41	115	11.04 [9.20, 13.26]	10.66	167	15.67 [13.46, 18.23]	10.02	225	22.46 [19.71, 25.59]
Check-ups with GP - frequency									
Less frequently or never	22.06	218	9.88 [8.65, 11.29]	22.54	325	14.42 [12.93, 16.07]	21.22	434	20.45 [18.62, 22.47]
At least Once a year	10.47	91	8.69 [7.08, 10.67]	10.54	202	19.16 [16.69, 21.99]	9.87	241	24.43 [21.53, 27.71]
BMI									
Less than 25	11.17	109	9.75 [8.09, 11.77]	11.54	120	10.40 [8.69, 12.43]	11.04	175	15.86 [13.67, 18.39]
25 to less than 30	13.13	131	9.98 [8.41, 11.84]	13.46	212	15.75 [13.76, 18.02]	12.51	282	22.55 [20.07, 25.34]
30 or greater	6.47	59	9.11 [7.06, 11.76]	6.32	171	27.08 [23.31, 31.46]	5.86	191	32.60 [28.29, 37.57]
Recommended serves of vegetables and fruit serves per day									
No	24.36	239	9.81 [8.64, 11.14]	24.82	410	16.52 [15, 18.2]	23.21	539	23.22 [21.34, 25.26]
Yes	8.44	78	9.24 [7.40, 11.54]	8.59	120	13.97 [11.68, 16.71]	8.15	146	17.92 [15.24, 21.07]
Vigorous physical activity (no. of times)									
No	25.94	266	10.25 [9.09, 11.56]	26.39	422	15.99 [14.54, 17.59]	24.77	553	22.33 [20.54, 24.27]
Yes	6.18	40	6.47 [4.74, 8.82]	6.28	95	15.12 [12.37, 18.49]	5.93	115	19.40 [16.16, 23.29]
Total	33.17	317	9.56 [8.56, 10.67]	33.77	534	15.81 [14.53, 17.21]	31.72	689	21.72 [20.16, 23.40]

Notes: AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; GP = general practitioner; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage

Source: Ten to Men survey data

Table S11: Association between socio-economic indicators and new onset of mental health conditions – Cox proportional hazard ratio

Predictors/covariates	Unadj.HR [95% CI]	p value	Adj.HR [95% CI]	p value
Experienced financial stress (ref = No)				
Yes	1.60 [1.27, 2.02]	<0.001	1.53 [1.18, 1.98]	0.001
Social support: Emotional/Information subscale score (ref = None of the time)				
Some of the time	0.82 [0.58, 1.16]	0.271	0.74 [0.52, 1.06]	0.098
Most of the time	1.02 [0.75, 1.38]	0.917	0.87 [0.63, 1.19]	0.386
All of the time	0.82 [0.58, 1.17]	0.282	0.66 [0.45, 0.96]	0.028
SEIFA IRSD (ref = High disadvantage)				
Middle disadvantage	1.07 [0.8, 1.44]	0.638	1.11 [0.80, 1.52]	0.536
Low disadvantage	1.10 [0.79, 1.52]	0.569	1.16 [0.81, 1.68]	0.416
Job quality (Score)	0.89 [0.81, 0.97]	0.007	0.87 [0.79, 0.96]	0.004
Discrimination (ref = Never)				
Any (Rarely, often or always)	0.86 [0.69, 1.08]	0.205	0.90 [0.71, 1.14]	0.369
Language spoken at home (ref = English)				
Other than English	0.20 [0.08, 0.48]	<0.001	0.45 [0.16, 1.26]	0.130
Country of birth (ref = Australian-born)				
Immigrant, English-speaking countries	0.89 [0.61, 1.31]	0.563	1.04 [0.70, 1.54]	0.862
Immigrant, other countries	0.24 [0.13, 0.43]	<0.001	0.33 [0.16, 0.66]	0.002
Remoteness (ref = Major cities)				
Inner regional	0.99 [0.75, 1.29]	0.919	0.86 [0.65, 1.14]	0.295
Outer regional/remote	0.77 [0.56, 1.07]	0.116	0.67 [0.48, 0.93]	0.018
Disability – Some difficulty/a lot of difficulty/cannot do at all (ref = No)				
	1.40 [1.13, 1.75]	0.003	1.47 [1.17, 1.86]	0.001
Aboriginal and or Torres Strait Islander (ref = Yes)				
Yes	1.99 [0.94, 4.22]	0.071	1.68 [0.78, 3.60]	0.184
Sexuality (ref = Heterosexual)				
Not male-identifying and/or non-heterosexual	0.96 [0.58, 1.58]	0.867	0.99 [0.58, 1.67]	0.960
Age (ref = 18–29)				
30–39	0.79 [0.60, 1.03]	0.084	0.78 [0.58, 1.05]	0.104
40–49	0.50 [0.37, 0.67]	<0.001	0.47 [0.34, 0.66]	<0.001
50+	0.39 [0.27, 0.58]	<0.001	0.35 [0.23, 0.54]	<0.001
Education – Highest qualification (ref = Less than year 12)				
Up to some qualification	1.33 [0.87, 2.03]	0.186	1.11 [0.72, 1.74]	0.633
Undergraduate or more	1.07 [0.68, 1.67]	0.783	0.94 [0.57, 1.54]	0.795
Employment type (ref = Not working/not looking for work)				
Employed self/casual/fixed	0.92 [0.62, 1.37]	0.688	0.99 [0.65, 1.51]	0.957
Permanent or ongoing	0.85 [0.59, 1.22]	0.368	0.93 [0.63, 1.40]	0.741
Occupation (ref = Technicians to others)				
Professionals or managers	0.90 [0.71, 1.14]	0.390	1.04 [0.78, 1.38]	0.794
Household income (ref = <\$80,000)				
\$80,000, \$124,999	1.03 [0.77, 1.39]	0.838	1.06 [0.77, 1.45]	0.728
\$125,000+	0.97 [0.73, 1.28]	0.822	1.08 [0.79, 1.47]	0.618

Predictors/covariates	Unadj.HR [95% CI]	p value	Adj.HR [95% CI]	p value
AUDIT Score WHO category (ref = Low risk)				
Increasing/higher risk or possible dependence	1.57 [1.25, 1.97]	<0.001	1.33 [1.04, 1.68]	0.021
Current smoking (ref = No)				
Yes	1.57 [1.25, 1.97]	<0.001	1.33 [1.04, 1.68]	0.021
BMI (ref = Less than 25)				
25 to less than 30	1.02 [0.79, 1.32]	0.862	1.04 [0.79, 1.36]	0.784
30 or higher	0.93 [0.68, 1.28]	0.670	0.95 [0.68, 1.32]	0.756
Check-ups with GP (ref = Never/Less frequently)				
At least once a year	0.88 [0.69, 1.12]	0.298	1.22 [0.94, 1.59]	0.134
Recommended serves of vegetables and fruit er day (ref = No)				
Yes	0.94 [0.73, 1.22]	0.645	0.91 [0.70, 1.19]	0.513
Vigorous physical activity (ref = No)				
Yes	0.63 [0.45, 0.88]	0.006	0.65 [0.46, 0.92]	0.014

Notes: Adj.HR = Adjusted hazards ratio; AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; CI = confidence interval; GP = general practitioner; no. = number; p = probability; ref = reference; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage; Unadj.HR = Unadjusted hazards ratio.

