

Investigating the Relationship Between Masculinity
and Type II Diabetes Diagnosis

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Abstract

Endorsement of hegemonic masculinity has been largely associated with greater participation in health-risk behaviours. However, little research has accounted for the fluidity of masculinity, across time and contexts, which can allow men to engage in behaviours conducive to health. The aim was to use a contextualised masculinity measure to better map the association between masculinity and occurrence of Type II diabetes, a disease not yet explored through the gender lens. This cross-sectional study drew on previously sampled data from the longitudinal Florey Adelaide Male Ageing Study (FAMAS) that began in 2002. A total of 633 men aged 47 to 92, originally randomly selected from the Northern and Western suburbs of Adelaide, completed a 2015 FAMAS follow-up questionnaire. Unadjusted and age-adjusted logistic regression models largely demonstrated an inverse relationship between masculinity, as a total and domain-specific construct, and Type II diabetes diagnosis. But when adjusting for other multiple covariates, the associations lost significance. The results suggest that research and healthcare services may have to consider the magnitude of the effects of masculinity on men's health outcomes in the context of time and other more influential factors like level of health and socioeconomic status.

Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

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Date: 30/10/2019

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Chapter 1 – Introduction

1.1 Overview

Since the early 20th century, improvements in the quality of living conditions have contributed to the rise in life expectancies (Jain, 1994). However, one global trend has not changed, males consistently live shorter lives compared to their female counterparts, with the current average global difference of 4.4 years (World Health Organisation [WHO], 2019). This disparity is particularly evident in high-income countries after the age of 60, where the populations are older and the leading cause for the mortality difference is chronic diseases (WHO, 2019). In Australia, the seven leading causes of all deaths in 2018 were heart disease, dementia, cerebrovascular disease, lung cancer, chronic lower respiratory disease, colorectal cancer, and diabetes (Australian Bureau of Statistics [ABS], 2019) – with Australian men dying at higher rates from all these conditions except for dementia and cerebrovascular disease.

The causes for this difference in health outcomes has been explained by either biological (e.g. immunological and hormonal differences) or socioeconomic factors (e.g. education and occupations) (Lohan, 2017; WHO, 2019). More frequently, behavioural explanations attribute men's poor health outcomes to their predisposition toward health-risk behaviours such as smoking, excessive drinking, reticence to help-seeking, and non-compliance with medical advice (Courtenay, 2000). In fact, 38% of the burden of disease in Australia is due to these modifiable health behaviours (Australian Institute of Health and Welfare [AIHW], 2019a).

Behavioural discussions have sought to explain how socially constructed expectations of what it is to be 'a man' affect the attitudes, decisions, and behaviours of males in regard to their health (Fleming & Agnew-Brune, 2015; Seidler, Dawes, Rice, Oliffe, & Dhillon, 2016). However, this field has tended to frame masculinity as a fixed, pathological trait, thereby

abstracting the study of men's health from the social constructionist theories of masculinity that define it is a fluid construct, dependent on time and context (Connell, 1995). In the past decade, an emergent body of largely qualitative research has shown that masculinity is a complex concept and can at times induce health-orientated behaviours in men (Hammer & Good, 2010; Hooker, Willcox, Burroughs, Rheaume, & Courtenay, 2012). Whereas, quantitative research has failed to account for the contextuality of masculinity.

Therefore, the aim of the present study is to quantify and more consistently measure the association between masculinity and the development of Type II diabetes using a contextualised measure of the construct, specifically for older Australian males with chronic conditions (Chambers et al., 2016). Type II diabetes is a condition that has never been looked at through the gender lens and yet, it is prevalent amongst Australian men, and preventable or manageable with healthy lifestyle behaviours (AIHW, 2019c). Type II diabetes provides an effective platform to investigate the effect of masculinity on older men's health behaviours in the context of chronic illness.

1.2 Diabetes: The Silent Pandemic

1.2.1 Type II Diabetes: What Is It? Diabetes mellitus is a slowly progressing disorder classified by chronic high levels of glucose in the blood. This condition is associated with insulin, a hormone that is produced by the pancreas to regulate the level of glucose passed from the bloodstream into the cells for energy (Holt & Kumar, 2010). There are two main types of diabetes, Type I is a childhood-onset autoimmune condition, whereas, the present study focuses on the adult-onset Type II diabetes. It develops from reduced sensitivity to insulin, invariably leading to the progressive loss of insulin producing cells (Drury & Gatling, 2005).

1.2.2 Type II Diabetes: A Greater Burden on Men. Over the past 20 years in Australia, the prevalence of Type II diabetes has almost doubled with no indication of decreasing (ABS, 2018). Today, approximately 1.2 million Australians (6%) have self-reported a form of diabetes, with about 85% of these cases being Type II (ABS, 2015; 2018). In fact, the prevalence is likely to be higher, since for every four diagnosed adults, one is undiagnosed (ABS, 2013; Meijnikman et al., 2017). This is largely because the onset of Type II is slow and non-specific with symptoms such as increased thirst, frequent urination, fatigue, and weight loss (Drury & Gatling, 2005).

This chronic condition is more prevalent in Australian men, particularly from the age of 45 and older; in fact, males are 1.5 times more likely to have Type II diabetes than women (AIHW, 2019c). Men from a lower socioeconomic status are at an even higher risk of developing the disease (Connolly, Unwin, Sherriff, Bilous, & Kelly, 2000; Steele et al., 2017). Additionally, given men's lower awareness of common disease indicators, misperception of their weight and a propensity to rationalise symptoms, rates of underdiagnoses may be higher in men (Niksic et al., 2015; Robertson et al., 2014). A UK diabetes study found 22% of the male participants with diabetes did not know they developed the condition prior to participation, compared to 12% of the female participants (Pierce, Zaninotto, Steel, & Mindell, 2009).

Adding to the impact of the disease, the longer this condition is undiagnosed, the higher the risk of developing long term complications such as cardiovascular disease, renal disease, and for men, erectile dysfunction (Einarson, Acs, Ludwig, & Panton, 2018; Keane et al., 2003; Maiorino, Bellastella, & Esposito, 2014). Although diabetes directly accounts for 3% of all deaths, when considering diabetes as an associated cause of death, its *indirect* effect contributes to 11% of mortality, making it a greater burden (AIHW, 2019c). For example, coronary heart disease is the first leading cause of mortality amongst Australian men, and 13.5% of those deaths

are associated with Type II diabetes (AIHW, 2019b). Hence, an understanding of how to improve early detection, prevention and management of the disease, especially in men, is vital in reducing this societal burden.

1.2.3 Type II Diabetes and Risk Factors. Although Type II diabetes does have a significant genetic link (Sanghera & Blackett, 2012), extensive research has shown a strong association with obesity (Al-Goblan, Al-Alfi, & Khan, 2014; Bell, Kivimaki, & Hamer, 2014). About 80% of diabetics had developed the disorder as a result of a high Body Mass Index (Lean, 2000). Lifestyle behaviours that contribute to obesity and overweight are also associated with the development of diabetes. For example, increase in physical inactivity, high-fat diets, smoking, and excessive consumption of alcohol are all risk factors (Duncan et al., 2003; Marshall, Hamman, & Baxter, 1991; Shi et al., 2013; Zimmet, Alberti, & Shaw, 2001). Consequently, these modifiable lifestyle behaviours have been targeted to better prevent the condition or improve management for those living with diabetes. However, to appropriately establish strategies that encourage health-minded behaviours, the effect of gender on male health practices must first be fully understood.

1.3 Masculinity: What is it Exactly?

Broadly speaking, “masculinity” is defined as the characteristics typically associated with the male sex, by the Cambridge University Press (n.d.). The current normative approach to viewing masculinity rejects the idea that it is biologically predetermined, as was thought by the older essentialist perspective, and sees it rather as socially constructed (Thompson, Pleck, & Ferrera, 1992). Therefore, masculinity is the behavioural expression of a particular society’s belief systems, or ideologies, about what it is to be a man (Levant, 1995; Pleck, 1995).

While various masculine ideologies coexist, the expectations and standards are defined by the dominant ideology of a society, termed ‘hegemonic’ masculinity by Raewyn Connell (1995; Levant et al., 2007; Pleck, 1995). Hegemonic masculinity is shaped by society’s most powerful group of the time and, in today’s Western culture, this group is Caucasian, heterosexual, middle to upper-middle class (Mahalik et al., 2003). Hence, the ideology exerts power over other marginalised men and women, as well as socially penalises any man who deviates from the norms (Connell, 1995), that is the rules and standards that dictate the behaviour of men (Charles, 2012; Cialdini & Trost, 1999). In the Western world, hegemonic masculinity is associated with norms like strength, sexual prowess, competition, stoicism, and self-reliance (Bennett, 2007; Courtenay, 2000).

The way in which masculinity is instilled in men, is through socialisation. From a young age, boys learn through the family, peers and wider society the norms and ideals of masculinity (Carter, 2014; Henslin, 1999). These teachings are then internalised, and these idealised gender attributes develop into personal belief systems of what masculinity is to the individual (Thompson & Bennett, 2015). These masculine beliefs later can shape future health attitudes and behaviours of adult men.

1.4 Masculinity and Negative Health Behaviours

Numerous studies have found that higher endorsement of hegemonic masculinity is associated with negative health behaviours such as alcohol and tobacco consumption, poor nutrition and resistance to help-seeking, which are all risk factors for Type II diabetes.

A way to display one’s hegemonic identity to others has been historically through consumption of alcohol and tobacco (Peralta, 2007). Quantitative studies identified winning norms and playboy norms drive adolescent boys and men to smoking and excessive drinking

(Iwamoto & Smiler, 2013; Mahalik et al., 2003). This is further supported by higher rates of men smoking and consuming alcohol compared to women (ABS, 2015). Little research has focused on masculinity and diet, although a qualitative study demonstrated that masculinity norms, like autonomy and rebelling against authority, were associated with men's resistance to advertisement and promotions of healthy eating (Gough & Conner, 2006). Media representations often reinforce 'masculine' unhealthy food options like large portions and emphasis on red meat (Gough, 2007; Vartanian, Herman, & Polivy, 2007). Interestingly, physical exercise seems to be the one health-orientated behaviour associated with hegemonic pursuits of strength (Messner, 1992).

However, the need to maintain the appearance of strength has also been credited with contributing to delays in seeking medical treatment (Galdas, Cheater, & Marshall, 2007; Hale, Grogan, & Willott, 2007), along with self-reliance, as many men prefer to self-monitor and self-diagnose symptoms (Douglas, Greener, van Teijlingen, & Ludbrook, 2013; Vincent et al., 2018). Consequently, men end up in acute care due to delayed help seeking (White & Johnson, 2000).

1.5 The Blind Spot in Masculinity Measures

While academics accept masculinity is a socially constructed concept, research focusing on hegemonic masculinity is in essence limiting because they rely on social ideals, rather than social reality. In this way, such studies take on a more essentialist perspective of masculinity as a static trait rooted in biology and does not account for the fluidity of masculinity, as proposed by the social constructionist theories (Connell; 1995; Thompson, et al., 1992). According to these theories, 90% of men do not exhibit all hegemonic masculine ideals, rather, the ideals they choose to endorse vary across age, social class, ethnicity, sexual orientation and health status (Connell, 1993; 1995; Galdas, Cheater, & Marshall, 2005). On a broader scale, as outlined by

Connell, hegemonic masculinity itself varies across time and social contexts, as it is shaped by global, regional, and local conceptualisations of hegemony (Connell and Messerschmidt, 2005).

This fluidity means empirical studies must take extra care in how masculinity is operationalised. Previous quantitative research has used scales that ranged from assessments of masculinity norms, to ideologies, to gender role conflicts (Griffith, Gunter, & Watkins, 2012). This lack of uniformity limits the possibility of comparing the results of different studies. More importantly, most works relied on masculinity measures that have been developed with college-aged cohorts (e.g. Mahalik et al., 2003), a group that comes closest to Western hegemonic ideals. The misuse of such scales on marginalised samples, such as older and ethnically and sexually diverse men (Griffiths et al., 2012; Tannebaum & Frank, 2011), may be yielding biased results, as the measured masculinity is based on the hegemonic ideals of young, heterosexual, American college men.

A less reductionist approach would seek to capture this fluidity and diversity of masculinity. In the context of chronic illnesses and ageing, it becomes progressively more difficult for men to conform to many hegemonic ideals and, thus, further research into marginalised masculinities is needed to better map how they affect male health practices.

1.6 Masculinity: A New Outlook

1.6.1 The Context of Age. If masculinity is, in fact, fluid, then understanding how men's hegemonic practices may vary in the context of age and chronic conditions is important, and doubly so with the Type II diabetes male demographic.

In the last decade, a new branch of largely qualitative research has been accumulating on how the fluidity of masculinity can inform health behaviours, with unexpectedly mixed results. The tendency to demonstrate the more negative masculine norms like proving one's strength,

sexual prowess, risk-taking, and help-avoidance seem to occur largely in younger men, as the need to be accepted by peers results in placing greater importance on hegemonic masculine identities (De Visser & McDonnell, 2013; O'Brien, Hunt, & Hart, 2005).

In contrast, some studies have found age brings about a change of responsibilities and priorities for men; sexual prowess for younger men is replaced with the ability to sexually perform for older men (Chambers et al., 2016). Likewise, other masculinity domains, such as family provider and protector, are enacted and have been associated with health-orientated behaviours (Griffith, Gilbert, Bruce, & Thorpe, 2016; Hooker et al., 2012). The term 'masculinity capital' explains why men are able to engage in certain non-masculine norms because they compensate by being competent in another masculine domain (De Visser & McDonnell, 2013). For example, in one study, fathers displayed the potential to look after themselves through exercise and healthy eating in order to continue to care for their families, thus, fulfilling the role of being the family provider (Hooker et al., 2012). Similarly, O'Brien and colleagues (2005) found older men were able to reprioritise masculine attributes like self-reliance to seek medical-help in an attempt to preserve another more important masculine embodiment like job status or being able to sexually perform.

1.6.2 The Context of Chronic Conditions. With age, invariably, comes a decline in health status; the development of a chronic condition can also cause men to reprioritise and reframe their hegemonic practices. For example, a qualitative study found ageing men who perceived a loss in the masculine domains of strength and independence, due to health deteriorations, were more inclined to engage in their healthcare to regain these domains, by framing such behaviour as taking action (Tannenbaum & Frank, 2011). Similarly, some Brazilian cancer survivors demonstrated they were able to redefine or reprioritise their 'macho' values to

begin participating in healthier practices, and those who did not, continued to avoid healthcare systems further risking their health (Mesquita, Moreira, & Maliski, 2011).