Source: Ten to Men survey data

Table S12: Association between socio-economic indicators and new onset of multiple long-term physical health conditions – Cox proportional hazard ratio

Predictors/covariates	Unadj.HR [95% CI]	p value	Adj.HR [95% CI]	p value
Experienced financial stress (ref = No)				
Yes	1.21 [1.00, 1.46]	0.051	1.29 [1.04, 1.58]	0.019
Socia support: Emotional/Information subscale score (ref = None of the time)				
Some of the time	1.08 [0.84, 1.39]	0.559	1.24 [0.95, 1.60]	0.110
Most of the time	0.96 [0.76, 1.22]	0.751	1.14 [0.89, 1.47]	0.306
All of the time	0.80 [0.61, 1.06]	0.123	1.04 [0.78, 1.39]	0.781
SEIFA IRSD (ref = High disadvantage)				
Middle disadvantage	0.98 [0.78, 1.21]	0.820	0.98 [0.77, 1.24]	0.841
Low disadvantage	0.86 [0.67, 1.10]	0.229	0.84 [0.63, 1.11]	0.211
Job quality (Score)	1.03 [0.96, 1.10]	0.422	1.02 [0.95, 1.09]	0.654
Discrimination (ref = Never)				
Any (Rarely, often or always)	1.23 [1.04, 1.46]	0.017	1.28 [1.06, 1.51]	0.010
Language spoken at home (ref = English)				
Other than English	0.67 [0.46, 0.98]	0.041	1.42 [0.85, 2.39]	0.183
Country of birth (ref = Australian-born)				
Immigrant, English-speaking countries	1.05 [0.79, 1.40]	0.715	0.92 [0.68, 1.24]	0.585
Immigrant, other countries	0.62 [0.46, 0.83]	0.002	0.60 [0.40, 0.90]	0.013
Aboriginal or Torres Strait Islander (ref = No)				
Yes	1.17 [0.55, 2.46]	0.687	1.30 [0.61, 2.77]	0.498
Remoteness (ref = Major cities)				
Inner regional	1.23 [1.00, 1.51]	0.053	1.13 [0.91, 1.40]	0.263
Outer regional/remote	1.36 [1.10, 1.70]	0.006	1.21 [0.96, 1.52]	0.100

Predictors/covariates	Unadj.HR [95% CI]	p value	Adj.HR [95% CI]	p value
Disability - Some difficulty/a lot of difficulty/cannot do at all (ref = No)				
Yes	1.41 [1.19, 1.67]	<0.001	1.17 [0.98, 1.39]	0.090
Sexuality (ref = Male-identifying heterosexual)				
Not male-identifying and/or non-heterosexual	0.95 [0.65, 1.41]	0.811	1.18 [0.79, 1.75]	0.421
Age (ref = 18-29)				
30-39	2.02 [1.45, 2.82]	<0.001	1.74 [1.22, 2.47]	0.002
40-49	3.17 [2.33, 4.31]	<0.001	2.64 [1.88, 3.69]	<0.001
50+	4.55 [3.30, 6.25]	<0.001	3.82 [2.69, 5.41]	<0.001
Education - Highest qualification (ref = Less than year 12)				
Up to some qualification	0.80 [0.61, 1.06]	0.119	1.03 [0.77, 1.38]	0.851
Undergraduate or more	0.71 [0.53, 0.95]	0.021	0.99 [0.71, 1.40]	0.976
Employment type (ref = Not working/not looking for work)				
Employed self/casual/ fixed	1.74 [1.18, 2.57]	0.005	1.64 [1.08, 2.48]	0.019
Permanent or ongoing	1.87 [1.29, 2.69]	0.001	1.76 [1.18, 2.62]	0.005
Occupation (ref = Technicians to others)				
Professionals or managers	1.11 [0.93, 1.32]	0.269	1.02 [0.82, 1.26]	0.874
Household income (ref = <\$80,000)				
\$80,000-\$124,999	0.96 [0.77, 1.21]	0.741	0.81 [0.63, 1.03]	0.079
\$125,000+	0.99 [0.81, 1.22]	0.951	0.82 [0.65, 1.04]	0.098
AUDIT Score WHO category (ref = Low risk)				
Increasing/higher risk or possible dependence	0.93 [0.77, 1.12]	0.452	0.95 [0.78, 1.16]	0.631
Current smoking (ref = No)				
Yes	1.15 [0.91, 1.47]	0.243	1.22 [0.95, 1.58]	0.123
BMI (ref = Less than 25)				
25 to less than 30	1.55 [1.24, 1.93]	<0.001	1.30 [1.03, 1.64]	0.028
30 or higher	2.72 [2.15, 3.43]	<0.001	2.33 [1.82, 2.97]	<0.001
Check-ups with GP (ref = Never/Less frequently)				
At least once a year	1.33 [1.12, 1.59]	0.001	1.17 [0.97, 1.41]	0.106
Recommended serves of vegetables and fruit per day (ref = No)				
Yes	0.84 [0.68, 1.03]	0.092	0.89 [0.72, 1.10]	0.300
Vigorous physical activity (ref = No)				
Yes	0.93 [0.74, 1.16]	0.524	0.93 [0.74, 1.18]	0.557

Notes: Adj.HR = Adjusted hazards ratio; AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; CI = confidence interval; GP = general practitioner; no. = number; p = probability; ref = reference; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage; Unadj.HR = Unadjusted hazards ratio; WHO = World Health Organization.

Source: Ten to Men survey data

Table S13: Association between socio-economic indicators and new onset of multiple long-term health conditions – Cox proportional hazard ratio

Predictors/covariates	Unad.HR [95% CI]	p value	Adj.HR [95% CI]	p value
Experienced financial stress (ref = No)				
Yes	1.22 [1.03, 1.44]	0.020	1.23 [1.03, 1.48]	0.026
Socia support: Emotional/Information subscale score (ref = None of the time)				
Some of the time	0.95 [0.76, 1.18]	0.630	1.01 [0.80, 1.27]	0.916
Most of the time	0.93 [0.76, 1.15]	0.508	1.01 [0.82, 1.26]	0.902
All of the time	0.75 [0.59, 0.96]	0.023	0.85 [0.66, 1.10]	0.220
SEIFA IRSD (ref = High disadvantage)				
Middle disadvantage	1.00 [0.83, 1.22]	0.987	1.06 [0.86, 1.31]	0.596
Low disadvantage	0.91 [0.73, 1.14]	0.409	0.98 [0.77, 1.26]	0.904
Job quality (Score)	0.99 [0.93, 1.05]	0.767	0.99 [0.93, 1.05]	0.716
Discrimination (ref = Never)				
Any (Rarely, often or always)	1.15 [0.99, 1.34]	0.071	1.18 [1.00, 1.38]	0.045
Language spoken at home (ref = English)				
Other than English	0.56 [0.39, 0.80]	0.002	1.10 [0.68, 1.78]	0.697
Country of birth (ref = Australian-born)				
Immigrant, English-speaking countries	1.09 [0.85, 1.40]	0.494	1.02 [0.79, 1.32]	0.886
Immigrant, other countries	0.55 [0.42, 0.72]	<0.001	0.58 [0.41, 0.84]	0.004
Remoteness (ref = Major cities)				
Inner regional	1.27 [1.06, 1.52]	0.011	1.17 [0.97, 1.41]	0.111
Outer regional/remote	1.24 [1.02, 1.51]	0.033	1.10 [0.90, 1.35]	0.355
Aboriginal or Torres Strait Islander (ref = No)				
Yes	1.46 [0.81, 2.66]	0.209	1.48 [0.81, 2.71]	0.205
Disability – Some difficulty/a lot of difficulty/cannot do at all (ref = No)				
Yes	0.98 [0.70, 1.37]	0.897	1.15 [0.81, 1.62]	0.444
Sexuality (ref = Male-identifying heterosexual)				
Not male-identifying and/or non-heterosexual	0.98 [0.70, 1.37]	0.897	1.15 [0.81, 1.62]	0.444
Age (ref = 18–29)				
30–39	1.40 [1.09, 1.78]	0.007	1.20 [0.92, 1.56]	0.172
40–49	1.72 [1.37, 2.17]	<0.001	1.43 [1.11, 1.84]	0.006
50+	2.38 [1.87, 3.04]	<0.001	1.99 [1.52, 2.61]	<0.001
Education – Highest qualification (ref = Less than year 12)				
Up to some qualification	0.92 [0.72, 1.18]	0.501	1.06 [0.81, 1.37]	0.690
Undergraduate or more	0.75 [0.58, 0.98]	0.038	0.95 [0.70, 1.29]	0.754
Employment type (ref = Not working/not looking for work)				
Employed self/casual/fixed	1.39 [1.02, 1.90]	0.040	1.32 [0.94, 1.84]	0.104
Permanent or ongoing	1.45 [1.09, 1.95]	0.012	1.36 [0.99, 1.86]	0.058
Occupation (ref = Technicians to others)				
Professionals or managers	1.01 [0.86, 1.18]	0.922	0.98 [0.81, 1.18]	0.792
Household income (ref = <\$80,000)				
\$80,000–\$124,999	0.97 [0.79, 1.18]	0.746	0.87 [0.70, 1.07]	0.181
\$125,000+	0.98 [0.81, 1.17]	0.801	0.88 [0.72, 1.09]	0.237
AUDIT Score WHO category (ref = Low risk)				
Increasing/higher risk or possible dependence	1.14 [0.97, 1.34]	0.115	1.09 [0.92, 1.30]	0.296