Those unable to reprioritise or reframe their masculinity ideals, in the context of declining health status, were increasingly unable to comply with hegemonic masculinity and consequently, suffered from negative self-perceptions and poorer outcomes. For example, 39% of the studies assessed in a qualitative systematic review of prostate cancer survivors, revealed that despite side effects of therapy, such as erectile dysfunction and loss of libido, participants continued to neglect their healthcare, post cancer treatment, in an attempt to protect their old hegemonic identities (Araújo & Zago, 2019). In some cases, autonomy is prioritised to such an extent it becomes stoic self-reliance, which leads to resistance to sharing worries and concerns with health professionals and avoiding doctor appointments (Robertson, 2003). Lower masculine self-esteem was found to be associated with poorer mental health outcomes among prostate cancer patients, highlighting the disharmony cancer had caused between men's unchanged ideals of self-reliance and emotional control, and their current health condition (Chambers et al., 2013).

1.7 Summary

As has been demonstrated above, quantitative measures of masculinity have failed to account for ageing and chronic conditions; and while previous qualitative work provided more insight into the fluidity of masculinity, these studies are based on subjective recounts and small sample sizes. There is a need to map more accurately the effects of masculinity, both negative and positive, on health outcomes to better understand how to cater and promote the traits of masculinity that are conducive to health in men of all ages and with different levels of health. The ability to reprioritise masculine ideals allows males to engage in healthy behaviours, if not before, at least after a chronic condition occurs. This is important in the context of Type II

diabetes because positive lifestyle changes, together with adherence to medication are important in managing the condition once diagnosed.

1.8 The Present Study

The present study seeks to investigate the association between masculinity and Type II diabetes using a new masculinity measure, Masculinity in Chronic Disease Inventory (MCD-I), developed by Chambers and colleagues in 2016. The MCD-I is contextualised for older Australian men with chronic illnesses and can be consistently applied across a large cohort. The measure assesses total masculinity and six specific domains: Strength (being physically capable), Sexual Importance/Priority (being able to sexually perform), Family Responsibilities (being able to provide and support one's family), Emotional Self-Reliance (being able to withhold feelings and concerns), Optimistic Capacity (being able to maintain a positive attitude), and Action Approach (being in control and taking action).

1.8.1 Hypotheses. The aim of the present study is to explore the association between masculinity, as a total and domain-specific construct, and Type II diabetes diagnosis. Given that the MCD-I is a new measure, the hypotheses are largely based on previous qualitative research.

The first hypothesis expects that total masculinity would be negatively associated with diabetes diagnosis, as well as after adjusting for age and other multiple covariates.

For the second hypothesis, when masculinity is examined as a domain-specific construct, it is expected that the domains of Strength, Sexual Importance/Priority, Family Responsibilities, Optimistic Capacity, and Action Approach, would be negatively associated with diabetes diagnosis, as well as after adjusting for age and other covariates. These predictions are informed by past findings except for the Optimistic Capacity domain.

The third hypothesis expects that the domain of Emotional Self-Reliance would be positively associated with diabetes diagnosis, as well as after adjusting for age and other multiple covariates – consistent with previous research that shows stoicism and emotional control as negative predictors.

Chapter 2 – Methods

2.1 Study Design

Participants of the present study were drawn from the sample of the Florey Adelaide Male Ageing Study (FAMAS) that began in 2002. FAMAS is a population-based, longitudinal cohort study investigating various health outcomes of South Australian men in relation to ageing (Martin, Haren, Taylor, Middleton, & Wittert, 2007). Participants attended clinic visits every five years and were asked to complete annual follow-up questionnaire packages to track changes in health (Martin, Haren, Taylor et al., 2007). The present study used previously collected data from a 2015 FAMAS follow-up questionnaire, which included a scale of masculinity.

2.2 Sampling

Between 2002 – 2005, households in the Northern and Western suburbs of Adelaide were randomly selected using the electronic White Pages as a sample frame (see Martin, Haren, Middleton, & Wittert, 2007). A total of 1195 men, aged 35 to 80 at the time of initial recruitment, consented to participate in FAMAS Phase 1, a baseline clinic visit (response rate = 45.1%) (Martin et al., 2015). Exclusion criteria restricted participation for those who had severely limited English, were living outside the sampling area or in a residential care institute, were unable to provide informed written consent or attend the clinic visits due to insufficient physical or cognitive abilities (Martin, Haren, Middleton et al., 2007). The response rate for the follow-up clinic visit (Phase 2) can be seen in Figure 1.

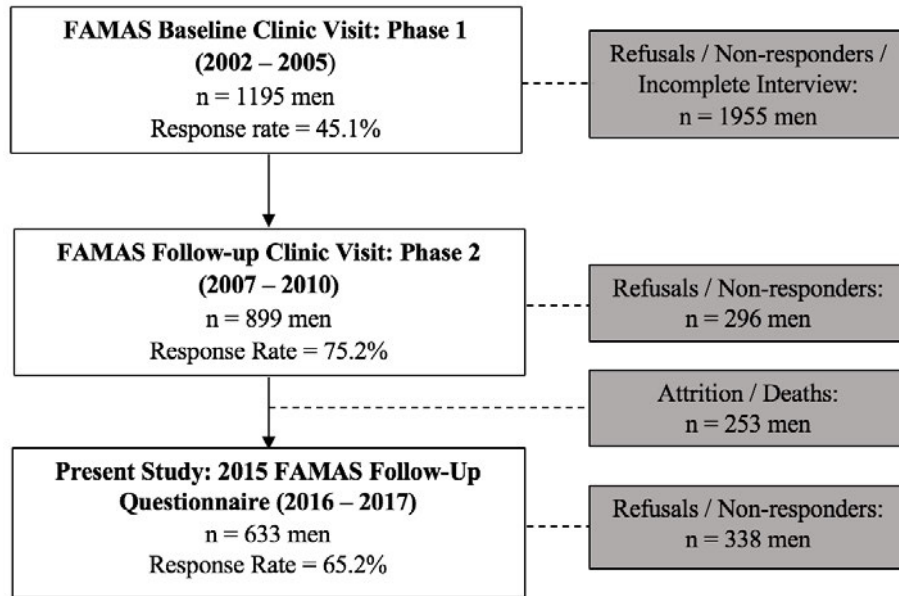


Figure 1. Flowchart of the FAMAS cohort. Adapted from “The Florey Adelaide Male Ageing Study (FAMAS): Design, procedure & participants,” by S. A. Martin, M. T. Haren, S. M. Middleton, and G. A. Wittert, 2007, *BMC Public Health* 7(126), p. 6. Copyright 2007 by "BioMed Central Ltd".

2.2.1 Sampling Area: Demographic Profile. The Northern and Western Adelaide suburbs constitute over a third of the South Australian population and are demographically reflective of the state (Martin, Haren, Middleton et al., 2007). Compared to the 2001 and the 2006 Australian Censuses, the demographic profiles of Phase 1 and 2 samples largely corresponded to the general population with two notable exceptions – older age groups were over-represented, while younger age brackets and never married men were under-represented (Martin et al., 2015). Previous findings indicate that non-responders are more likely to be younger and live alone (Hutchings, Neuburger, Grosse Frie, Black, & Van der Meulen, 2012).

2.3 Participants

Due to attrition or death, only 971 of the participants who partook in FAMAS since Phase 1 were contacted to participate in the present study, conducted between 2016 and 2017. A total of 633 men aged 47 to 92 ($M = 66.99$, $SD = 10.16$), consented to complete the 2015 FAMAS follow-

up questionnaire (response rate = 65.2%; see Figure 1). The majority of the men in the sample were partnered (81.9%), had a post-high school qualification (61.9%), and 51% were retirees. All data from participants with partial responses were included.

2.4 Key Measures

2.4.1 Demographic characteristics. Participants were asked to report their marital status, highest level of education attained, recent annual household income and work status (Appendix A: Sections J and S). Age was obtained from the initial assessment of the participants in FAMAS, Phase 1.

2.4.2 Health Outcomes. Participants self-reported their history of diagnosed chronic diseases, such as diabetes, and psychological illnesses diagnosed in the past 12 months (Appendix A: Sections B and C). All conditions were classified categorically with illnesses either present or not. Based on the items above, the number of comorbidities was calculated as a continuous variable, ranging from zero to twelve chronic conditions present.

For body measurements, participants were provided instructions on how to correctly measure themselves to report their weight, waist and neck circumferences (Appendix A: Section G).

2.4.3 Masculinity in Chronic Disease Inventory (MCD-I). The MCD-I scale developed by Chambers et al. (2016) measures one's level of internalised and perceived endorsement of masculinity ideals, specific to Australian men who are suffering from a chronic illness. The 22-item scale assessed participants on total masculinity and six specific facets of masculinity: Strength (5 items), Sexual Importance/Priority (4 items), Family Responsibilities (4 items), Emotional Self-Reliance (2 items), Optimistic Capacity (4 items), and Action Approach (3 items) (see Appendix A: Section P). Items, like "*Being physically strong is important to me*" (Strength),

were scored using a 5-point Likert scale where 1 was “*Not at all true*” and 5 was “*Very true*”. Respondents who scored higher on the total scale (maximum score being 110) or the subscales (maximum score ranged between 10 – 25), exhibited a stronger endorsement of these masculine ideals. The MCD-I demonstrates good to excellent internal reliability for the total scale ($\alpha = .88$) and across the domains ($\alpha = .69 - .92$); it also demonstrates overall acceptable convergent and divergent validity (Chambers et al., 2016; Kline, 2000).

2.4.4 Healthy Lifestyle Behaviours

2.4.4.1 Smoking. Based on self-reports of their current smoking status, respondents were categorised as either smokers or non-smokers. Current or past smokers were also asked to report the usual number of cigarettes smoked daily and the number of years of regular smoking (Appendix A: Section E). Based on the items above, pack-years were also calculated, as shown below, to determine the accumulated tobacco exposure over lifetime (Avci et al., 2017).

$$\frac{\text{Average number of cigarettes ever smoked/day}}{20 \text{ (1 pack of cigarettes)}} \times \text{Number of years of regular smoking}$$

One pack year indicates a cumulative effect of smoking one pack (20 cigarettes) every day for a year (Bernaards, Twisk, Snel, Van Mechelen, & Kemper, 2001).

2.4.4.2 Nutrition. Participants self-reported the daily number of fruit and vegetable serves they consumed in the last 12 months (Appendix A: Section H). According to the National Health and Medical Research Council guidelines (NHMRC; 2013), a minimum of 2 serves of fruit and 5 serves of vegetables consumed per day is considered to reduce the risk of conditions like Type II diabetes. Consequently, respondents were categorised as either within or below those guidelines for fruit (< or ≥ 2 serves) and vegetable intake (< or ≥ 5 serves).

2.4.4.3 Alcohol Intake. Participants self-reported their usual alcohol consumption on any given over the last 12 months (Appendix A: Section D). Alcohol intake was categorised according to the NHMRC (2009) standards (\leq or $>$ 2 standard drinks), where the consumption of more than 2 standard drinks on any given day is associated with the increased risk of alcohol-related diseases.

2.4.4.4 Physical Activity. A reduced 6-item Active Australia Survey (AAS; AIHW, 2003) was used to determine the amount of physical leisure activity participants engaged in, per week. Participants self-reported the time they had spent, in the past week, on three types of leisure activities: walking, moderate (e.g. golf or gentle swimming) and vigorous (e.g. tennis or cycling) (Appendix A: Section F). To determine the total amount of time a participant spent on leisure activity overall, a total activity time was calculated as follows:

$$\text{Total Activity Time} = \text{Walking}_{\text{time}} + \text{Moderate}_{\text{time}} + (2 \times \text{Vigorous}_{\text{time}})$$

Vigorous activity was doubled as it is more intensive and so yields greater health benefits (Armstrong, Bauman, & Davies, 2000). Based on their total activity time, participants were categorised as ‘sedentary’ (0 minutes), ‘insufficiently active’ (1 – 149 minutes), or ‘sufficiently active’ (150 minutes or more) (AIHW, 2003). According to the National Physical Activity Guidelines for Older Australians, at least 150 minutes of moderate activity a week is sufficient to gain health benefits (Department of Health and Aged Care, 1999). The AAS shows both good intraclass reliability ($r = .71 - .86$ and $\rho = .54 - .77$); and excellent validity as total time spent in moderate and vigorous activities correlates strongly with items from the Pilot Survey of the Fitness of Australians ($r = .97$ and $.89$, respectively) (Bull, 2000; AIHW, 2003).

2.5 Procedure

An introductory letter and a hardcopy of the questionnaire (see Appendix A) were posted to participants' households, informing them of the current study and inviting them to participate. As this was a follow-up questionnaire, participants were notified that the questionnaire may be similar to previous ones completed for FAMAS. A reply-paid envelope was included to mail back responses. Alternatively, if preferred, all participants were provided a link and logon details to fill out the questionnaire as an online survey on *Survey Monkey*. The strict confidentiality of their responses was assured.

Two weeks were allocated to complete and return the questionnaire, which the participants were informed would take 30 – 40 minutes to answer. No reimbursement was awarded to the participants. A contact number was provided if any difficulties or questions arose in completing the questionnaire. As participants were asked about sensitive health topics, contact information of professional services was also given for participants to seek further help in case distress was experienced through their participation.

2.5.1 Ethical Considerations. Previously informed consent for future contact about additional studies was initially acquired from FAMAS participants in Phase 1. For the present study, additional consent was acknowledged with the return of the questionnaire or submission of the online survey. Exemption from ethical approval was granted by the University of Adelaide Human Research Ethics Committee as this study employed previously acquired de-identified data from FAMAS.

2.6 Statistical Analyses Plan

All statistical analyses were conducted using the IBM SPSS Statistics software, version 25.0 (IBM, 2017). The alpha level was set to $p = .05$ (Fisher, 1925).

The relevant variables from the dataset were first screened for missing values and invalid responses. All outliers, visually identified with boxplots and QQ plots, were kept as they were considered important. Prior to performing t-tests, the Komogorov-Smirnov test was conducted to determine normality, further confirmed with visual assessments of histograms and QQ plots (Field, 2009). Not all variables yielded a normal distribution, thus, the non-parametric Mann-Whitney U test was conducted instead. Homogeneity of variance was evaluated using Levene's test, if the variables did not meet assumptions, the appropriate Welch t-test was conducted.

To determine the association between masculinity and diabetes diagnosis, binomial logistic regression models were conducted three ways. First, models were run as unadjusted, then age-adjusted, and finally as multi-adjusted. Using the Box-Tidwell (1962) procedure, all continuous independent variables were first found to be linearly related to the log-odds of the dependent variable, (see Appendix C: Tables C1 – C7). Additionally, no multicollinearity was found among independent variables for adjusted models based on Tolerance and Variance Inflation Factor (VIF) values (Appendix C: Tables C8 – C14).

The selection of covariates for multi-adjusted models were theoretically and statistically based. Covariates were selected according to the purposeful selection method (Hosmer, Lemeshow, & Sturdivant, 2013) (see Appendix D).

Chapter 3 – Results

3.1 Non-Response Bias

Since participants of the present study were drawn from FAMAS, a longitudinal study, it was possible to compare the demographic profiles of the 338 non-responders with the 633 study participants. No statistically significant differences between responders and non-responders were found for marital status ($\chi^2(3) = 2.03, p = .566$) and annual household income ($\chi^2(5) = 7.82, p = .166$). However, there was a statistically significant difference for age groups ($\chi^2(4) = 29.33, p < .001$), non-responders were more likely to be in the younger age groups such as 50 to 59 years. Likewise, a significant difference was found in education ($\chi^2(2) = 20.46, p < .001$), expected frequencies suggest non-responders may have attained higher levels of education. Work status also significantly differed between groups ($\chi^2(3) = 32.39, p < .001$), with responders more likely to be retired and non-responders more likely to be employed. However, the magnitude of the differences between responders and non-responders (Cramer's V ranged between .05 – .19) suggest only a small bias, not uncommon in cohort studies (Littman et al., 2010)

3.2 Descriptive Statistics by Diabetes Diagnosis

3.2.1 Demographic Profile. Out of the 633 participants, 99 (16.0%; see Appendix B) reported that they had been diagnosed by a doctor with diabetes. As seen in Table 1, a significant association was found between age groups and diabetes diagnosis ($\chi^2(4) = 12.72, p = .013$, Cramer's V = .14), with older males more likely to have diabetes. Other significant associations suggest that those more likely to report a diabetes diagnosis earned a lower level of household income ($\chi^2(2) = 12.23, p = .002$, Cramer's V = .15) or were retired ($\chi^2(3) = 15.48, p = .001$, Cramer's V = .16). A marginal significance was found for education ($\chi^2(3) = 7.79, p = .051$,

Cramer’s $V = .11$) suggesting that participants with lower levels of education may be more likely to have diabetes as well. However, all associations were small in magnitude (Cohen, 1988).

Table 1

Demographic Profile of Study Participants by Diabetes Diagnosis

Demographic Variables (n)	Total (n = 633)	Diabetes Diagnosis (n = 99)	No Diabetes Diagnosis (n = 534)	p ^a
	n (%)	n (%)	n (%)	
Age Group (633)				
40 – 49	19 (3.00)	3 (3.03)	16 (3.00)	.013
50 – 59	138 (21.8)	11 (11.1)	127 (23.8)	
60 – 69	230 (36.3)	35 (35.4)	195 (36.5)	
70 – 79	156 (24.6)	36 (36.4)	120 (22.5)	
> 80	90 (14.2)	14 (14.1)	76 (14.23)	
Marital Status (612)				
Married / De Facto	501 (81.9)	79 (83.2)	422 (81.6)	.592
Divorced / Separated	58 (9.48)	9 (9.47)	49 (9.48)	
Never Married	25 (4.09)	5 (5.26)	20 (3.87)	
Widowed	28 (4.58)	2 (2.11)	26 (5.03)	
Highest Level of Education (614)				
Primary School	41 (6.68)	12 (12.4)	29 (5.61)	.051
High School	193 (31.4)	34 (35.1)	159 (30.8)	
TAFE/Apprenticeship/Trade/ Diploma/Other	291 (47.4)	40 (41.2)	251 (48.5)	
Bachelor Degree/Higher	89 (14.5)	11 (11.3)	78 (15.1)	
Annual Household Income (Past 12 months) (551)				
Low	213 (38.7)	45 (52.9)	168 (36.1)	.002
Middle	239 (43.3)	34 (40.0)	205 (44.0)	
High	99 (18.0)	6 (7.06)	93 (20.0)	
Work Status (626)				
Full-time/Self-Employed	228 (36.4)	19 (19.6)	209 (39.5)	.001
Part-time /Casual	49 (7.83)	7 (7.22)	42 (7.94)	
Retired	319 (51.0)	64 (66.0)	255 (48.2)	
Other	30 (4.79)	7 (7.22)	23 (4.35)	

Note. Chi-square analyses compare participants with and without a diabetes diagnosis against each demographic variable. “Don’t Know/Not Sure” responses were excluded from chi-square analyses.

Highest Level of Education: primary and high school indicates either partial or full completion. *Annual Household Income:* low income is between \$12 000 to \$40 000 per annum, middle income is between \$40 001 to \$100 000 per annum, high income is greater than \$100 000 per annum. *Work Status:* unemployed, unable to work, home duties, student, volunteer, carer and other were collapsed into category Other.

^aSignificance is highlighted in boldface.

3.2.2 Health Characteristics and Behaviours. The health characteristics and behaviours of the study sample can be seen below in Table 2. Participants with diabetes reported a higher number of comorbidities ($M = 4.49, SD = 2.24$) compared to their counterparts without diabetes ($M = 2.61, SD = 1.80$). This difference was statistically significant with a large effect size, $t(123.01) = -7.91, p < .001, d = .93$. This is further confirmed by the higher rates of Heart Attacks/Angina (31.3%), High Blood Pressure (69.7%) and High Cholesterol (57.6%) reported by participants with diabetes (see Appendix B). Only 4.68% of the total sample did not report any chronic conditions (Appendix B).

For body measurements, participants with diabetes had significantly higher reported weights ($t(575) = -3.97, p < 0.01, d = .43$) and waist circumferences ($t(84.38) = -3.27, p = 0.02, d = .45$) than did participants without diabetes.

In terms of health behaviours, significantly less participants with diabetes self-reported as current smokers at the time compared to those without diabetes ($\chi^2(1) = 4.03, p = .045$, Cramer's $V = .08$). However, participants with diabetes had a greater number of Pack-Years compared to those without diabetes, indicating a higher level of smoking over the lifetime amongst those with diabetes, although the difference was not significant ($U = 19982, z = -1.34, p = .180$). Whereas, with vegetable intake, those with diabetes were significantly more likely to follow the NHMRC (2013) guideline of eating 5 serves or more per day ($\chi^2(1) = 8.43, p = .004$), although, the association was small (Cramer's $V = .12$).

Table 2

Health Characteristics and Behaviours of Study Participants by Diabetes Diagnosis

Health Variables (n)	Total (n = 633)	Diabetes Diagnosis (n = 99)	No Diabetes Diagnosis (n = 534)	p ^a
	M ± SD / n (%)	M ± SD / n (%)	M ± SD / n (%)	
Comorbidities (627)				
Number of Comorbidities	2.90 ± 2.00	4.49 ± 2.24	2.61 ± 1.80	.000
Body Measurements				
Weight (577)	87.1 ± 15.6	93.0 ± 17.7	86.0 ± 15.0	.000
Waist Circumference (492)	100.0 ± 12.7	105.3 ± 15.0	99.1 ± 12.1	.002
Neck Circumference (438)	41.1 ± 4.75	42.2 ± 3.50	41.0 ± 4.90	.061
Smoking				
Pack-Years (570)	13.6 ± 27.9	16.7 ± 24.3	13.0 ± 28.6	.180
Current Smoking Status (624)	59 (9.46)	4 (4.04)	55 (10.5)	.045
Nutritional Intake (608)				
≥ 2 Serves Fruit	242 (39.8)	45 (47.9)	197 (38.3)	.082
< 2 Serves Fruit	366 (60.2)	49 (52.1)	317 (61.7)	
≥ 5 Serves Vegetables	29 (4.77)	10 (10.6)	19 (3.70)	.004
< 5 Serves Vegetables	579 (95.2)	84 (89.4)	495 (96.3)	
Alcohol Intake (601)				
≤ 2 Standard Drinks/Day	352 (58.6)	61 (67.8)	291 (56.9)	.054
> 2 Standard Drinks/Day	249 (41.4)	29 (32.2)	220 (43.1)	
Physical Exercise (615)				
Sedentary (0 minutes/wk)	113 (18.4)	24 (24.5)	89 (17.2)	.052
Insufficient (1-149 minutes/wk)	121 (19.7)	24 (24.5)	97 (18.8)	
Sufficient (≥ 150 minutes/wk)	380 (61.9)	50 (51.0)	330 (64.0)	

Note. Data is presented as mean and standard deviation (continuous) or as count and percentage (categorical). T-tests or alternative Mann-Whitney U tests were performed on continuous data and chi-square tests were performed on categorical data, comparing participants with and without a diabetes diagnosis against each variable. “Don’t Know” responses were excluded from all tests and descriptive data. *Number of Comorbidities:* include chronic and psychological conditions. *Body Measurements:* weight measured in kilograms, waist and neck circumference measured in centimetres. *Pack-Years:* participants who could not remember years smoked, and who smoke/smoked cigars or pipes were excluded in calculations. *Current Smoking Status:* include regular and occasional smokers.

^aP values = .000 are <.001. Significance is highlighted in boldface.

3.2.3 Total and Domain-Specific MCD-I Scores. Table 3 displays the total and domain-specific masculinity scores of men with and without a diabetes diagnosis.

Table 3

Masculinity in Chronic Disease Inventory (MCD-I) Scores of Study Participants by Diabetes Diagnosis

MCD-I Domain (n)	Total (n = 633)	Diabetes Diagnosis (n = 99)	No Diabetes Diagnosis (n = 534)	p ^a
	M ± SD	M ± SD	M ± SD	
Total (622)	80.9 ± 15.1	75.1 ± 17.5	82.0 ± 14.3	0.000
Strength (622)	17.9 ± 4.08	16.3 ± 4.23	18.2 ± 3.98	0.000
Sexual Importance/Priority (618)	13.3 ± 5.03	11.6 ± 4.98	13.6 ± 4.98	0.000
Family Responsibilities (615)	16.9 ± 3.83	15.9 ± 4.04	17.0 ± 3.77	0.005
Emotional Self-Reliance (621)	6.91 ± 2.02	6.90 ± 2.19	6.92 ± 1.98	0.928
Optimistic Capacity (622)	15.1 ± 3.30	14.5 ± 3.59	15.2 ± 3.23	0.091
Action Approach (620)	11.2 ± 2.55	10.6 ± 2.92	11.3 ± 2.47	0.016

Note. T-tests or alternative Mann-Whitney U tests were performed, comparing participants with and without a diabetes diagnosis against each masculinity score. Not all MCD-I items were answered by some participants.

^aP values = .000 are <.001. Significance is highlighted in boldface.

Participants diagnosed with diabetes had significantly lower scores for total masculinity compared to those without diabetes, $t(121.01) = 3.71, p < .001, d = .44$. Likewise, scores for participants with diabetes were significantly lower in the domains of Strength ($t(620) = 4.30, p < .001, d = .47$), Sexual Importance/Priority ($t(616) = 3.61, p < .001, d = .40$), Family Responsibilities ($U = 20394, z = -2.81, p = .005, r = .11$), and Action Approach ($U = 21280, z = -2.42, p = .016, r = .10$). Scores did not significantly differ between participants with and without diabetes on Emotional Self-Reliance ($t(619) = 0.91, p = .928, d = .01$) and Optimistic Capacity ($U = 22730, z = -1.69, p = .091, r = .07$).

3.3 Association Between Total Masculinity and Diabetes Diagnosis

3.3.1 Hypothesis 1. It was expected that total masculinity would be negatively associated with diabetes diagnosis, as well as after adjusting for age and other multiple covariates.

3.3.1.1 Unadjusted Model. The unadjusted binominal logistic regression model examining the association between total masculinity and diabetes diagnosis was significant ($\chi^2(1) = 16.44, p < .001$), explaining 4.5% of the variance in diabetes diagnosis. A small, though significant, negative relationship was found between total masculinity and diabetes diagnosis. Each unit reduction in total masculinity increased the odds of being categorised with a diabetes diagnosis by a factor of 1.03 ($OR = 0.97, 95\% CI = 0.96 - 0.99, p < .001$). These results support Hypothesis 1, unadjusted Total masculinity is negatively related to diabetes diagnosis.

3.3.1.2 Age-Adjusted Model. The age-adjusted binomial logistic regression model examining the association between total masculinity and diabetes diagnosis was significant ($\chi^2(2) = 18.14, p < .001$), explaining 5.0% of the variance in diabetes diagnosis. A small, though significant, negative relationship was found between total masculinity and diabetes diagnosis. When holding age constant, each unit reduction in total masculinity increased the odds of being categorised with a diabetes diagnosis by a factor of 1.03 ($OR = 0.98, 95\% CI = 0.96 - 0.99, p < .001$). These results support Hypothesis 1, when adjusting for age, total masculinity remained negatively associated with diabetes diagnosis.

3.3.1.3 Multi-Adjusted Model. The multi-adjusted binominal logistic regression model examining the association between total masculinity and diabetes diagnosis was significant ($\chi^2(11) = 80.48, p < .001$), explaining 27.5% of the variance in diabetes diagnosis. As seen in Table 4, after adjusting for a number of covariates, total masculinity was not significantly

associated with diabetes diagnosis ($OR = 0.99$, $95\% CI = 0.97 - 1.02$, $p = .584$) – these results do not support Hypothesis 1.

Table 4

Multi-Adjusted Binary Logistic Regression Analysis Between Total Masculinity and Diabetes

Diagnosis

Covariate (469)	B	S.E B	Wald	df	Sig.	Odds Ratio	C.I. Lower - Upper
Total Masculinity	-0.01	0.01	0.30	1	.584	0.99	0.97 – 1.02
Age	-0.03	0.02	2.02	1	.155	0.97	0.94 – 1.01
Education							
Primary School			6.22	3	.101		
High School	-0.92	0.58	2.48	1	.115	0.40	0.13 – 1.25
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.37	0.58	5.52	1	.019	0.26	0.08 – 0.80
Bachelor Degree/Higher	-0.87	0.66	1.75	1	.186	0.42	0.12 – 1.52
Income							
Low			4.75	2	.093		
Middle	0.03	0.34	0.01	1	.925	1.03	0.54 – 1.99
High	-1.20	0.61	3.87	1	.049	0.30	0.09 – 1.00
Comorbidities	0.44	0.07	36.23	1	.000	1.55	1.34 – 1.79
Weight	0.03	0.01	7.90	1	.005	1.03	1.01 – 1.05
Current Smoking Status	-1.08	0.72	2.24	1	.134	0.34	0.08 – 1.39
Alcohol Intake	-0.50	0.32	2.51	1	.113	0.60	0.32 – 1.13

Note. Education: primary and high school indicates either partial or full completion. *Income:* low income is between \$12 000 to \$40 000 per annum, middle income is between \$40 001 to \$100 000 per annum, high income is greater than \$100 000 per annum. *Comorbidities:* include chronic and psychological conditions. *Weight:* measured in kilograms. *Current Smoking Status:* include regular and occasional smokers. *Alcohol:* measured as within or above NHMRC guidelines, \leq or $>$ 2 standard drinks/day. ^a*P* values = .000 are $<.001$. Significance is highlighted in boldface.

Of the seven covariates included, four were significantly associated with diabetes diagnosis: education, income, number of comorbidities, and weight. Participants with a

TAFE/Apprenticeship/Trade/Diploma/Other level of education had 3.92 times lower odds of being categorised with a diabetes diagnosis than those with primary school as the highest level of education. Likewise, those earning a high annual household income had 3.31 times lower odds of being categorised with a diabetes diagnosis than those with a low annual household income.