Predictors/covariates	Unadj.HR [95% CI]	p value	Adj.HR [95% CI]	p value
Current smoking (ref = No)				
Yes	1.07 [0.86, 1.32]	0.562	1.06 [0.84, 1.33]	0.645
BMI (ref = Less than 25)				
25 to less than 30	1.42 [1.17, 1.71]	<0.001	1.23 [1.01, 1.50]	0.039
30 or higher	2.04 [1.66, 2.50]	<0.001	1.75 [1.41, 2.17]	<0.001
Check-ups with GP (ref = Never/Less frequently)				
At least once a year	1.19 [1.02, 1.39]	0.030	1.18 [0.99, 1.39]	0.060
Recommended serves of vegetables and fruit per day (ref = No)				
Yes	0.77 [0.64, 0.93]	0.006	0.79 [0.65, 0.96]	0.016
Vigorous physical activity (ref = No)				
Yes	0.87 [0.71, 1.06]	0.176	0.90 [0.73, 1.11]	0.322

Notes: Adj.HR = Adjusted hazards ratio; AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; CI = confidence interval; GP = general practitioner; MESC = Mainly English-speaking country; no. = number; p = probability; ref = reference; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage; Unadj.HR = Unadjusted hazards ratio.

Source: *Ten to Men* survey data

Table S14: Participant characteristics by financial stress status in Wave 1

Priority population group	All adults in Wave 1 Freq. (%)	No financial stress in Wave 1 Freq. (%)	No financial stress in W1 and participated in FU survey/s Freq. (%)
Sexuality			
Heterosexual	12,435 (93.2)	8,510 (94.0)	6,986 (94.6)
Not heterosexual	902 (6.8)	540 (6.0)	397 (5.4)
Born in non-English-speaking country or speaks a language other than English			
No	11,759 (84.8)	7,777 (84.2)	6,439 (85.7)
Yes	2,113 (15.2)	1,462 (15.8)	1,072 (14.3)
Disability			
No	6,898 (50.0)	5,084 (55.2)	4,076 (54.5)
Yes	6,892 (50.0)	4,125 (44.8)	3,408 (45.5)
Aboriginal and/or Torres Strait Islander			
No	13,457 (97.6)	9,051 (98.4)	7,375 (98.7)
Yes	329 (2.4)	146 (1.6)	98 (1.3)
Remoteness			
Major cities	8,194 (59.0)	5,590 (60.4)	4,514 (60.1)
Inner regional	3,075 (22.1)	1,960 (21.2)	1,658 (22.1)
Outer regional/remote	2,622 (18.9)	1,698 (18.4)	1,341 (17.8)
Disadvantaged areas			
High disadvantage	3,641 (26.2)	2,043 (22.1)	1,553 (20.7)
Middle disadvantage	6,986 (50.3)	4,666 (50.5)	3,841 (51.1)
Low disadvantage	3,264 (23.5)	2,539 (27.5)	2,119 (28.2)
Low social support			
No	12,178 (91.1)	8,436 (92.5)	6,888 (92.7)
Yes	1,196 (8.9)	681 (7.5)	541 (7.3)
Total	13,893	9,249	7,514

Notes: FU = follow-up.

Source: *Ten to Men* survey data

Table S15: Patterns of socio-economic disadvantage (measured by the SEIFA IRSD) between Waves 1 and 4

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
Medium	Medium	Medium	Medium	1,578	31.2
Low	Low	Low	Low	797	15.8
High	High	High	High	614	12.1
Low	Low	Medium	Medium	352	7.0
Medium	Medium	High	High	327	6.5
Medium	Medium	Low	Low	195	3.9
High	High	Medium	Medium	152	3.0
Medium	High	High	High	120	2.4
High	Medium	Medium	Medium	76	1.5
Low	Low	Low	Medium	69	1.4
Low	Medium	Medium	Medium	65	1.3
Medium	Medium	Medium	High	61	1.2
Medium	Low	Low	Low	56	1.1
High	High	High	Medium	54	1.1
Medium	Low	Medium	Medium	45	0.9
Medium	High	Medium	Medium	42	0.8
Medium	Medium	Medium	Low	42	0.8
Low	Low	High	High	37	0.7
Medium	Medium	High	Medium	36	0.7
High	Medium	High	High	34	0.7
High	High	Low	Low	26	0.5
Medium	Medium	Low	Medium	18	0.4
Low	Low	Medium	Low	17	0.3
High	Medium	Low	Low	12	0.2
Low	Medium	Low	Low	12	0.2
High	Low	Low	Low	11	0.2
Low	High	High	High	11	0.2
Low	Low	Low	High	11	0.2
High	High	Medium	High	10	0.2
Low	Low	Medium	High	10	0.2
High	High	High	Low	8	0.2
High	Medium	Medium	High	8	0.2
Medium	High	High	Medium	8	0.2
Medium	High	Medium	High	7	0.1
Medium	Medium	High	Low	7	0.1
Medium	Medium	Low	High	7	0.1
Medium	Low	High	High	7	0.1
Low	Low	High	Medium	7	0.1
High	Medium	High	Medium	6	0.1
High	Low	Medium	Medium	6	0.1
Medium	Low	Low	Medium	6	0.1
Low	Medium	High	High	6	0.1
Low	Medium	Medium	High	6	0.1

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
Medium	High	Medium	Low	5	0.1
Low	Medium	Medium	Low	5	0.1
Confidentialised (cell count < 5)	High	Low	Medium	65	0.1
Total				5,054	100

Notes: SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage.