Whereas, every increase in the number of comorbidities was associated with 1.55 times greater odds of having a diabetes diagnosis, similarly, a unit increase in weight was associated with a 1.03 increase in the likelihood of having a diabetes diagnosis.

3.4 Association Between Domain-Specific Masculinity and Diabetes Diagnosis

3.4.1 Hypotheses 2 and 3. Hypothesis 2 expected that masculinity domains of Strength, Family Responsibilities, Sexual Importance/Priority, Optimistic Capacity, and Action Approach, would be negatively associated with diabetes diagnosis, as well as after adjusting for age and other multiple covariates. Hypothesis 3 expected that the Emotional Self-Reliance domain would be positively associated with diabetes diagnosis as well as after adjusting for age and other multiple covariates.

3.4.1.1 Unadjusted Models. The unadjusted binominal logistic regression models examining the association between domain-specific masculinity and diabetes diagnosis were significant, except for the Optimistic Capacity and Emotional Self-Reliance domains (shown in Table 5). Out of the significant models, the explained variance ranged from 1.7% to 4.8%.

Out of the significant domains, Strength had a small, negative association with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.12 ($OR = 0.89$, 95% CI = 0.85 – 0.94, $p < .001$). The Sexual Importance/Priority domain also had a small, negative relationship with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by

a factor of 1.08 ($OR = 0.93$, 95% CI = 0.89 – 0.97, $p < .001$). The Family Responsibilities domain was negatively, though also weakly, associated with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.07 ($OR = 0.94$, 95% CI = 0.89 – 0.99, $p = .011$). The Action Approach domain had a small, negative association with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.12 ($OR = 0.89$, 95% CI = 0.82 – 0.97, $p = .006$).

The results mostly support Hypothesis 2, the domains of Strength, Family Responsibilities, Sexual Importance/Priority and Action Approach were negatively associated with diabetes diagnosis; however, the Optimistic Capacity domain was not significantly associated. Whereas, Hypothesis 3 was not supported, the Emotional Self-Reliance domain was not significantly associated with diabetes diagnosis.

Table 5

Unadjusted Binary Logistic Regression Analyses Between Domain-Specific Masculinity and Diabetes Diagnosis

Logistic Regression Models All Unadjusted (n)	B	SE	Wald	df	Sig. ^a	Odds Ratio	95% CI Lower - Upper	Model χ^2
Strength Domain - Diabetes Diagnosis (622)	-0.11	0.03	17.28	1	.000	0.89	0.85 – 0.94	$\chi^2(1) = 17.70$, p < .001, NR ² = .05
Sexual Importance/Priority Domain - Diabetes Diagnosis (618)	-0.08	0.02	12.45	1	.000	0.93	0.89 – 0.97	$\chi^2(1) = 12.45$, p < .001, NR ² = .04
Family Responsibilities Domain - Diabetes Diagnosis (615)	-0.07	0.03	6.41	1	.011	0.94	0.89 – 0.99	$\chi^2(1) = 6.07$, p = .014, NR ² = .02
Emotional Self Reliance Domain - Diabetes Diagnosis (621)	-0.01	0.06	0.01	1	.927	1.00	0.89 – 1.11	$\chi^2(1) = .01$, p = .927, NR ² = .00
Optimistic Capacity Domain - Diabetes Diagnosis (622)	-0.06	0.03	3.16	1	.075	0.94	0.89 – 1.01	$\chi^2(1) = 3.12$, p = .078, NR ² = .01
Action Approach Domain - Diabetes Diagnosis (620)	-0.11	0.04	7.43	1	.006	0.89	0.82 – 0.97	$\chi^2(1) = 7.32$, p = .007, NR ² = .02

Note. NR² = Nagelkerke R².

^aP values = .000 are <.001. Significance is highlighted in boldface.

3.4.1.2 Age-Adjusted Models. The age-adjusted binominal logistic regression models examining the association between domain-specific masculinity and diabetes diagnosis were significant, except for the Emotional Self-Reliance domain (shown in Table 6). Out of the significant models, the explained variance ranged from 2.3% to 5.7%.

Out of the significant domains, the age-adjusted Strength domain had a small, negative association with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.11 ($OR = 0.90$, 95% CI = 0.85 – 0.95, $p < .001$). The age-adjusted Sexual Importance/Priority domain also had a small, negative association with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.07 ($OR = 0.93$, 95% CI = 0.89 – 0.98, $p = .005$). Likewise, the age-adjusted Family Responsibilities domain was negatively associated with diabetes diagnosis, though also small in magnitude. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.06 ($OR = 0.94$, 95% CI = 0.89 – 0.99, $p = .016$). The age-adjusted Action Approach domain had also a small, negative relationship with diabetes diagnosis. Each unit decrease in the domain, increased the odds of being categorised with a diabetes diagnosis by a factor of 1.11 ($OR = 0.90$, 95% CI = 0.83 – 0.98, $p = .014$).

The results mostly support Hypothesis 2, the age-adjusted domains of Strength, Family Responsibilities, Sexual Importance/Priority and Action Approach were negatively associated with diabetes diagnosis. However, the age-adjusted Optimistic Capacity domain was not significantly associated. Hypothesis 3 was not supported, when controlling for age, the Emotional Self-Reliance domain was not significantly associated with diabetes diagnosis.

Table 6

Age-Adjusted Binary Logistic Regression Analyses Between Domain-Specific Masculinity and Diabetes Diagnosis

Logistic Regression Models All Age-Adjusted (n)	B	SE	Wald	df	Sig. ^a	Odds Ratio	95% CI Lower - Upper	Model χ^2
Strength Domain - Diabetes Diagnosis (622)	-0.11	0.03	14.92	1	.000	0.90	0.85 – 0.95	$\chi^2(2) = 21.05$, p < .001, NR ² = .06
Sexual Importance/Priority Domain - Diabetes Diagnosis (618)	-0.07	0.03	7.87	1	.005	0.93	0.89 – 0.98	$\chi^2(2) = 12.64$, p = .002, NR ² = .04
Family Responsibilities Domain - Diabetes Diagnosis (615)	-0.06	0.03	5.76	1	.016	0.94	0.89 – 0.99	$\chi^2(2) = 10.29$, p = .006, NR ² = .03
Emotional Self Reliance Domain - Diabetes Diagnosis (621)	-0.00	0.06	0.00	1	.979	1.00	0.90 – 1.11	$\chi^2(2) = 5.14$, p = .077, NR ² = .01
Optimistic Capacity Domain - Diabetes Diagnosis (622)	-0.05	0.03	2.74	1	.098	0.95	0.89 – 1.01	$\chi^2(2) = 8.42$, p = .015, NR ² = .02
Action Approach Domain - Diabetes Diagnosis (620)	-0.10	0.04	5.98	1	.014	0.90	0.83 – 0.98	$\chi^2(2) = 11.22$, p = .004, NR ² = .03

Note. NR² = Nagelkerke R².

^aP values = .000 are <.001. Significance is highlighted in boldface.

3.4.1.3 Multi-Adjusted Models. The multi-adjusted binominal logistic regression models examining the association between domain-specific masculinity and diabetes diagnosis were all significant (shown in Table 7). The explained variance of the models ranged from 27.4% to 28.7%.

Adjusting for a number of covariates, all masculinity domains were not significant. These results do not support Hypothesis 2 or 3, when adjusting for multiple covariates, the associations between domain-specific masculinity and diabetes diagnosis were not significant.

Of the seven covariates included, education, number of comorbidities, and weight were significantly associated with diabetes diagnosis in every model (as shown in Appendix D: Tables D4 – D9). Participants with a TAFE/Apprenticeship/Trade/Diploma/Other level of education had between 3.86 – 4.17 times lower likelihood of being categorised with a diabetes diagnosis than those with primary school as the highest level of education. Whereas, each unit increase in the number of comorbidities, resulted in 1.54 – 1.59 times greater odds of being categorised with a diabetes diagnosis. Likewise, increase in participant weight was associated with a small 1.03 times greater likelihood of having a diabetes diagnosis.

Income was also significantly associated with diabetes diagnosis for the Strength, Sexual Importance/Priority, Emotional Self-Reliance and Optimistic Capacity models. Participants with a high annual household income had between 3.36 – 3.47 times lower odds of being categorised with a diabetes diagnosis than those with a low annual household income.

Table 7

Multi-Adjusted Binary Logistic Regression Analyses Between Domain-Specific Masculinity and Diabetes Diagnosis

Logistic Regression Models All Multi-Adjusted (n)	B	SE	Wald	df	Sig. ^a	Odds Ratio	95% CI Lower - Upper	Model χ^2
Strength Domain - Diabetes Diagnosis (469)	-0.05	0.04	1.80	1	.180	0.95	0.89 – 1.02	$\chi^2(11) = 81.97, p < .001, NR^2 = .28$
Sexual Importance/Priority Domain - Diabetes Diagnosis (469)	-0.01	0.03	0.03	1	.861	0.99	0.93 – 1.06	$\chi^2(11) = 80.21, p < .001, NR^2 = .27$
Family Responsibilities Domain - Diabetes Diagnosis (466)	-0.05	0.04	1.52	1	.218	0.96	0.89 – 1.03	$\chi^2(11) = 83.76, p < .001, NR^2 = .29$
Emotional Self Reliance Domain - Diabetes Diagnosis (469)	-0.07	0.07	0.98	1	.323	0.93	0.81 – 1.07	$\chi^2(11) = 81.16, p < .001, NR^2 = .28$
Optimistic Capacity Domain - Diabetes Diagnosis (469)	0.04	0.05	0.79	1	.374	1.04	0.95 – 1.15	$\chi^2(11) = 80.98, p < .001, NR^2 = .28$
Action Approach Domain - Diabetes Diagnosis (468)	-0.01	0.06	0.01	1	.918	0.99	0.88 – 1.12	$\chi^2(11) = 80.23, p < .001, NR^2 = .28$

Note. Models were adjusted for Age, Education, Income, Number of Comorbidities, Weight, Current Smoking Status, and Alcohol Intake. $NR^2 =$ Nagelkerke R^2 .

^a*P* values = .000 are <.001.

Chapter 4 – Discussion

4.1 Overview

Following Raewyn Connell's theory on masculinities (1995), which suggests masculinity is variable across time and contexts, the present study used – for the first time – a contextualised measure of the construct, specific to older men with a chronic disease (Chambers et al., 2016). The aim of the present study was to use this measure to more accurately investigate the relationship between masculinity, total and domain-specific, and Type II diabetes. The findings show that higher internalisation or endorsement of total masculinity and the domains – Strength, Sexual Importance/Priority, Family Responsibilities, and Action Approach – were associated with a decreased likelihood of having a diabetes diagnosis, as was hypothesised. Unexpectedly, Optimistic Capacity and Emotional Self-Reliance domains were not significantly associated with a diabetes diagnosis.

Interestingly, when adjusting for age, the association of total and domain-specific masculinity with diabetes diagnosis accounted for little change suggesting that age is not as important an influencer on the relationship as is indicated by past work (e.g. O'Brien et al., 2005; Tannenbaum & Frank, 2010). When controlling for other covariates, the predicted associations lost significance, contradicting past literature that hinged on the dominant influence of masculinity on men's health practices (Griffith et al., 2016). The findings for the unadjusted models are discussed next, followed by the age-adjusted and multi-adjusted findings further below.

4.2 Hypothesis 1

The first hypothesis was that total masculinity would be negatively associated with Type II diabetes diagnosis, as well as after adjusting for age and other multiple covariates. The results

supported the hypothesis in terms of the unadjusted model; a higher internalisation or endorsement of total masculinity was found to decrease the probability of a diabetes diagnosis.

This association cannot be corroborated by other studies, as the MCD-I is uniquely different from other masculinity scales. In effect, this finding contradicts the plethora of quantitative studies that have found relationships between total scores of other various masculinity measures and negative health outcomes (Gerdes, Alto, Jadaszewski, D'Auria, & Levant, 2018; Gerdes & Levant, 2018; O'Neil, 2008). But these total scores have at times obscured associations of specific domains with positive health behaviours (Levant, Wimer, & Williams, 2011), as supported by qualitative studies (e.g. Hooker et al., 2012).

4.3 Hypothesis 2

The second hypothesis was the domains of Strength, Sexual Importance/Priority, Family Responsibilities, Optimistic Capacity and Action Approach would be negatively associated with diabetes diagnosis, as well as after adjusting for age and multiple covariates. In terms of the unadjusted models, the hypothesis was mostly supported, as all domains were associated in the expected negative direction, except for Optimistic Capacity, which was not significantly associated with diabetes diagnosis.

4.3.1 Masculinity Domain: Strength. Higher internalised or self-perceived endorsement of Strength was associated with a decreased likelihood of having a diabetes diagnosis. This finding is in line with previous research which indicates that men, both young and old, who conform to the masculinity norm of strength engage in more physical activity, like playing a sport, as a means to maintain this ideal (Carnahan et al., 2018; Sloan, Gough, & Conner, 2009). And in the present study, more participants without diabetes engaged in sufficient physical exercise compared to the participants with diabetes. Strength was also one of the domains that

had a slightly stronger negative association with diabetes diagnosis than other domains (OR = 0.89). This appears logical as obesity is considered one of the major risk factors for Type II diabetes (e.g. Bell et al., 2014), and endorsing items, such as “Having a good level of fitness is important to me”, is more likely to lead men into fitness, a preventative measure against obesity, and ultimately Type II diabetes. This can be seen by the significantly lower weights, waist and neck circumferences of this study’s participants without diabetes.

4.3.2 Masculinity Domain: Sexual Importance/Priority. Higher internalised or self-perceived endorsement of the Sexual Importance/Priority domain was also associated with a lower chance of being diagnosed with Type II diabetes. Previous research does indicate that men who put greater importance on the ability to sexually perform, particularly older men, are more willing to forgo norms like being self-reliant, to seek out medical help for sexual health (O’Brien et al., 2005). This is particularly pertinent as risk factors for Type II diabetes, like high cholesterol and hypertension, increase the chances of erectile dysfunction, and inversely, men with Type II diabetes are at an increased risk of sexual dysfunction (Bacon et al., 2002; DeLay, Haney, & Hellstrom, 2016). Therefore, the findings suggest that men who believe “being physically able to have sex” is important to them, they may be more likely to protect themselves from risk factors that may lead to sexual dysfunction and Type II diabetes.

4.3.3 Masculinity Domain: Family Responsibilities. Consistent with the literature, it was found that the more one internalised or endorsed Family Responsibilities, the lower the chances were of being diagnosed with diabetes. As outlined earlier, some men who have families depending on them look after their health by exercising, eating healthily and engaging in healthcare, all preventative steps to avoiding Type II diabetes, as a means to protect the ideal of being the family provider and protector (e.g. Hooker et al., 2012). However, out of all the

domains, Family Responsibilities, had the weakest negative association with diabetes diagnosis (OR = 0.94). This may be explained by the fact that although the majority of the study participants were married or partnered (81.9%), many had adult children and 51% were already retired, therefore, engaging in healthy practices to protect their role as the family provider may have not been as crucial for those participants.

4.3.4 Masculinity Domain: Action Approach. Higher internalisation or self-perceived endorsement of Action Approach was also associated with a reduced likelihood of having a diabetes diagnosis. Action Approach had the same effect size as the Strength domain (OR = 0.89), which suggests that the endorsement of this attribute is more directly related to health-orientated behaviours that would prevent the onset of Type II diabetes. Studies have shown that men who valued having control over their own bodies and behaviours were more likely to engage in healthy lifestyle habits as it enabled them to regard themselves as being action-orientated and active in their own health practices (Seidler et al., 2016; Sloan et al., 2009; Tannenbaum & Frank, 2011). This relates to the prevention of Type II diabetes which involves largely lifestyle adjustments that are dependent on the individual, so active engagement is necessary to avoid the development of the condition (Drury & Gatling, 2005).

4.3.5 Masculinity Domain: Optimistic Capacity. Support was not found for the negative association between Optimistic Capacity and diabetes diagnosis because the relationship was not statistically significant. Although research has found optimism to be beneficial for good health behaviours, physical wellbeing and health outcomes (Conversano et al., 2010; Lipowski, 2012), the effect sizes of the relationships were on average small, as found in a meta-analysis (Rasmussen, Scheier, & Greenhouse, 2009). This may be explained by the fact that optimism is a mental attitude not *directly* associated with taking action in regard to one's

health but simply a belief about the future (Bortolotti, 2018). Another explanation is that the MCD-I scale, although validated for many chronic diseases (Occhipinti, 2019), was originally developed using prostate cancer patients, for whom optimism may be more pertinent to survival because prostate cancer has higher mortality rates than Type II diabetes (ABS, 2019). Thus, further research may be required to understand how Optimistic Capacity relates to masculinity, if it does at all, as it may overlap with a construct like locus of control (Gale, Batty, & Deary, 2008) and the way one copes with a chronic condition, such as cancer.

4.4 Hypothesis 3

The third hypothesis was that the domain of Emotional Self-Reliance would be positively associated with diabetes diagnosis. Yet, support was not found for the hypothesis, as the relationship was not statistically significant. A plausible explanation for this finding could be that Emotional Self-Reliance may be more associated with psychological conditions, such as depression, and the consequent reluctance to seek help, rather than physical conditions (Seidler et al., 2016). Moreover, the hypothesised relationship was based on the idea stoicism and emotional control may lead to avoidance in bringing up concerns with a doctor (Robertson, 2003). However, it may be that men can maintain their emotional self-reliance and still seek help from health professionals, as they have a more rational, rather than emotional approach to their health and bodies (Douglas et al., 2013). It is important to note, measuring Emotional Self-Reliance only encompassed two items, making it less reliable as a domain (Streiner & Norman, 1989).

4.5 Reverse Causality

The findings show total masculinity and certain domains do play a protective role in reducing the chances of Type II diabetes. But as this is a cross-sectional study, the direction of

causality must be interpreted carefully. It may well be that the study participants diagnosed with Type II diabetes are more likely to experience a decline in their self-perceived masculinity. This is also consistent with past literature which shows illness can negatively affect one's perception of masculinity (Chambers et al., 2013; Zanchetta et al., 2017). Or even, the disease makes it harder to achieve the ideals of hegemonic masculinity, resulting in a reevaluation of the importance of endorsing particular domains. The present study's participants with diabetes scored significantly lower on total masculinity and the domains Strength, Sexual Importance/Priority, Family Responsibilities, and Action Approach, compared to their counterparts without diabetes.

However, though significant, the effect sizes for the found associations were small. Past studies on masculinity have also found largely small effect sizes (Mahalik, Burn, & Syzdek, 2007; Seidler et al., 2016; Tannenbaum & Frank, 2011), indicating that the construct may not play such a large role in health outcomes, or vice versa.

4.6 Controlling for Age

As part of the hypotheses, it was expected that all postulated associations with masculinity, total or domain-specific, and diabetes diagnosis would remain after controlling for age. Interestingly, the associations hardly altered, decreasing in effect size by an increment of 0.01, indicating that age is not a substantial influencer on neither masculinity nor Type II diabetes, contrary to what was expected. This is in conflict with previous literature that has suggested age alters the framing and prioritisation of masculinity ideals (O'Brien et al., 2005). Similarly, the prevalence of Type II diabetes also increases with age due to increased insulin resistance and decline in pancreatic function (Kirkman et al., 2012). A possible explanation for the study's findings may be related to the sample's age range, with the majority of participants

aged 60 and over. Thus, in terms of masculinity, these men do not significantly differ from one another, which warrants less difference in endorsement of masculinity ideals, than if compared to young males, aged 40 and under. Likewise, the effect of age on Type II diabetes diagnosis may not be significant in this particular sample, as most men were of an age when the condition is frequently developed.

4.7 Controlling for Demographic and Health Variables

It was expected that all hypothesised associations with masculinity, total or domain-specific, and diabetes diagnosis would remain after controlling for multiple covariates. However, when adjusting for these multiple covariates – education, annual household income, number of comorbidities, weight, current smoking status, and alcohol consumption – the relationships between masculinity and diabetes diagnosis lost significance. This implies the unadjusted results were, in fact, largely explained by these uncontrolled factors. More specifically, income, education, number of comorbidities and weight were significantly associated with diabetes diagnosis.

The findings can suggest that as masculinity is dependent on context and time (Connell, 1995), it intersects with factors like age, socioeconomic status and ethnicity which may be more important determinants of men's health outcomes than gender. This is further emphasised by the small effect sizes reported in past masculinity studies.

On the other hand, higher risk of Type II diabetes has been associated with lower income and education (Connolly et al., 2000; Steele et al., 2017). This is consistent with the present study's results, as participants with diabetes were more likely to be in the low to middle income level and have lower levels of education, than those without diabetes. However, the negative association with level of education and diabetes diagnosis was only significant for trade level

qualifications. The majority of participants without diabetes had this level of qualification (48.5%) and were significantly more likely to be in the workforce, which suggests that trade level of education may be more related to a physically demanding vocation that contributes to the reduced chances of developing Type II diabetes.

Weight was positively associated with diabetes diagnosis which is expected as obesity is a significant risk factor for Type II diabetes (Al-Goblan et al., 2014). Likewise, a positive association was found between the number of comorbidities and diabetes diagnosis, which is also understandable as having additional conditions like hypertension and high cholesterol increases the risk of developing Type II diabetes (Holt & Kumar, 2010). However, this could also be a reverse causality, as those who have diabetes are more likely to end up with additional secondary conditions (Holt & Kumar, 2010).

4.8 Strengths and Limitations

A strength of the study lies in the large sample size and random sampling used which ensured a relatively accurate representation of the target sample. Even the differences in responders and non-responders were not found to be of a magnitude to cause great bias (Cohen, 1988; Littman et al., 2010). However, the sample included largely older, partnered men, therefore, external validity of the study may be limited to this demographic and further research is needed on other male populations. Also, given that the present study was drawn from a longitudinal investigation, the repetition and length of the questionnaire package may have caused greater oversights amongst participants when answering the items. However, the response rate was adequate for a cohort study which indicates an acceptable level of engagement (Silva Junior, Santos, Coeli & Carvalho, 2015).

As the study focused on participants with Type II diabetes, the 16% prevalence of the condition in the sample was greater than the national estimate of 5%, which can be explained by the study's older sample (AIHW, 2019c). In addition, participant self-reports do not account for the undiagnosed individuals, and so the sample may have contained yet a higher rate of the condition. Having said this, a drawback of the questionnaire was that it measured self-reported diagnosis of diabetes without specifying the type. But, given that about 85% of diabetes incidences are Type II (ABS, 2015), it is safe to assume that the majority of participants had this form of diabetes. If feasible, future research may need to conduct tests to determine the presence of diabetes and take note of pre-diabetics in order to corroborate with self-reports.

Unlike previous studies, a major strength of the present study was that it used the MCD-I, which contextualised masculinity ideals for older Australian men with a chronic condition (Chambers et al., 2016). Despite its reliability and validity as a measure, the MCD-I assesses internalised beliefs or self-perceived endorsements of masculinity ideals, and not actual conformity to such norms. Moreover, masculinity is a sensitive construct, hence, response bias may have elicited skewed answers from participants in an attempt to be seen in a particular light.

Another limitation is the cross-sectional design, as the direction of causality can go in both ways – lower masculinity causes the development of diabetes or having the condition affects men's self-perceived masculinity. Further research into the degree to which participants with diabetes self-perceived their masculinity prior to their diagnoses may shed some clarity.

4.9 Implications

The present study's findings have several implications pertinent to research on masculinity and healthcare services. Although previous studies have found masculinity as a determinant of men's health behaviours and thus, health outcomes, the current study did not

replicate the findings. Instead, the findings suggest the development of Type II diabetes is more associated with men's level of education, income and health, rather than masculinity.

It may be that masculinity plays a more significant role in younger men but with age, the decline in health, access to healthcare and health education affect more how men engage in their health practices. Further studies into this, should keep in mind the small effect sizes of such relationships and other factors that interact with masculinity.

Some health professionals still approach male clients with a problem-orientated mindset due to the numerous findings which indicate masculinity hinders positive health practices (Seymour-Smith, Wetherell, & Phoenix, 2002). The current study, however, suggests health professionals should look beyond gender at predictive factors like socioeconomic status in order to better cater to men.

Nevertheless, masculinity should not be fully dismissed as an insignificant factor as the cross-sectional design of the study may have masked possible masculinity changes with the diagnosis of Type II diabetes. Further research into a longitudinal study may provide insight into the effects of masculinity before and after the diagnosis of a disease. Likewise, a comparison of masculinity changes over the lifetime might better map the variability of its effects and significance in the context of time. Future research should be mindful of the contextuality of masculinity and use appropriate scales for the time, place, age and other characteristics of the cohort so as to investigate more accurately the reasons for men's higher rates of chronic conditions.

4.10 Conclusions

As suggested by social constructionist theories, masculinity is a nuanced phenomenon that is dependent on context and time. There have been no attempts of quantifying the

relationship between masculinity and health outcomes using a masculinity measure that is contextualised to the cohort, until the present study. The current evidence indicates that in older Australian men, masculinity is not related to Type II diabetes diagnosis. This may mean that in older men, masculinity is not as pertinent to one's health-protective behaviours and, ultimately, health outcomes, as it may be in adolescence and early adulthood. Considering that masculinity is nested in larger social structures, it may have a less dominant influence on men's health outcomes than factors such as level of health and social class. Further research should consider masculinity as a holistic and interactive, rather than an isolated construct, to more accurately assess the magnitude of the effect of masculinity across time and contexts, with emphasis on using appropriate masculinity measures.

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Appendix A

Florey Adelaide Male Ageing Study (FAMAS) 2015 Follow-Up Questionnaire Package



Questionnaire
 Florey Adelaide Male Ageing Study (FAMAS) -
 Follow Up - 2015

Dear Study Participant

We are seeking your valuable help once again with our study, by completing this questionnaire.

Parts of this questionnaire may be similar to other questionnaires you have completed for us in the past. As part of the study, we are looking at changes over time and so we need to ask the same or similar questions each time.

If you would prefer to complete this survey online, please go to www.surveymonkey.com/r/FAMAS2015 and enter the logon details provided in the accompanying letter.

Your answers will remain strictly confidential. Results of the study may be published in a medical journal, but no information that may lead to the identification of any individual will be released.

*We realise that the questionnaire is long. It should take approximately **30-45** minutes to complete. However we would really appreciate you taking the time to respond as best you can. Please complete and return it in the next 2 weeks if at all possible. If you have any problems with this questionnaire, please contact us on ☎ [REDACTED]*

A copy of this questionnaire can be obtained by contacting [REDACTED]

**Please read the following instructions
before answering the questions.**

Please complete all the questions as per the instructions by placing a tick in the box that most closely corresponds to your answer.

When you have completed the questionnaire, please insert it in the reply-paid envelope provided, for return to the
Florey Adelaide Male Ageing Study,
c/o Freemasons Foundation Centre for Men's Health (University of Adelaide),
254 North Tce, Adelaide SA 5005.

*Was this questionnaire forwarded to you because the address on the envelope we sent to you was incorrect?
If so, please write your correct address below.*

Please provide us with your email address(es) if you have one.

A. GENERAL HEALTH AND WELL BEING

These first questions ask for your views about your health, how you feel and how well you are able to do your usual activities. If you are unsure about any question, please give the best answer you can.

A1 In general, would you say your health is: (tick ONE box only)

1 Excellent

2 Very good

3 Good

4 Fair

5 Poor

A2 Compared to one year ago, how would you rate your health in general now? (tick ONE box only)

1 Much better now than one year ago

2 Somewhat better now than one year ago

3 About the same as one year ago

4 Somewhat worse now than one year ago

5 Much worse now than one year ago

The following questions are about activities you might do during a typical day. Please tell us if your health now limits you a lot, limits you a little or does not limit you at all in these activities:

A3 Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

A4 Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

A5 Lifting or carrying groceries? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

A6 Climbing several flights of stairs? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

A7 Climbing one flight of stairs? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

A8 Bending, kneeling or stooping? (tick ONE box only)

1 Yes, limited a lot

2 Yes, limited a little

3 No, not limited at all

(cont'd) During a typical day, please tell us if your health now limits you a lot, limits you a little or does not limit you at all in these activities:

A9	Walking more than one kilometre?	(tick ONE box only) <input type="checkbox"/> 1 Yes, limited a lot <input type="checkbox"/> 2 Yes, limited a little <input type="checkbox"/> 3 No, not limited at all
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A10	Walking several hundred metres?	(tick ONE box only) <input type="checkbox"/> 1 Yes, limited a lot <input type="checkbox"/> 2 Yes, limited a little <input type="checkbox"/> 3 No, not limited at all
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A11	Walking 100 metres?	(tick ONE box only) <input type="checkbox"/> 1 Yes, limited a lot <input type="checkbox"/> 2 Yes, limited a little <input type="checkbox"/> 3 No, not limited at all
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A12	Bathing or dressing yourself?	(tick ONE box only) <input type="checkbox"/> 1 Yes, limited a lot <input type="checkbox"/> 2 Yes, limited a little <input type="checkbox"/> 3 No, not limited at all
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The following four questions ask you about your physical health and your daily activities.

A13	During the <u>past four weeks</u> , how much of the time have you ... Had to cut down on the amount of time you spent on work or other activities as a result of your physical health?	(tick ONE box only) <input type="checkbox"/> 1 All of the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A14	During the <u>past four weeks</u> , how much of the time have you ... Accomplished less than you would like as a result of your physical health?	(tick ONE box only) <input type="checkbox"/> 1 All of the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A15	During the <u>past four weeks</u> ... Were you limited in the kind of work or other activities as a result of your physical health?	(tick ONE box only) <input type="checkbox"/> 1 All of the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A16 During the past four weeks, how much of the time have you ... **Had any difficulty performing the work or other activities as a result of your physical health (for example, it took extra effort)?** (tick **ONE** box only)

1 All of the time

2 Most of the time

3 Some of the time

4 A little of the time

5 None of the time

The following few questions ask you about your emotions and your daily activities.