Source: Ten to Men survey data

Table S16: Patterns of social support (measured by MOS Emotional/Information subscale score) between Waves 1 and 4

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
None/A little	None/A little	None/A little	None/A little	295	5.9
Most	Most	Most	Most	236	4.8
All	All	All	All	220	4.4
Some	None/A little	None/A little	None/A little	92	1.9
Most	All	All	All	92	1.9
Most	Most	Most	All	83	1.7
Most	Most	All	All	82	1.7
All	All	Most	All	82	1.7
Some	Some	Some	Some	81	1.6
All	Most	Most	Most	80	1.6
Some	Most	Most	Most	79	1.6
Some	Some	None/A little	None/A little	78	1.6
Most	Some	Most	Most	72	1.5
All	Most	All	All	71	1.4
Most	Most	Some	Most	69	1.4
Most	Most	Some	Some	67	1.4
Most	Most	Most	Some	66	1.3
Most	All	Most	Most	64	1.3
All	All	Most	Most	57	1.1
Some	Some	Most	Most	56	1.1
Most	Most	All	Most	56	1.1
None/A little	Some	None/A little	None/A little	51	1.0
Some	None/A little	Some	Some	50	1.0
Some	Some	Some	Most	49	1.0
Most	All	Most	All	49	1.0
Most	All	All	Most	49	1.0
None/A little	None/A little	None/A little	Some	48	1.0
None/A little	None/A little	Some	None/A little	47	0.9
Most	Some	Some	Some	47	0.9
Some	Some	Some	None/A little	46	0.9
All	All	All	Most	45	0.9
Most	None/A little	None/A little	None/A little	44	0.9

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
Some	Most	Some	Some	43	0.9
Most	Some	Some	Most	43	0.9
None/A little	Some	None/A little	Some	42	0.8
Some	Some	None/A little	Some	42	0.8
Most	Some	Most	Some	41	0.8
None/A little	Some	Some	None/A little	39	0.8
Some	Some	Most	Some	39	0.8
Some	None/A little	Some	None/A little	38	0.8
All	Most	All	Most	38	0.8
All	Most	Most	All	37	0.7
None/A little	Some	Some	Some	34	0.7
Some	Most	Some	Most	33	0.7
Some	Most	Most	Some	33	0.7
Most	Some	None/A little	None/A little	30	0.6
None/A little	None/A little	Some	Some	29	0.6
All	Most	Some	Most	29	0.6
Some	Some	None/A little	Most	28	0.6
Some	Most	Some	None/A little	28	0.6
Most	Some	Some	None/A little	28	0.6
Most	Most	Some	None/A little	28	0.6
Most	Most	Most	None/A little	28	0.6
Some	None/A little	None/A little	Some	27	0.5
Most	Some	None/A little	Some	26	0.5
Some	Most	None/A little	None/A little	24	0.5
Most	Most	None/A little	None/A little	23	0.5
Most	None/A little	Some	Some	22	0.4
Most	Some	Most	All	22	0.4
Some	Most	Most	All	21	0.4
Most	Most	Some	All	21	0.4
None/A little	None/A little	None/A little	Most	20	0.4
None/A little	Most	Some	Some	20	0.4
Some	Some	Most	All	20	0.4
Most	None/A little	Most	Most	20	0.4
Most	Most	None/A little	Most	20	0.4
None/A little	Some	Some	Most	19	0.4
None/A little	Some	Most	Most	19	0.4
Some	None/A little	Most	Most	19	0.4
Most	None/A little	Some	None/A little	19	0.4
Most	Some	None/A little	Most	19	0.4
Some	Some	Most	None/A little	18	0.4
Some	None/A little	None/A little	Most	17	0.3
Some	None/A little	Some	Most	17	0.3
Most	Most	None/A little	Some	17	0.3
Most	All	Most	Some	17	0.3

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
All	Some	Most	Most	17	0.3
All	Most	Some	Some	17	0.3
None/A little	Most	None/A little	None/A little	16	0.3
None/A little	Most	Most	Most	16	0.3
Some	None/A little	Most	Some	16	0.3
Some	Most	None/A little	Some	16	0.3
Some	Most	All	Most	16	0.3
Some	Most	All	All	16	0.3
Most	None/A little	None/A little	Some	16	0.3
None/A little	Most	None/A little	Most	15	0.3
None/A little	Most	Some	Most	15	0.3
Some	Most	None/A little	Most	15	0.3
Some	All	Most	Most	15	0.3
Most	Some	All	All	15	0.3
None/A little	None/A little	Most	Most	14	0.3
All	Most	Most	Some	14	0.3
All	Most	All	None/A little	14	0.3
All	All	None/A little	All	14	0.3
All	All	Some	Most	14	0.3
None/A little	Some	Most	Some	13	0.3
Most	All	Some	All	13	0.3
All	Some	All	All	13	0.3
All	All	Most	Some	13	0.3
None/A little	None/A little	Most	Some	12	0.2
Some	All	Most	All	12	0.2
Most	None/A little	None/A little	Most	12	0.2
Most	None/A little	Most	Some	12	0.2
Most	Some	All	Most	12	0.2
Some	Some	Some	All	11	0.2
Some	Some	All	Most	11	0.2
Some	All	All	All	11	0.2
Most	All	Some	Most	11	0.2
All	Some	Most	All	11	0.2
None/A little	None/A little	Some	Most	10	0.2
None/A little	None/A little	Most	None/A little	10	0.2
None/A little	Some	None/A little	Most	10	0.2
None/A little	Some	Most	None/A little	10	0.2
Most	Some	Most	None/A little	10	0.2
All	Most	None/A little	Some	10	0.2
All	All	None/A little	None/A little	10	0.2
Some	None/A little	Some	All	9	0.2
Some	Most	Some	All	9	0.2
Some	Most	Most	None/A little	9	0.2
Some	All	Some	Most	9	0.2

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
Most	None/A little	Some	Most	9	0.2
Most	None/A little	Most	All	9	0.2
Most	None/A little	All	Most	9	0.2
All	All	Most	None/A little	9	0.2
None/A little	Most	Some	None/A little	8	0.2
None/A little	Most	Most	Some	8	0.2
None/A little	All	Most	Most	8	0.2
Some	Some	All	All	8	0.2
Most	Some	Some	All	8	0.2
Most	Most	All	Some	8	0.2
Most	All	Some	Some	8	0.2
Most	All	All	None/A little	8	0.2
Most	All	All	Some	8	0.2
All	Some	None/A little	None/A little	8	0.2
All	Some	Some	Some	8	0.2
All	Some	Most	Some	8	0.2
All	Most	Some	None/A little	8	0.2
All	All	Some	All	8	0.2
None/A little	Some	Most	All	7	0.1
None/A little	Most	None/A little	Some	7	0.1
Some	None/A little	Most	None/A little	7	0.1
Most	All	None/A little	None/A little	7	0.1
Most	All	None/A little	Some	7	0.1
All	Most	None/A little	None/A little	7	0.1
All	Most	Most	None/A little	7	0.1
All	All	All	Some	7	0.1
None/A little	None/A little	None/A little	All	6	0.1
None/A little	Some	Some	All	6	0.1
None/A little	Most	Most	None/A little	6	0.1
None/A little	All	Most	Some	6	0.1
Some	All	Some	None/A little	6	0.1
Most	None/A little	Some	All	6	0.1
Most	None/A little	All	None/A little	6	0.1
Most	Some	None/A little	All	6	0.1
Most	All	None/A little	All	6	0.1
Most	All	Most	None/A little	6	0.1
All	Some	Most	None/A little	6	0.1
All	Most	None/A little	Most	6	0.1
All	Most	Some	All	6	0.1
All	Most	All	Some	6	0.1
All	All	Some	Some	6	0.1
All	All	All	None/A little	6	0.1
None/A little	None/A little	Some	All	5	0.1
None/A little	Most	Most	All	5	0.1