A17 During the past four weeks, how much of the time have you had to ... **Cut down on the amount of time you spent on work or other activities as a result of any emotional problems such as feeling depressed or anxious?** (tick **ONE** box only)

1 All of the time

2 Most of the time

3 Some of the time

4 A little of the time

5 None of the time

A18 During the past four weeks, how much of the time have you ... **Accomplished less than you would like as a result of any emotional problems?** (tick **ONE** box only)

1 All of the time

2 Most of the time

3 Some of the time

4 A little of the time

5 None of the time

A19 During the past four weeks, how much of the time... **Did work or other activities less carefully than usual as a result of any emotional problems?** (tick **ONE** box only)

1 All of the time

2 Most of the time

3 Some of the time

4 A little of the time

5 None of the time

A20 During the past four weeks ... **To what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?** (tick **ONE** box only)

1 Not at all

2 Slightly

3 Moderately

4 Quite a bit

5 Extremely

The next few questions ask about pain.

A21 How much bodily pain have you had during the past four weeks? (tick **ONE** box only)

1 None (Please go to Ques A23 →)

2 Very mild

3 Mild

4 Moderate

5 Severe

6 Very severe

A22	During the <u>past four weeks</u> ... How much did pain interfere with your normal work (including both work outside the home and housework)?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Not at all <input type="checkbox"/> 2 Slightly <input type="checkbox"/> 3 Moderately <input type="checkbox"/> 4 Quite a bit <input type="checkbox"/> 5 Extremely
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These questions are about how you feel and how things have been with you during the past four weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

A23	How much of the time during the <u>past four weeks</u> ... Did you feel full of life?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A24	How much of the time during the <u>past four weeks</u> ... Have you been very nervous?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A25	How much of the time during the <u>past four weeks</u> ... Have you felt so down in the dumps that nothing could cheer you up?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A26	How much of the time during the <u>past four weeks</u> ... Have you felt calm and peaceful?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A27	How much of the time during the <u>past four weeks</u> ... Did you have a lot of energy?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A28	How much of the time during the <u>past four weeks</u> ... Have you felt downhearted and depressed?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A29	How much of the time during the <u>past four weeks</u> ... Did you feel worn out?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A30	How much of the time during the <u>past four weeks</u> ... Have you been happy?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A31	How much of the time during the <u>past four weeks</u> ... Did you feel tired?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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A32	During the <u>past four weeks</u> ... How much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc)?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 All the time <input type="checkbox"/> 2 Most of the time <input type="checkbox"/> 3 Some of the time <input type="checkbox"/> 4 A little of the time <input type="checkbox"/> 5 None of the time
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How true or false, is each of the following statements for you?

A33	“I seem to get sick a little easier than other people.”	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Definitely true <input type="checkbox"/> 2 Mostly true <input type="checkbox"/> 3 Don't know <input type="checkbox"/> 4 Mostly false <input type="checkbox"/> 5 Definitely false
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A34	“I am as healthy as anybody I know.”	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Definitely true <input type="checkbox"/> 2 Mostly true <input type="checkbox"/> 3 Don't know <input type="checkbox"/> 4 Mostly false <input type="checkbox"/> 5 Definitely false
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A35	“I expect my health to get worse.”	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Definitely true <input type="checkbox"/> 2 Mostly true <input type="checkbox"/> 3 Don't know <input type="checkbox"/> 4 Mostly false <input type="checkbox"/> 5 Definitely false
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A36	“My health is excellent.”	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Definitely true <input type="checkbox"/> 2 Mostly true <input type="checkbox"/> 3 Don't know <input type="checkbox"/> 4 Mostly false <input type="checkbox"/> 5 Definitely false
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B. CHRONIC CONDITIONS

- B1** Have you ever been told by a doctor that you have any of the following conditions? (tick ALL that apply)
- 1 Heart attack
 - 2 Stroke
 - 3 Angina
 - 4 Transient ischaemic attack/mini-stroke
 - 5 Atrial fibrillation
 - 6 Kidney/renal disease
 - 7 High blood pressure
 - 8 High cholesterol
 - 9 A smoking-related lung condition? (Chronic Obstructive Pulmonary Disease [COPD], Chronic Obstructive Airways Disease [COAD], emphysema or bronchitis)
 - 10 Parkinson's disease
 - 11 Asthma
 - 12 Enlarged prostate / Benign prostatic hyperplasia (BPH)
 - 13 Diabetes
 - 14 Hyperthyroidism (overactive thyroid)
 - 15 Hypothyroidism (underactive thyroid)
 - 16 Osteoarthritis
 - 17 Osteoporosis
 - 18 Gout
 - 16 None of the above
 - 99 Don't know

- B2** In the last 12 months, have you been told by a doctor that you have any of the following conditions? (tick ALL that apply)
- 1 Anxiety
 - 2 Depression
 - 3 Insomnia
 - 4 A stress-related problem
 - 5 Any other mental health problem
 - 6 NONE
 - 99 Don't know

-
- B3 Impotence means being unable to get and keep an erection that is rigid enough for satisfactory sexual activity. How would you describe yourself? (tick ONE box only)
- 1 Always able to get and keep an erection good enough for sexual intercourse
 - 2 Usually able to get and keep an erection good enough for sexual intercourse
 - 3 Sometimes able to get and keep an erection good enough for sexual intercourse
 - 4 Never able to get and keep an erection good enough for sexual intercourse
 - 5 Refused
-

OTHER CHRONIC ILLNESSES

- B4 Are you now suffering from any other chronic illness?
- 1 No (Please go to Ques C1 Cancer →)
 - 2 Yes (*please specify below*)

C. CANCER

<p>C1 Have you ever been told by a doctor that you have cancer?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No (Please go to Ques D1 Alcohol→)</p>					
<p>C2 Have you ever been told by a doctor that you have any of the following? (tick ALL that apply)</p>	<p>What treatment did you receive? (tick ALL that apply)</p>					<p>In what year were you diagnosed with this cancer?</p>
	<p>Chemo-therapy</p>	<p>Radio-therapy</p>	<p>Surgery</p>	<p>Other</p>	<p>None</p>	
<p><input type="checkbox"/> 1 Skin cancer (not melanoma)</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 2 Melanoma</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 3 Bladder cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 4 Prostate cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 5 Bowel cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 6 Kidney cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 7 Lung cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 8- Non-Hodgkin's Lymphoma</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 9 Pancreatic cancer</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	
<p><input type="checkbox"/> 10 Other cancer Please specify _____</p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	<p><input type="checkbox"/></p>	

D. ALCOHOL

D1	Have you <u>ever</u> tried alcohol?	(tick ONE box only)
		<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques E1 Smoking →)
D2	Have you ever had a <u>full serve</u> of alcohol? (e.g. a glass of wine, a whole nip of spirits, a glass of beer, etc.)	(tick ONE box only)
		<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques E1 Smoking →)
D3	Have you had an alcoholic drink of any kind in the <u>last 12 months</u> ?	(tick ONE box only)
		<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques E1 Smoking →)
D4	In the last 12 months, <u>how often</u> did you have an alcoholic drink of any kind?	(tick ONE box only)
		<input type="checkbox"/> 1 Every day <input type="checkbox"/> 2 5 to 6 days a week <input type="checkbox"/> 3 3 to 4 days a week <input type="checkbox"/> 4 1 to 2 days a week <input type="checkbox"/> 5 2 to 3 days a month <input type="checkbox"/> 6 About 1 day a month <input type="checkbox"/> 7 Less often <input type="checkbox"/> 8 No longer drink (Please go to Ques E1 Smoking →)
D5	<u>On a day that you have an alcoholic drink, how many standard drinks do you usually have?</u>	(tick ONE box only)
	A Standard Drink is equivalent to a schooner of full strength beer, a glass of wine or a nip of spirits.	<input type="checkbox"/> 1 20 or more drinks <input type="checkbox"/> 2 16 to 19 drinks <input type="checkbox"/> 3 13 to 15 drinks <input type="checkbox"/> 4 11 to 12 drinks <input type="checkbox"/> 5 9 to 10 drinks <input type="checkbox"/> 6 7 to 8 drinks <input type="checkbox"/> 7 5 to 6 drinks <input type="checkbox"/> 8 3 to 4 drinks <input type="checkbox"/> 9 2 drinks <input type="checkbox"/> 10 1 drink <input type="checkbox"/> 11 Half a drink

D6	<p>Please record how often in the last 12 months you have had each of the following number of standard drinks in a day? <i>Please mark one response for each row below.</i> <i>Please ensure that you have marked a response for each amount, even if your answer is "Never" for that row.</i></p>								
	Every day	5 to 6 days a week	3 to 4 days a week	1 to 2 days a week	2 to 3 days a month	About 1 day a month	Less often	Never	
	20 or more standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	11 to 19 standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	7 to 10 standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5 to 6 standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3 to 4 standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1 to 2 standard drinks a day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Less than 1 standard drink per day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D7	<p>At the present time, do you consider yourself to be ...?</p>		<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 A non-drinker</p> <p><input type="checkbox"/> 2 An ex-drinker</p> <p><input type="checkbox"/> 3 An occasional drinker</p> <p><input type="checkbox"/> 4 A light drinker</p> <p><input type="checkbox"/> 5 A social drinker</p> <p><input type="checkbox"/> 6 A heavy drinker</p> <p><input type="checkbox"/> 7 A binge drinker</p> <p><input type="checkbox"/> 99 Refused</p>						
D8	<p>In the last 12 months have you increased or decreased your overall alcohol consumption?</p>		<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Increased</p> <p><input type="checkbox"/> 2 Decreased</p> <p><input type="checkbox"/> 3 Stayed the same</p> <p><input type="checkbox"/> 99 Refused</p>						

E. SMOKING

E1	Do you currently smoke?	(tick ONE box only) <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques E3 →) <input type="checkbox"/> 3 Occasionally
E2	How many cigarettes do you usually smoke a day?	(tick ONE box only) <input type="checkbox"/> 1 Enter number of cigarettes _____ <input type="checkbox"/> 2 Less than one <input type="checkbox"/> 3 Only smoke cigars or pipes ... PLEASE GO TO QUES E6 →
E3	Have you ever smoked regularly (that is, at least once a day)?	(tick ONE box only) <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques F1 Physical Activity →)
E4	How many cigarettes did you usually smoke a day?	(tick ONE box only) <input type="checkbox"/> 1 Enter number of cigarettes _____ <input type="checkbox"/> 2 Less than one <input type="checkbox"/> 3 Only smoke cigars or pipes
E5	How old were you when you last <u>gave up</u> smoking?	(tick ONE box only) <input type="checkbox"/> 1 Enter age _____ <input type="checkbox"/> 2 Can't remember
E6	How many years have you smoked/did you smoke daily?	(tick ONE box only) <input type="checkbox"/> 1 Enter years _____ <input type="checkbox"/> 2 Less than 1 year <input type="checkbox"/> 3 Can't remember
E7	At what age did you first <u>start</u> smoking daily?	(tick ONE box only) <input type="checkbox"/> 1 Enter age _____ <input type="checkbox"/> 2 Can't remember

F. PHYSICAL ACTIVITY

The next few questions are about any physical activities that you may have done in the last week.

F1	<p>In <u>the last week</u>, how many times have you walked continuously, for at least 10 minutes, for recreation, exercise or to get to or from places?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of times _____</p> <p><input type="checkbox"/> 2 None (Please go to Ques F3 ↓)</p> <p><input type="checkbox"/> 99 Don't know</p>
F2	<p>What do you estimate was the total time that you spent walking in this way in <u>the last week</u>?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of hours _____</p> <p>OR</p> <p><input type="checkbox"/> 2 Enter number of minutes _____</p> <p><input type="checkbox"/> 99 Don't know</p>
F3	<p>This question excludes household chores or gardening. In <u>the last week</u>, how many times did you do any vigorous physical activity which made you breathe harder or puff and pant? (e.g. tennis, jogging, cycling, keep fit exercises)</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of times _____</p> <p><input type="checkbox"/> 2 None (Please go to Ques F5 →)</p> <p><input type="checkbox"/> 99 Don't know</p>
F4	<p>What do you estimate was the total time that you spent doing this vigorous physical activity in <u>the last week</u>?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of hours _____</p> <p>OR</p> <p><input type="checkbox"/> 2 Enter number of minutes _____</p> <p><input type="checkbox"/> 99 Don't know</p>
F5	<p>This question excludes household chores or gardening. In <u>the last week</u>, how many times did you do other more moderate physical activities that you have not already mentioned? (e.g. lawn bowls, golf, gentle swimming, etc.)</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of times _____</p> <p><input type="checkbox"/> 2 None (Please go to Ques F7 ↓)</p> <p><input type="checkbox"/> 99 Don't know</p>
F6	<p>What do you estimate was the total time that you spent doing these activities in <u>the last week</u>?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Enter number of hours _____</p> <p>OR</p> <p><input type="checkbox"/> 2 Enter number of minutes _____</p> <p><input type="checkbox"/> 99 Don't know</p>
F7	<p>Do you use an activity/fitness tracker?</p>	<p>(tick ALL that apply)</p> <p><input type="checkbox"/> 1 Fitbit</p> <p><input type="checkbox"/> 2 Garmin</p> <p><input type="checkbox"/> 3 Samsung</p> <p><input type="checkbox"/> 4 Polar</p> <p><input type="checkbox"/> 5 Nike</p> <p><input type="checkbox"/> 6 Other (please specify) _____</p> <p><input type="checkbox"/> 7 None</p>

G. BODY MEASUREMENTS

<p>G1 What is your weight (undressed in the morning)?</p> <p><input type="checkbox"/> Measured</p> <p><input type="checkbox"/> Not measured</p>	<p>(enter ONE response only)</p> <p>_____ Kilograms <i>(please enter a number)</i></p> <p>OR</p> <p>_____ Stones and pounds <i>(please enter a number)</i></p> <p><input type="checkbox"/> 99 Don't know</p>
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<p>G2 What is your waist circumference?</p> <p><i>For reference - the correct place to measure your waist is halfway between your lowest rib and the top of your hipbone.</i></p>	<p>(enter ONE response only)</p> <p>_____ Centimetres <i>(please enter a number)</i></p> <p>OR</p> <p>_____ Inches <i>(please enter a number)</i></p> <p><input type="checkbox"/> 99 Don't know</p>
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<p>G3 What is your neck circumference?</p> <p><i>To measure your neck circumference. Place a measuring tape underneath your Adam's apple so it makes contact with your skin and conforms to your neck. To find your Adam's apple, tilt your head back and feel for a lump or protrusion. Place the tape underneath the protrusion and record the number here.</i></p>	<p>(enter ONE response only)</p> <p>_____ Centimetres <i>(please enter a number)</i></p> <p>OR</p> <p>_____ Inches <i>(please enter a number)</i></p> <p><input type="checkbox"/> 99 Don't know</p>
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H. NUTRITION