Wave 1	Pattern			Frequency	Percentage
	Wave 2	Wave 3	Wave 4		
Some	Most	All	None/A little	5	0.1
Some	Most	All	Some	5	0.1
Some	All	None/A little	None/A little	5	0.1
Some	All	Some	All	5	0.1
Most	None/A little	Most	None/A little	5	0.1
Most	None/A little	All	All	5	0.1
Most	Most	None/A little	All	5	0.1
Most	All	None/A little	Most	5	0.1
Most	All	Some	None/A little	5	0.1
All	None/A little	Some	None/A little	5	0.1
All	None/A little	Some	Most	5	0.1
All	None/A little	Most	All	5	0.1
All	None/A little	All	All	5	0.1
All	Some	None/A little	Some	5	0.1
All	Some	Some	None/A little	5	0.1
All	Some	Some	Most	5	0.1
All	Most	None/A little	All	5	0.1
All	All	None/A little	Most	5	0.1
All	All	Some	None/A little	5	0.1
Confidentialised (cell count<5)				68	
Total				4,959	100

Comparing unweighted, weighted, imputed and age standardised proportions

Table S17: Proportion of financial stress across waves – based on observed and imputed data

Wave	Based on observed data				Based on imputed data					
	N	Unweighted	Weighted	Age standardised rate	N	MI	IPW	N	Carryover (unweighted)	Carryover (weighted)
Wave 1	13,497	31.4 [30.7, 32.2]	31.9 [30.6, 33.2]	32.3				13,639	31.5 [30.8, 32.3]	32.1 [30.8, 33.4]
Wave 2	10,137	26.6 [25.7, 27.4]	27.2 [25.8, 28.7]	28.3	12,666	27.4 [26.5, 28.3]	27.6 [26.2, 28.9]	13,653	29.0 [28.2, 29.8]	29.9 [28.6, 31.1]
Wave 3	6,739	15.4 [14.6, 16.3]	17.1 [15.7, 18.7]	17.3	12,620	17.3 [16.2, 18.4]	17.2 [16.2, 18.3]	13,656	24.8 [24.1, 25.6]	24.7 [23.5, 25.9]
Wave 4	5,521	14.8 [13.9, 15.8]	17.2 [15.7, 18.9]	18.3	12,609	17.4 [16.2, 18.7]	17.4 [16.2, 18.5]	13,655	25.4 [24.6, 26.1]	25.6 [24.4, 26.8]

Notes: IPW = inverse probability weighting; MI = multiple imputation.

Source: *Ten to Men* Waves 1 to 4

Table S18: Patterns of financial stress between Waves 1 and 4

Pattern				Observed		After imputation	
				Frequency	Percentage	Frequency	Percentage
No	No	No	No	3,082	61.8	8,071	59.2
No	No	No	Yes	133	2.7	144	1.1
No	No	Yes	No	129	2.6	166	1.2
No	No	Yes	Yes	61	1.2	105	0.8
No	Yes	No	No	245	4.9	286	2.1
No	Yes	No	Yes	43	0.9	116	0.9
No	Yes	Yes	No	39	0.8	57	0.4
No	Yes	Yes	Yes	46	0.9	389	2.9
Yes	No	No	No	325	6.5	1,004	7.4
Yes	No	No	Yes	49	1.0	55	0.4
Yes	No	Yes	No	41	0.8	61	0.4
Yes	No	Yes	Yes	39	0.8	57	0.4
Yes	Yes	No	No	297	6.0	429	3.1
Yes	Yes	No	Yes	112	2.2	237	1.7
Yes	Yes	Yes	No	121	2.4	172	1.3
Yes	Yes	Yes	Yes	227	4.6	2,291	16.8
Total				4,989	100.0	13,640	100.0

Table S19: Proportion with low social support in each MOS Emotional/Information subscale, 2013-14 to 2022

	W1 (2013-14)	W2 (2015-16)	W3 (2020-21)	W4 (2022)
	% [95% CI]			
Someone to count on when need to talk	11.5 [10.8, 12.3]	12.1 [11.2, 13.1]	15.2 [13.9, 16.6]	15.2 [13.8, 16.7]
Someone to give information	12.2 [11.4, 13]	12.6 [11.7, 13.6]	16.4 [15, 17.8]	17.5 [16.1, 19.1]
Someone to give advice about crisis	12.8 [12, 13.6]	13.4 [12.4, 14.4]	17.9 [16.5, 19.4]	18.1 [16.6, 19.7]
Someone to confide in/ talk	15.3 [14.4, 16.2]	15.5 [14.5, 16.5]	19.4 [18, 20.9]	20 [18.5, 21.6]
Someone whose advice you want	16.3 [15.4, 17.2]	17.3 [16.2, 18.5]	21 [19.5, 22.5]	21.6 [20, 23.3]
Someone to turn to for suggestions	17.9 [17, 18.9]	18.7 [17.6, 19.9]	21.9 [20.5, 23.5]	22.6 [20.9, 24.3]
Someone who understand your problems	18.4 [17.5, 19.4]	18.3 [17.2, 19.5]	22.9 [21.4, 24.5]	23.9 [22.1, 25.7]
Someone to share worries/fears	22.5 [21.5, 23.5]	23.1 [21.9, 24.4]	26.7 [25.1, 28.3]	27 [25.2, 28.9]

Notes: Sample consists of men aged 18+ years at Wave 1 (2013-14) who responded to MOS Emotional/Information subscale items at one or more surveys. MOS = Medical Outcomes Study; W = Wave.

Source: Ten to Men Waves 1 to 4

Table S20: Proportion with low social support across socio-demographic indicators 2013–14 to 2022