- H1 In the last 12 months, how many serves of fruit did you usually eat per day?** (tick ONE box only)
- Please count 1 serve as either:
- a whole piece of fruit such as an apple, pear or banana;
 - a handful of fruit such as apricots, grapes, berries or raisins; or
 - 1 cup of chopped fruit, fruit salad or stewed fruit.
- 1 NONE
- 2 Less than 1 serve of fruit per day
- 3 1 serve of fruit per day
- 4 2 serves per day
- 5 3 serves per day
- 6 4 serves per day
- 7 5 serves per day
- 8 6 or more serves per day
- 99 Don't know
-
- H2 In the last 12 months, how many serves of vegetable did you usually eat per day?** (tick ONE box only)
- Please count 1 serve as either:
- 1 cup of salad vegetables or
 - ½ cup of cooked vegetables
- 1 NONE
- 2 Less than 1 serve of vegetables per day
- 3 1 serve of vegetables per day
- 4 2 serves per day
- 5 3 serves per day
- 6 4 serves per day
- 7 5 serves per day
- 8 6 serves per day
- 9 7 or more serves per day
- 99 Don't know

- H3 In the last 12 months, how many eggs did you usually eat per week? (tick ONE box only)
- Please include eggs that are fried, boiled, scrambled, poached or used in omelettes.
- 1 NONE
 - 2 Less than 1 egg per week
 - 3 1 to 2 eggs per week
 - 4 3 to 5 eggs per week
 - 5 6 or more eggs per week
 - 99 Don't know

The next two questions are about carbonated soft drinks. These include Coca-Cola, Pepsi, Solo, lemonade and flavoured mineral water, but **NOT** unflavoured mineral water or soda water. When answering the questions, please convert the amounts you drank into glasses using the examples given below:

375 mL can = 2 glasses 1.25 litre bottle = 7 glasses 2 litre bottle = 11 glasses
 750 mL bottle = 4 glasses 1.5 litre bottle = 8 glasses

- H4 In the last 12 months, how many glasses of diet soft drink, such as Diet Coke, did you drink per day? (tick ONE box only)
- 1 NONE
 - 2 Less than 1 glass per day
 - 3 1 glass
 - 4 2 glasses (or 1 can)
 - 5 3 glasses
 - 6 4 glasses
 - 7 5 glasses
 - 8 6 glasses
 - 9 7 glasses
 - 10 8 glasses
 - 11 9 glasses
 - 12 10 or more glasses
 - 99 Don't know

H5	In the last 12 months, how many glasses of regular soft drink, such as Coke, did you drink per day ?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 NONE <input type="checkbox"/> 2 Less than 1 glass per day <input type="checkbox"/> 3 1 glass <input type="checkbox"/> 4 2 glasses (or 1 can) <input type="checkbox"/> 5 3 glasses <input type="checkbox"/> 6 4 glasses <input type="checkbox"/> 7 5 glasses <input type="checkbox"/> 8 6 glasses <input type="checkbox"/> 9 7 glasses <input type="checkbox"/> 10 8 glasses <input type="checkbox"/> 11 9 glasses <input type="checkbox"/> 12 10 or more glasses <input type="checkbox"/> 99 Don't know
<hr/>		
H6	How many glasses of fruit or vegetable juice do you usually drink per day ?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 NONE <input type="checkbox"/> 2 Less than 1 glass per day <input type="checkbox"/> 3 1 glass <input type="checkbox"/> 4 2 glasses (or 1 can) <input type="checkbox"/> 5 3 glasses <input type="checkbox"/> 6 4 glasses <input type="checkbox"/> 7 5 glasses <input type="checkbox"/> 8 6 glasses <input type="checkbox"/> 9 7 glasses <input type="checkbox"/> 10 8 glasses <input type="checkbox"/> 11 9 glasses <input type="checkbox"/> 12 10 or more glasses <input type="checkbox"/> 99 Don't know
<hr/>		
H7	On average, how many glasses of energy drink (e.g. Red Bull, V, Mother) do you usually have per day ?	<p><i>Please enter number of glasses</i> _____</p> <input type="checkbox"/> 99 Don't know
<hr/>		
H8	On average, how many glasses of sports drink (e.g. Powerade, Gatorade) do you usually have per day ?	<p><i>Please enter number of glasses</i> _____</p> <input type="checkbox"/> 99 Don't know
<hr/>		
H9	During the last four weeks, on average, how many glasses of water do you usually have per day ?	<p><i>Please enter number of glasses</i> _____</p> <input type="checkbox"/> 99 Don't know
<hr/>		
H10	How often do you eat meat products such as sausages, frankfurters, devon (fritz), salami, meat pies, bacon or ham?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Never <input type="checkbox"/> 2 Less than 1 time per week <input type="checkbox"/> 3 1 to 2 times per week <input type="checkbox"/> 4 3 to 5 times per week <input type="checkbox"/> 5 6 to 7 times per week <input type="checkbox"/> 6 8 or more times per week <input type="checkbox"/> 99 Don't know

I. MENTAL HEALTH

Following are groups of statements. Please read each group of statements carefully and select (tick) the one statement in each group that best describes the way you have been feeling in the PAST WEEK, INCLUDING TODAY.

<p>11</p> <p><input type="checkbox"/> 0 I do not feel sad</p> <p><input type="checkbox"/> 1 I feel sad</p> <p><input type="checkbox"/> 2 I am sad all the time and I can't snap out of it</p> <p><input type="checkbox"/> 3 I am so sad or unhappy I can't stand it</p>	<p>12</p> <p><input type="checkbox"/> 0 I am not particularly discouraged about the future</p> <p><input type="checkbox"/> 1 I feel discouraged about the future</p> <p><input type="checkbox"/> 2 I feel I have nothing to look forward to</p> <p><input type="checkbox"/> 3 I feel that the future is hopeless and that things cannot improve</p>
<p>13</p> <p><input type="checkbox"/> 0 I do not feel like a failure</p> <p><input type="checkbox"/> 1 I feel I have failed more than the average person</p> <p><input type="checkbox"/> 2 As I look back on my life, all I can see is a lot of failures</p> <p><input type="checkbox"/> 3 I feel I am a complete failure as a person</p>	<p>14</p> <p><input type="checkbox"/> 0 I get as much satisfaction out of things as I used to</p> <p><input type="checkbox"/> 1 I don't enjoy things the way I used to</p> <p><input type="checkbox"/> 2 I don't get real satisfaction out of anything anymore</p> <p><input type="checkbox"/> 3 I am dissatisfied or bored with everything</p>
<p>15</p> <p><input type="checkbox"/> 0 I don't feel particularly guilty</p> <p><input type="checkbox"/> 1 I feel guilty a good part of the time</p> <p><input type="checkbox"/> 2 I feel quite guilty most of the time</p> <p><input type="checkbox"/> 3 I feel guilty all of the time</p>	<p>16</p> <p><input type="checkbox"/> 0 I don't feel I am being punished</p> <p><input type="checkbox"/> 1 I feel I may be punished</p> <p><input type="checkbox"/> 2 I expect to be punished</p> <p><input type="checkbox"/> 3 I feel I am being punished</p>
<p>17</p> <p><input type="checkbox"/> 0 I don't feel disappointed in myself</p> <p><input type="checkbox"/> 1 I am disappointed in myself</p> <p><input type="checkbox"/> 2 I am disgusted with myself</p> <p><input type="checkbox"/> 3 I hate myself</p>	<p>18</p> <p><input type="checkbox"/> 0 I don't feel I am any worse than anybody else</p> <p><input type="checkbox"/> 1 I am critical of myself for my weaknesses or mistakes</p> <p><input type="checkbox"/> 2 I blame myself all the time for my faults</p> <p><input type="checkbox"/> 3 I blame myself for everything bad that happens</p>
<p>19</p> <p><input type="checkbox"/> 0 I don't have any thoughts of killing myself</p> <p><input type="checkbox"/> 1 I have thoughts of killing myself, but I would not carry them out</p> <p><input type="checkbox"/> 2 I would like to kill myself</p> <p><input type="checkbox"/> 3 I would kill myself if I could</p>	<p>110</p> <p><input type="checkbox"/> 0 I don't cry any more than usual</p> <p><input type="checkbox"/> 1 I cry more now than I used to</p> <p><input type="checkbox"/> 2 I cry all the time now</p> <p><input type="checkbox"/> 3 I used to be able to cry, but now I can't even if I want to</p>

<p>l11</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I am no more irritated now than I ever am <input type="checkbox"/> 1 I get annoyed or irritated more easily than I used to <input type="checkbox"/> 2 I feel irritated all the time now <input type="checkbox"/> 3 I don't get irritated at all by the things that used to irritate me 	<p>l12</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I have not lost interest in other people <input type="checkbox"/> 1 I am less interested in other people than I used to be <input type="checkbox"/> 2 I have lost most of my interest in other people <input type="checkbox"/> 3 I have lost all of my interest in other people
<p>l13</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I make decisions about as well as I ever could <input type="checkbox"/> 1 I put off making decisions more than I used to <input type="checkbox"/> 2 I have greater difficulty in making decisions than before <input type="checkbox"/> 3 I can't make decisions at all anymore 	<p>l14</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I don't feel I look any worse than I used to <input type="checkbox"/> 1 I am worried that I am looking old and unattractive <input type="checkbox"/> 2 I feel that there are permanent changes in my appearance that make me look unattractive <input type="checkbox"/> 3 I believe that I look ugly
<p>l15</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I can work about as well as before <input type="checkbox"/> 1 It takes an extra effort to get started at doing something <input type="checkbox"/> 2 I have to push myself very hard to do anything <input type="checkbox"/> 3 I can't do any work at all 	<p>l16</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I can sleep as well as usual <input type="checkbox"/> 1 I don't sleep as well as I used to <input type="checkbox"/> 2 I wake up 1 to 2 hours earlier than usual and find it hard to get back to sleep <input type="checkbox"/> 3 I wake up several hours earlier than I used to and cannot get back to sleep
<p>l17</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I don't get more tired than usual <input type="checkbox"/> 1 I get tired more easily than I used to <input type="checkbox"/> 2 I get tired from doing almost nothing <input type="checkbox"/> 3 I am too tired to do anything 	<p>l18</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 My appetite is no worse than usual <input type="checkbox"/> 1 My appetite is not as good as it used to be <input type="checkbox"/> 2 My appetite is much worse now <input type="checkbox"/> 3 I have no appetite at all anymore
<p>l19</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I haven't lost much weight, if any, lately <input type="checkbox"/> 1 I have lost more than 2 kilos / 5 pounds <input type="checkbox"/> 2 I have lost more than 4.5 kilos / 10 pounds <input type="checkbox"/> 3 I have lost more than 7 kilos / 15 pounds <input type="checkbox"/> 4 I am purposely trying to lose weight by eating less 	<p>l20</p> <ul style="list-style-type: none"> <input type="checkbox"/> 0 I am no more worried about my health than usual <input type="checkbox"/> 1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation <input type="checkbox"/> 2 I am worried about physical problems and it's hard to think of much else <input type="checkbox"/> 3 I am so worried about physical problems that I cannot think about anything else

I21	<input type="checkbox"/> 0 I have not noticed any recent change in my interest in sex <input type="checkbox"/> 1 I am less interested in sex than I used to be <input type="checkbox"/> 2 I am much less interested in sex now <input type="checkbox"/> 3 I have lost interest in sex complete	The last few questions are taken from a commonly used scale of psychological distress. If you feel unusually anxious or depressed for extended periods you should speak to a medical professional or call Lifeline (131114) or Mensline (1300 78 99 78).

J. WORK

J1	What is your work status?	(tick ONE box only) <input type="checkbox"/> 1 Self-employed <input type="checkbox"/> 2 Full time employed <input type="checkbox"/> 3 Part-time/casual employment <input type="checkbox"/> 4 Retired <input type="checkbox"/> 5 Unemployed (Please go to Ques K1 Pain →) <input type="checkbox"/> 6 Home duties (Please go to Ques K1 Pain →) <input type="checkbox"/> 7 Student (Please go to Ques K1 Pain →) <input type="checkbox"/> 8 Unable to work (Please go to Ques K1 Pain →) <input type="checkbox"/> 9 Volunteer (Please go to Ques K1 Pain →) <input type="checkbox"/> 10 Carer (Please go to Ques K1 Pain →) <input type="checkbox"/> 11 Other (please specify) _____ (Please go to Ques K1 Pain →)
J2	What is/was your <u>main</u> occupation?	<i>Please specify:</i>
J3	How long have you been doing/did you do this type of work for?	(enter ONE response only) Specify years _____ OR Specify months _____ <input type="checkbox"/> 99 Don't know
J4	On average, how many hours a week do/did you work?	(enter ONE response only) Specify hours a week _____ <input type="checkbox"/> 99 Don't know

K. PAIN

We really appreciate your help with filling out this questionnaire. The next few questions relate to any pain you have had in your joints or areas of your body in the last 7 days.

K1	Please indicate if you have had pain or tenderness during the <u>past 7 days</u> in the areas listed.	<p>(tick ALL that apply)</p> <input type="checkbox"/> 1 Left jaw <input type="checkbox"/> 2 Right jaw <input type="checkbox"/> 3 Neck <input type="checkbox"/> 4 Left shoulder <input type="checkbox"/> 5 Right shoulder <input type="checkbox"/> 6 Chest or breast <input type="checkbox"/> 7 Upper back <input type="checkbox"/> 8 Left upper arm <input type="checkbox"/> 9 Right upper arm <input type="checkbox"/> 10 Left lower arm <input type="checkbox"/> 11 Right lower arm <input type="checkbox"/> 12 Abdomen <input type="checkbox"/> 13 Lower back <input type="checkbox"/> 14 Left hip or buttocks <input type="checkbox"/> 15 Right hip or buttocks <input type="checkbox"/> 16 Left upper leg <input type="checkbox"/> 17 Right upper leg <input type="checkbox"/> 18 Left lower leg <input type="checkbox"/> 19 Right lower leg <input type="checkbox"/> 20 No pain or tenderness (Please go to Ques L1 Urinary Health →)
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K2	For each of the following symptoms listed, please indicate the severity of the symptom during the past 7 days.	<p>(tick ONE box only)</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;">No problem</td> <td style="width: 25%;">Slight or mild problem</td> <td style="width: 25%;">Moderate problem</td> <td style="width: 25%;">Severe problem</td> </tr> </table>		No problem	Slight or mild problem	Moderate problem	Severe problem
	No problem	Slight or mild problem	Moderate problem	Severe problem			
	Fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Trouble thinking or remembering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	Waking up tired (unrefreshed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

K3	During the past 6 months have you had any of the following symptoms?	<p>(tick ONE box only)</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%;">Yes</td> <td style="width: 25%;">No</td> </tr> </table>		Yes	No
	Yes	No			
	Pain or cramps in the lower abdomen	<input type="checkbox"/>	<input type="checkbox"/>		
	Depression	<input type="checkbox"/>	<input type="checkbox"/>		
	Headache	<input type="checkbox"/>	<input type="checkbox"/>		

K4	Have the symptoms in the <u>previous 2 questions</u> and <u>pain</u> been present at a similar level for at least 3 months?	<p>(tick ONE box only)</p> <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No
----	---	---

L. URINARY HEALTH

The following questions relate to urinary symptoms. Over the past month, please indicate how often you have you...		(tick ONE box only)						
		Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	
L1	...Had a sensation of not emptying your bladder completely after you have finished urinating?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L2	...Had to urinate again less than 2 hours after you finished urinating?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L3	...Found you stopped and started again several times when you urinated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L4	...Found it difficult to postpone urination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L5	...Had a weak urinary stream?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
L6	... Had to push or strain to begin urination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		(tick ONE box only)						
		None	1 time	2 times	3 times	4 times	5 + times	
L7	Over the past month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		(tick ONE box only)						
		Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
L8	If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about it?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

M. FALLS

M1	How many falls (including slips, trips and falls to the ground) did you have in <u>the past year?</u>	(tick ONE box only) <input type="checkbox"/> 1 Enter number _____ <input type="checkbox"/> 2 None (Please go to Ques N1 Sleep ↓) <input type="checkbox"/> 99 Don't know
<hr/>		
M2	Did you suffer from a fracture as a result of a fall from a standing height or less, in <u>the past year?</u>	(tick ONE box only) <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 99 Don't know

N. SLEEP

We really appreciate the time you have taken to get this far ... we are close to the end.