	Wave 1 (2013–14)			Wave 2 (2015–16)			Wave 3 (2020–21)			Wave 4 (2022)		
	% [95% CI]	<i>p</i> value	Obs.	% [95% CI]	<i>p</i> value	Obs.	% [95% CI]	<i>p</i> value	Obs.	% [95% CI]	<i>p</i> value	Obs.
Sexuality												
Heterosexual	8.2 [7.6, 8.9]	<0.001	12,185	9.1 [8.2, 10.0]	0.016	90.9	12.3 [11.1, 13.7]	0.289	5,787	13.7 [12.4, 15.2]	0.724	4,979
Not heterosexual	14.4 [11.6, 17.9]		871	13.2 [9.8, 17.5]		86.8	15.1 [10.5, 21.1]		356	14.9 [9.3, 23.2]		271
Born in non-English-speaking country or speaks a language other than English												
No	8.4 [7.8, 9.1]	0.004	11,363	9.3 [8.5, 10.2]	0.274	90.7	11.8 [10.6, 13.2]	<0.001	5,507	13.2 [11.8, 14.7]	0.003	4,733
Yes	11.2 [9.4, 13.3]		1,994	10.5 [8.6, 12.8]		89.5	19.2 [15.3, 23.8]		765	19.6 [15.5, 24.4]		585
Disability												
No	6.7 [5.9, 7.6]	<0.001	6,642	6.9 [5.8, 8.1]	<0.001	93.1	10.3 [8.9, 11.9]	<0.001	3,767	12.3 [10.7, 14.2]	0.003	3,147
Yes	11.3 [10.3, 12.4]		6,675	11.8 [10.7, 13.0]		88.2	17.3 [15.2, 19.7]		2,503	16.8 [14.5, 19.2]		2,171
Aboriginal and/or Torres Strait Islander												
No	8.9 [8.3, 9.6]	0.229	12,975	9.4 [8.5, 10.3]	0.012	90.6	12.9 [11.6, 14.3]	0.16	6,140	14 [12.6, 15.5]	0.777	5,206
Yes	11.4 [7.6, 16.8]		305	15.5 [10.6, 22.1]		84.5	19.2 [11.0, 31.3]		95	15.5 [7.4, 29.6]		79
Remoteness												
Major cities	8.9 [8.1, 9.8]	0.524	7,888	9.4 [8.3, 10.5]	0.27	90.6	12.8 [11.3, 14.4]	0.587	3,887	13.9 [12.3, 15.7]	0.77	3,266
Inner regional	9.4 [8.1, 10.8]		2,974	10.6 [9.1, 12.3]		89.4	13.6 [11.1, 16.5]		1,409	15.2 [12.3, 18.5]		1,243
Outer regional/remote	8.2 [7.0, 9.5]		2,510	8.9 [7.5, 10.5]		91.1	14.8 [11.2, 19.4]		976	14.1 [10.4, 18.8]		809
SEIFA IRSD												
High disadvantage	11.5 [10.1, 13.0]	<0.001	3,472	12.8 [11.0, 14.8]	<0.001	87.2	15.6 [13.2, 18.3]	0.045	1,671	16.3 [13.4, 19.7]	0.028	1,367
Middle disadvantage	8.4 [7.6, 9.3]		6,737	8.6 [7.5, 9.8]		91.4	12.2 [10.6, 14.1]		3,116	14.3 [12.4, 16.3]		2,681
Low disadvantage	6.8 [5.7, 8.3]		3,163	7.1 [5.9, 8.6]		92.9	11.5 [9.0, 14.6]		1,472	10.9 [8.8, 13.4]		1,253
Age group												
18–29 years	6.9 [5.8, 8.2]	<0.001	3,247	5.5 [4.3, 7.0]	<0.001	94.5	7.4 [4.7, 11.4]	0.003	540	10.3 [6.2, 16.5]	0.092	269
30–39 years	7.7 [6.7, 8.9]		3,552	8.6 [7.0, 10.4]		91.4	11.9 [9.3, 15.0]		1,128	12.1 [9.0, 16.0]		855
40–49 years	10.4 [9.1, 11.8]		4,171	10.8 [9.5, 12.3]		89.2	15.4 [12.8, 18.4]		1,830	14.1 [11.6, 17.1]		1,442
50+ years	12.6 [10.8, 14.6]		2,402	14 [12.1, 16.2]		86.0	14.7 [13.0, 16.7]		2,774	16.4 [14.6, 18.3]		2,752
Total	9.0 [8.3, 9.6]		13,372	9.5 [8.7, 10.4]		90.5	13.1 [11.8, 14.4]		6,272	14.2 [12.8, 15.6]		5,318

Notes: CI = confidence interval; Obs. = observations; *p* = probability; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage

Source: *Ten to Men* survey data

Table S21: Mean job quality measures across socio-demographic indicators

Variables	Job control M [95% CI]		Job demands & complexity M [95% CI]		Job security M [95% CI]		Effort-reward fairness M [95% CI]	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Age group (adults)								
18-29 years	3.25 [3.18, 3.33]	3.30 [3.20, 3.41]	3.55 [3.48, 3.61]	3.67 [3.58, 3.75]	4.25 [4.19, 4.32]	4.29 [4.21, 4.38]	3.82 [3.74, 3.90]	3.93 [3.83, 4.04]
30-39 years	3.73 [3.66, 3.79]	3.75 [3.67, 3.83]	3.88 [3.83, 3.93]	3.90 [3.83, 3.96]	4.29 [4.24, 4.35]	4.31 [4.24, 4.38]	3.82 [3.75, 3.90]	3.83 [3.75, 3.92]
40-49 years	3.80 [3.74, 3.86]	3.80 [3.73, 3.87]	3.84 [3.79, 3.88]	3.84 [3.79, 3.89]	4.19 [4.13, 4.24]	4.25 [4.19, 4.31]	3.83 [3.76, 3.89]	3.96 [3.88, 4.04]
50+ years	3.77 [3.69, 3.85]	3.84 [3.76, 3.93]	3.84 [3.77, 3.90]	3.84 [3.78, 3.90]	4.13 [4.05, 4.20]	4.22 [4.14, 4.29]	3.92 [3.83, 4.01]	4.00 [3.91, 4.09]
Areal level disadvantage								
High disadvantage	3.50 [3.42, 3.57]	3.50 [3.41, 3.59]	3.66 [3.60, 3.72]	3.70 [3.63, 3.77]	4.22 [4.15, 4.28]	4.14 [4.07, 4.21]	3.80 [3.72, 3.88]	3.81 [3.72, 3.91]
Middle disadvantage	3.62 [3.57, 3.67]	3.65 [3.59, 3.71]	3.79 [3.75, 3.83]	3.83 [3.78, 3.88]	4.21 [4.17, 4.25]	4.28 [4.23, 4.33]	3.84 [3.79, 3.89]	3.92 [3.86, 3.98]
Low disadvantage	3.81 [3.73, 3.88]	3.95 [3.87, 4.03]	3.85 [3.80, 3.90]	3.91 [3.85, 3.98]	4.28 [4.21, 4.34]	4.40 [4.32, 4.47]	3.88 [3.80, 3.96]	4.07 [3.98, 4.15]
Remoteness								
Major cities	3.64 [3.60, 3.69]	3.70 [3.64, 3.75]	3.76 [3.72, 3.79]	3.81 [3.77, 3.85]	4.20 [4.17, 4.24]	4.26 [4.21, 4.30]	3.83 [3.78, 3.87]	3.95 [3.89, 4.00]
Inner regional	3.58 [3.52, 3.65]	3.61 [3.53, 3.69]	3.79 [3.74, 3.83]	3.82 [3.76, 3.88]	4.30 [4.24, 4.35]	4.30 [4.24, 4.37]	3.87 [3.79, 3.94]	3.88 [3.79, 3.96]
Outer regional/ remote	3.63 [3.55, 3.71]	3.66 [3.55, 3.76]	3.87 [3.81, 3.93]	3.88 [3.80, 3.95]	4.27 [4.20, 4.34]	4.34 [4.25, 4.43]	3.90 [3.81, 3.98]	3.86 [3.75, 3.97]
Disability								
No	3.71 [3.66, 3.76]	3.78 [3.72, 3.84]	3.76 [3.72, 3.80]	3.82 [3.77, 3.87]	4.35 [4.31, 4.39]	4.42 [4.37, 4.47]	3.93 [3.88, 3.99]	4.03 [3.96, 4.09]
Yes	3.55 [3.50, 3.60]	3.59 [3.53, 3.64]	3.78 [3.74, 3.83]	3.81 [3.77, 3.86]	4.09 [4.05, 4.14]	4.13 [4.08, 4.18]	3.73 [3.68, 3.79]	3.83 [3.77, 3.90]
Born in non-English-speaking country or speaks a language other than English								
No	3.63 [3.60, 3.67]	3.68 [3.63, 3.72]	3.78 [3.75, 3.81]	3.84 [3.80, 3.87]	4.25 [4.22, 4.28]	4.30 [4.26, 4.33]	3.85 [3.80, 3.89]	3.92 [3.88, 3.97]
Yes	3.62 [3.54, 3.70]	3.68 [3.56, 3.81]	3.75 [3.67, 3.82]	3.73 [3.64, 3.82]	4.11 [4.03, 4.19]	4.16 [4.07, 4.25]	3.81 [3.72, 3.91]	3.93 [3.82, 4.05]
Combined household income								
\$80,000	3.48 [3.41, 3.54]	3.52 [3.43, 3.61]	3.62 [3.56, 3.67]	3.62 [3.55, 3.69]	4.09 [4.03, 4.15]	4.11 [4.04, 4.18]	3.62 [3.54, 3.69]	3.65 [3.55, 3.74]
\$80,000-\$124,999	3.58 [3.51, 3.64]	3.61 [3.53, 3.69]	3.77 [3.72, 3.82]	3.79 [3.73, 3.85]	4.19 [4.13, 4.25]	4.22 [4.15, 4.29]	3.79 [3.72, 3.86]	3.82 [3.74, 3.91]
\$125,000+	3.86 [3.80, 3.92]	3.87 [3.81, 3.94]	3.99 [3.95, 4.03]	4.04 [3.99, 4.09]	4.40 [4.35, 4.45]	4.42 [4.37, 4.48]	4.06 [4.00, 4.13]	4.17 [4.10, 4.24]
Employment								

Variables	Job control M [95% CI]		Job demands & complexity M [95% CI]		Job security M [95% CI]		Effort-reward fairness M [95% CI]	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Self-employed/ casual/fixed	3.87 [3.80, 3.94]	3.98 [3.89, 4.07]	3.75 [3.68, 3.82]	3.75 [3.68, 3.82]	3.89 [3.83, 3.95]	3.96 [3.89, 4.03]	3.96 [3.89, 4.02]	4.01 [3.92, 4.10]
Permanent or ongoing	3.52 [3.48, 3.56]	3.55 [3.51, 3.60]	3.85 [3.81, 3.88]	3.85 [3.81, 3.88]	4.38 [4.34, 4.41]	4.40 [4.36, 4.44]	3.79 [3.74, 3.83]	3.89 [3.84, 3.94]
Occupation								
Machinery operators, drivers or other	3.28 [3.20, 3.35]	3.25 [3.16, 3.35]	3.29 [3.23, 3.35]	3.29 [3.22, 3.37]	4.12 [4.05, 4.18]	4.13 [4.05, 4.21]	3.89 [3.81, 3.97]	3.90 [3.80, 4.00]
Service, clerical, admin or sales work	3.21 [3.11, 3.31]	3.29 [3.17, 3.42]	3.64 [3.55, 3.72]	3.61 [3.52, 3.70]	4.39 [4.3, 4.48]	4.42 [4.32, 4.52]	3.77 [3.66, 3.89]	3.84 [3.69, 3.99]
Technicians and trades workers	3.63 [3.56, 3.70]	3.71 [3.62, 3.79]	3.86 [3.81, 3.92]	3.91 [3.85, 3.98]	4.11 [4.04, 4.17]	4.15 [4.07, 4.22]	3.73 [3.65, 3.80]	3.88 [3.79, 3.97]
Professionals	3.83 [3.75, 3.90]	3.85 [3.76, 3.94]	4.14 [4.09, 4.19]	4.15 [4.08, 4.22]	4.29 [4.22, 4.36]	4.35 [4.28, 4.42]	3.90 [3.81, 3.98]	4.00 [3.91, 4.08]
Managers	4.28 [4.21, 4.35]	4.27 [4.18, 4.37]	4.00 [3.94, 4.05]	4.00 [3.93, 4.07]	4.32 [4.25, 4.39]	4.38 [4.29, 4.47]	3.92 [3.83, 4.00]	4.05 [3.95, 4.15]
Education								
Up to year 12	3.46 [3.39, 3.53]	3.49 [3.40, 3.57]	3.50 [3.45, 3.55]	3.54 [3.47, 3.60]	4.21 [4.15, 4.27]	4.24 [4.17, 4.31]	3.85 [3.77, 3.93]	3.91 [3.82, 4.00]
Some qualification	3.62 [3.56, 3.67]	3.66 [3.59, 3.72]	3.81 [3.77, 3.85]	3.82 [3.77, 3.86]	4.19 [4.15, 4.24]	4.23 [4.17, 4.28]	3.81 [3.75, 3.87]	3.91 [3.84, 3.98]
Undergraduate	3.73 [3.65, 3.81]	3.80 [3.70, 3.90]	3.89 [3.82, 3.96]	3.90 [3.83, 3.98]	4.27 [4.20, 4.35]	4.29 [4.21, 4.37]	3.83 [3.74, 3.91]	3.95 [3.84, 4.05]
Postgraduate	3.90 [3.80, 4.00]	3.90 [3.77, 4.03]	4.06 [3.98, 4.14]	4.18 [4.08, 4.28]	4.30 [4.21, 4.39]	4.44 [4.34, 4.54]	3.93 [3.81, 4.04]	3.98 [3.85, 4.10]

Notes: CI = confidence interval; M = mean

Source: Ten to Men survey data

Table S22: Treated unfairly by priority groups, 2020–21 and 2022

	Wave 3				Wave 4			
	%	95% CI	Obs.	p value	%	95% CI	Obs.	p value
Sexuality								
Heterosexual	17.0	[15.6, 18.5]	6,454	<0.001	16.5	[15.1, 18.1]	5,497	<0.001
Not heterosexual	37.4	[31.2, 44.1]	466		37.3	[30.2, 44.9]	367	
Born in non-English-speaking country or speaks a language other than English								
No	18.2	[16.8, 19.8]	6,246	0.129	17.2	[15.7, 18.9]	5,313	0.004
Yes	21.5	[17.7, 25.7]	811		24.3	[19.6, 29.8]	627	
Disability								
No	13.2	[11.8, 14.8]	4,318	<0.001	13.4	[11.7, 15.3]	3,554	<0.001
Yes	27.7	[25.2, 30.4]	2,738		25.5	[22.8, 28.4]	2,386	
Aboriginal and/or Torres Strait Islander								
No	18.2	[16.8, 19.6]	6,908	<0.001	17.8	[16.3, 19.4]	5,820	0.004
Yes	38.7	[26.8, 52.1]	114		35.1	[22.2, 50.6]	88	
Remoteness								
Major cities	18.1	[16.5, 19.8]	4,395	0.144	18.3	[16.5, 20.3]	3,692	0.937
Inner regional	19.9	[16.9, 23.3]	1,572		18.4	[15.4, 21.8]	1,357	
Outer regional/ remote	22.7	[18.2, 27.9]	1,090		17.5	[14.0, 21.7]	891	
SEIFA IRSD								
High disadvantage	23.2	[20.4, 26.3]	1,849	<0.001	21.3	[18.4, 24.6]	1,519	0.039
Middle disadvantage	17.0	[15.3, 18.9]	3,519		17.4	[15.4, 19.6]	2,992	
Low disadvantage	16.4	[13.5, 19.7]	1,674		16.2	[13.2, 19.7]	1,409	
Age group								
18–29 years	23.7	[20.4, 27.3]	1,187	<0.001	25.0	[21.2, 29.2]	901	<0.001
30–39 years	21.2	[17.9, 25.0]	1,119		18.7	[15.3, 22.6]	856	
40–49 years	15.4	[13.1, 18.1]	1,823		17.9	[15.1, 21.1]	1,437	
50+ years	14.0	[12.3, 15.9]	2,762		13.2	[11.5, 15.1]	2,746	
Total	18.5	[17.1, 19.9]	6,891		18.3	[16.8, 19.9]	5,940	

Notes: CI = confidence interval; Obs. = observations; p = probability; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage

Source: Ten to Men survey data

Table S23: Factors associated with financial stress, 2015–16 to 2022

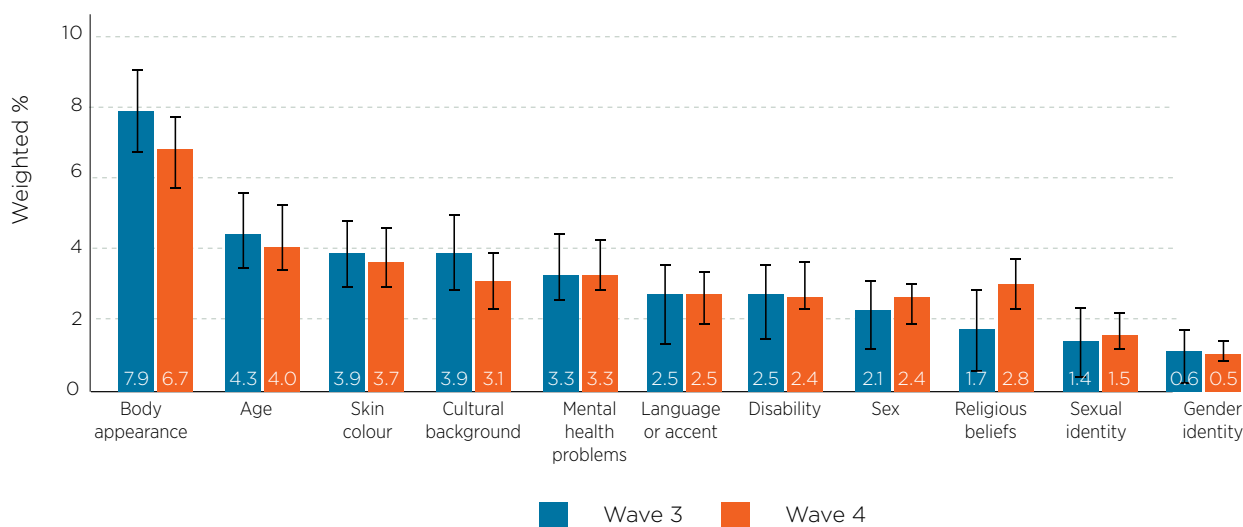
	RR [95% CI]	p value
Mental health conditions		
Yes	1.41 [1.19, 1.68]	<0.001
Number of long-term conditions (ref = None)		
1 condition	1.15 [0.94, 1.42]	0.181
2 conditions	1.37 [1.09, 1.71]	0.007
3 conditions	1.73 [1.32, 2.27]	<0.001
4 or more conditions	1.69 [1.21, 2.36]	0.002
Depression symptoms (ref = None)		
Mild	1.41 [1.19, 1.68]	<0.001
Moderate to severe	1.78 [1.42, 2.23]	<0.001
Interactions		
Number of long-term conditions and survey year		
1 condition#2020/21	1.31 [0.87, 1.99]	0.200
1 condition#2022	1.02 [0.64, 1.64]	0.926
2 conditions#2020/21	1.10 [0.71, 1.71]	0.678
2 conditions#2022	0.91 [0.56, 1.48]	0.710
3 conditions#2020/21	1.23 [0.76, 2.00]	0.395
3 conditions#2022	0.73 [0.43, 1.25]	0.252
4 or more conditions#2020/21	1.51 [0.89, 2.54]	0.126
4 or more conditions#2022	1.00 [0.59, 1.72]	0.987
Mental health diagnosis and survey year		
Yes#2020/21	1.21 [0.92, 1.60]	0.174
Yes#2022	1.24 [0.93, 1.67]	0.145
Depression symptom and survey year		
Mild#2020/21	1.04 [0.77, 1.41]	0.791
Mild#2022	1.11 [0.79, 1.56]	0.554
Moderate to severe#2020/21	1.14 [0.78, 1.66]	0.495
Moderate to severe#2022	1.57 [1.08, 2.27]	0.017
Other factors		
Age (ref = 18–29)		
30–39 years	0.86 [0.73, 1.00]	0.050
40–49 years	0.55 [0.47, 0.65]	<0.001
50+ years	0.46 [0.38, 0.55]	<0.001
Education (ref = Less than year 12)		
Up to some qualification	0.90 [0.75, 1.08]	0.250
Undergraduate or more	0.69 [0.55, 0.85]	0.001
Employment type (ref = Not working/not looking for work)		
Employed self/casual/fixed	0.81 [0.67, 0.98]	0.026
Permanent or ongoing	0.81 [0.68, 0.96]	0.016
Occupation (ref = Technicians to others)		
Professionals or managers	0.84 [0.73, 0.96]	0.012
Household income (ref = <\$80,000)		
\$80,000–\$124,999	0.79 [0.69, 0.91]	0.002

	RR [95% CI]	p value
\$125,000+	0.59 [0.50, 0.68]	<0.001
Remoteness (ref = Major cities)		
Inner regional	1.03 [0.90, 1.18]	0.671
Outer regional/remote	1.00 [0.86, 1.17]	0.985
Born in non-English-speaking country or speaks a language other than English (ref = No)		
Yes	0.98 [0.82, 1.18]	0.857
Disability (ref = No)		
Yes	1.11 [0.98, 1.24]	0.099
AUDIT (ref = Low risk)		
Increasing risk	0.98 [0.86, 1.12]	0.781
Higher risk	0.92 [0.70, 1.21]	0.543
Possible dependence	1.12 [0.83, 1.51]	0.461
Smoking (current) (ref = No)		
Yes	1.61 [1.39, 1.87]	<0.001
BMI (ref = Less than 25)		
25 to less than 30	1.00 [0.87, 1.14]	0.944
30 or greater	1.19 [1.02, 1.39]	0.029
Check up with GP (ref = Never)		
Less frequently	0.89 [0.77, 1.03]	0.111
Once a year	1.00 [0.86, 1.17]	0.992
More than once a year	1.11 [0.94, 1.30]	0.224

Notes: AUDIT = Alcohol Use Disorders Identification Test; BMI = Body Mass Index; CI = confidence interval; GP = general practitioner; p = probability; ref = reference; RR = relative risk; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage.

Source: *Ten to Men* survey data

Figure S3: Proportion of respondents reporting unfair treatment in the last 6 months by category



Notes: Sample consists of men aged 18+ years at Wave 1 (2013–14) who responded unfair treatment items at Waves 3 and 4. Error bars indicate the 95% confidence interval.

Source: *Ten to Men* data, Waves 1–4

Table S24: Factors associated with treated unfairly, 2022

Treated unfairly	Adj.RR [95% CI]	p value
Depression symptom (ref = No symptom)		
Mild	1.78 [1.50, 2.11]	<0.001
Moderate to severe	2.65 [2.21, 3.18]	<0.001
SEIFA IRSD (ref = Low disadvantage)		
Middle disadvantage	0.90 [0.76, 1.05]	0.173
Low disadvantage	0.77 [0.62, 0.96]	0.020
Education - Highest qualification (ref = Less than year 12)		
Up to some qualification	1.55 [1.17, 2.05]	0.002
Undergraduate or above	2.07 [1.54, 2.79]	<0.001
Employment type (ref = Unemployed or not looking for work)		
Employed self/casual/fixed	0.77 [0.62, 0.96]	0.022
Permanent or ongoing	0.79 [0.64, 0.96]	0.019
Occupation (ref = Technicians to others)		
Professionals or managers	0.84 [0.71, 1.00]	0.051
Household income (ref = <\$80,000)		
\$80,000-\$124,999	0.84 [0.69, 1.02]	0.072
\$125,000+	0.70 [0.58, 0.85]	<0.001
Remoteness (ref = Major cities)		
Inner regional	1.03 [0.87, 1.22]	0.748
Outer regional/remote	0.89 [0.73, 1.10]	0.278
Born in non-English-speaking country or speaks a language other than English (ref = No)		
Yes	1.59 [1.31, 1.93]	<0.001
Disability (ref = No)		
Yes	1.44 [1.24, 1.68]	<0.001

Notes: Adj.RR = adjusted relative risk; CI = confidence interval; p = probability; ref = reference; RR = relative risk; SEIFA = Socio-economic Index for Areas IRSD = Index of Relative Socio-economic Disadvantage

Source: Ten to Men survey data

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