<p>N1 Do you often feel tired, fatigued or sleepy during daytime? <i>For shift workers - during the period when you normally socialise or perform activities of daily living.</i></p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No</p> <p><input type="checkbox"/> 3 Shift worker, sleepy during other times</p> <p><input type="checkbox"/> 4 Shift worker, not sleepy</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N2 Do you feel sleepy when sitting quietly during the day or early evening? <i>For shift workers - during the period when you normally socialise or perform activities of daily living.</i></p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No</p> <p><input type="checkbox"/> 3 Sometimes</p> <p><input type="checkbox"/> 4 Shift worker, sleepy during other times</p> <p><input type="checkbox"/> 5 Shift worker, not sleepy</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N3 During the <u>past month</u>, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? <i>For shift workers - during the period when you normally socialise or perform activities of daily living.</i></p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Not during the past month</p> <p><input type="checkbox"/> 2 Less than once per week</p> <p><input type="checkbox"/> 3 1-2 times per week</p> <p><input type="checkbox"/> 4 3 or more times per week</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N4 Has your snoring ever bothered other people, or is your snoring louder than talking or loud enough to be heard through closed doors?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No</p> <p><input type="checkbox"/> 3 Don't snore</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N5 Has anyone noticed that you stop breathing during your sleep?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N6 If you have a bed partner or share a room, ask him/her how often in the past month you have had legs twitching or jerking while you sleep?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Not during the past month</p> <p><input type="checkbox"/> 2 Less than once per week</p> <p><input type="checkbox"/> 3 1-2 times per week</p> <p><input type="checkbox"/> 4 3 or more times per week</p> <p><input type="checkbox"/> 5 Don't have a bed partner</p> <p><input type="checkbox"/> 99 Don't know</p>
<hr/>	
<p>N7 Have you been diagnosed with sleep apnoea with an overnight sleep study?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No (Please go to Ques N13 →)</p> <p><input type="checkbox"/> 99 Don't know Please go to Ques N13 →)</p>

N8	<p>Do you know your Apnea/Hypopnea Index (AHI), ie the number of times you stop breathing per hour overnight?</p>	<p>(ONE response only)</p> <p>AHI number _____</p> <p><input type="checkbox"/> 99 Don't know</p>
N9	<p>Were you told if your sleep apnea was mild/moderate or severe?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Mild/ moderate</p> <p><input type="checkbox"/> 2 Severe</p> <p><input type="checkbox"/> 99 Don't know</p>
N10	<p>Where did you have your PSG (sleep test) done?</p>	<p><i>Please specify:</i></p>
N11	<p>Do you give us permission to access your AHI results?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Yes</p> <p><input type="checkbox"/> 2 No</p>
N12	<p>Do you use treatment for your sleep apnea?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 No</p> <p><input type="checkbox"/> 2 Yes, Constant Positive Airway Pressure or CPAP for less than 4 hours/night</p> <p><input type="checkbox"/> 3 Yes, Constant Positive Airway Pressure or CPAP for more than 4 hours/night</p> <p><input type="checkbox"/> 4 Yes other (surgery, use oral device / mandibular advancement splint)</p> <p><input type="checkbox"/> 99 Don't know</p>
N13	<p>During the last week, if I think about how I sleep ...</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 I was able to sleep without difficulty most of the time</p> <p><input type="checkbox"/> 2 My sleep was interrupted some of the time, but I was usually able to go back to sleep without difficulty</p> <p><input type="checkbox"/> 3 My sleep was interrupted most nights, but I was usually able to go back to sleep without difficulty</p> <p><input type="checkbox"/> 4 I slept in short bursts only. I was awake most of the night</p> <p><input type="checkbox"/> 99 Don't know</p>

O. SLEEP PATTERNS

In the last 2 weeks, have you had

O1	Difficulty <u>falling</u> asleep?	(tick ONE box only) <input type="checkbox"/> 1 None <input type="checkbox"/> 2 Mild <input type="checkbox"/> 3 Moderate <input type="checkbox"/> 4 Severe <input type="checkbox"/> 5 Very severe
<hr/>		
O2	Difficulty <u>staying</u> asleep?	(tick ONE box only) <input type="checkbox"/> 1 None <input type="checkbox"/> 2 Mild <input type="checkbox"/> 3 Moderate <input type="checkbox"/> 4 Severe <input type="checkbox"/> 5 Very severe
<hr/>		
O3	Problems waking up too early?	(tick ONE box only) <input type="checkbox"/> 1 None <input type="checkbox"/> 2 Mild <input type="checkbox"/> 3 Moderate <input type="checkbox"/> 4 Severe <input type="checkbox"/> 5 Very severe
<hr/>		
O4	How <u>satisfied/dissatisfied</u> are you with your <u>current</u> sleep pattern?	(tick ONE box only) <input type="checkbox"/> 1 Very satisfied <input type="checkbox"/> 2 Satisfied <input type="checkbox"/> 3 Moderately satisfied <input type="checkbox"/> 4 Dissatisfied <input type="checkbox"/> 5 Very dissatisfied

05	<p>How <u>noticeable</u> to others do you think your sleep problem is in terms of impairing the quality of your life?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Not at all noticeable</p> <p><input type="checkbox"/> 2 A little</p> <p><input type="checkbox"/> 3 Somewhat</p> <p><input type="checkbox"/> 4 Much</p> <p><input type="checkbox"/> 5 Very much noticeable</p> <p><input type="checkbox"/> 6 Not applicable</p>
06	<p>How <u>worried/distressed</u> are you about your current sleep problem?</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Not at all worried</p> <p><input type="checkbox"/> 2 A little</p> <p><input type="checkbox"/> 3 Somewhat</p> <p><input type="checkbox"/> 4 Much</p> <p><input type="checkbox"/> 5 Very much worried</p> <p><input type="checkbox"/> 6 Not applicable</p>
07	<p>To what extent do you consider your sleep problem to <u>interfere</u> with your daily functioning <u>currently</u>? (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.)</p>	<p>(tick ONE box only)</p> <p><input type="checkbox"/> 1 Not interfering at all</p> <p><input type="checkbox"/> 2 A little</p> <p><input type="checkbox"/> 3 Somewhat</p> <p><input type="checkbox"/> 4 Much</p> <p><input type="checkbox"/> 5 Very much interfering</p> <p><input type="checkbox"/> 6 Not applicable</p>

P. BEING A MAN

The following is a series of statements about how men might think or feel about themselves, and about what is important for men.

Thinking about you personally, please indicate how true each statement is.		(tick ONE box only)				
		Not at all true (1)	(2)	Somewhat true (3)	(4)	Very True (5)
P1	Being physically strong is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2	Being physically able to have sex is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3	I always look for the good in situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P4	I keep my feelings to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5	Being able to have an erection is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6	I like to take action in the face of problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7	I like to know I am looking after my partner or family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P8	Having a good level of fitness is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9	I am a fighter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P10	If I want to achieve something I can	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P11	I like to know I am capable of having sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P12	I am a positive person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13	I tend not to talk about my worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P14	I need to provide financial security for my partner or family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P15	Being an active person is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P16	I have a forward thinking mind set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P17	Being able to have sex is like being able to run	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P18	Being able to provide for my partner or family is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P19	I am optimistic about the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P20	I am a competitive person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P21	My approach is to get on with things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P22	It's up to me to protect my partner or family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q. MEDICATIONS

Q1 Have you taken any medications, vitamins or supplements for most of the last 4 weeks? (tick ONE box only)

1 No (Please go to Ques Q1 Carers →)

2 Yes

99 Don't know

Q2 Did you take any of the following? (tick ALL that apply)	Please state the medical condition that this medication is treating.
<input type="checkbox"/> 1 Multivitamins and minerals	
<input type="checkbox"/> 2 Multivitamins alone	
<input type="checkbox"/> 3 Fish oil	
<input type="checkbox"/> 4 Glucosamine	
<input type="checkbox"/> 5 Omega 3	
<input type="checkbox"/> 6 Paracetamol	
<input type="checkbox"/> 7 Codeine	
<input type="checkbox"/> 8 Aspirin	
<input type="checkbox"/> 9 Lipitor	
<input type="checkbox"/> 10 Avapro, Karvea	
<input type="checkbox"/> 11 Warfarin, Coumadin	
<input type="checkbox"/> 12 Pravachol	
<input type="checkbox"/> 13 Coversyl, Coversyl Plus	
<input type="checkbox"/> 14 Lasix, frusemide	
<input type="checkbox"/> 15 Zocor, Lipex	
<input type="checkbox"/> 16 Cardizem, Vasocordol	
<input type="checkbox"/> 17 Micardis	
<input type="checkbox"/> 18 Nexium	
<input type="checkbox"/> 19 Norvasc	
<input type="checkbox"/> 20 Fosamax	
<input type="checkbox"/> 21 Somac	
<input type="checkbox"/> 22 Tritace	
<input type="checkbox"/> 23 Caltrate	
<input type="checkbox"/> 24 Losec, Acimax (omeprazole)	
<input type="checkbox"/> 25 Noten, Tenormin (atenolol)	
<input type="checkbox"/> 26 Oroxine (thyroxine)	
<input type="checkbox"/> 27 Ventolin (salbutamol)	
<input type="checkbox"/> 28 Zyloprim, Pro gout 300 (allopurinol)	
<input type="checkbox"/> 29 Diabex, Diaformin (metformin)	

(continued over page)

<input type="checkbox"/> 30	Zoloft (sertraline)	
<input type="checkbox"/> 31	Cipramil (citalopram)	
<input type="checkbox"/> 32	Efexor (venlafaxine)	
<input type="checkbox"/> 33	None of these	
<input type="checkbox"/> 99	Don't know	

Q3 *Please list any other regular medications or supplements (that is, those taken for most of the last 4 weeks) here and the condition that they are being taken for (eg hayfever, heart disease, general health etc):*

R. CARERS

Again, thank you for your time. We have the final two sections coming up.

R1	Do you provide long-term care at home for a parent, partner, child, other relative or friend, who has a disability, is frail, aged or who has a chronic mental or physical illness? (Long term care is a minimum of 6 months and may extend into years)	(tick ONE box only) <input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No (Please go to Ques R1 Information About You ↓)
----	---	---

R2	Do you feel your caring role has affected your physical or emotional health?	(tick ONE box only) <input type="checkbox"/> 1 No <input type="checkbox"/> 2 Yes - minor effect <input type="checkbox"/> 3 Yes - moderate effect <input type="checkbox"/> 4 Yes - major effect <input type="checkbox"/> 99 Don't know
----	--	--

S. INFORMATION ABOUT YOU

S1	Which of the following best describes your current marital status?	(tick ONE box only) <input type="checkbox"/> 1 Married <input type="checkbox"/> 2 Living with a partner (defacto) <input type="checkbox"/> 3 Widowed <input type="checkbox"/> 4 Divorced <input type="checkbox"/> 5 Separated <input type="checkbox"/> 6 Never married
----	--	--

S2	What is the highest level of education you have completed?	(tick ONE box only) <input type="checkbox"/> 1 Some primary school <input type="checkbox"/> 2 Completed primary school <input type="checkbox"/> 3 Some high school <input type="checkbox"/> 4 Completed high school (ie Year 12, Form 6, HSC) <input type="checkbox"/> 5 TAFE/Apprenticeship <input type="checkbox"/> 6 Trade certificate or diploma <input type="checkbox"/> 7 Bachelor degree or higher <input type="checkbox"/> 8 Other (please specify) _____
----	--	--

S3 **We are interested in how income relates to lifestyle and access to health services. Before tax is taken out, which of the following ranges best describes your household's income, from all sources, over the last 12 months?** (tick ONE box only)

- 1 Up to \$12,000
- 2 \$12,001 - \$20,000
- 3 \$20,001 - \$40,000
- 4 \$40,001 - \$60,000
- 5 \$60,001 - \$80,000
- 6 \$80,001 - \$100,000
- 7 \$100,001 - \$150,000
- 8 \$150,001 - \$200,000
- 9 More than \$200,000
- 99 Don't know/not sure

S4 **Which of the following do you have? (excluding Medicare)** (tick ONE box only)

- 1 Private health insurance - hospital only
- 2 Private health insurance - extras only
- 3 Private health insurance - hospital and extras
- 4 Department of Veteran's Affairs white or gold card
- 5 Health care concession card
- 6 None of these
- 99 Don't know/not sure

S5 **How would you best describe your family structure?** (tick ONE box only)

- 1 A family with a child or children living with both biological or adoptive parents
- 2 A step or blended family
- 3 A sole parent family
- 4 Shared care parenting
- 5 Adult living alone
- 6 Adult living with partner and no children
- 7 Related adults living together
- 8 Related adults and children living together
- 9 Family/couples and unrelated adults/children together
- 10 Unrelated adults living together
- 11 Other
(please specify) _____

56 **This question is about housing. Is this dwelling ...?** **(tick ONE box only)**

- 1 Owned or being purchased by the occupants
- 2 Rented from the Housing Trust
- 3 Rented privately
- 4 Retirement village
- 5 Nursing home
- 6 Housing supplied by employer
- 7 Rented through housing corporation
- 8 Living in accommodation not owned by occupant nor paying rent
- 9 Mobile home / campervan / caravan
- 10 Other
(please specify) _____

57 **Do you receive a pension or benefit?** **(tick ONE box only)**

- 1 Yes
- 2 No **(Please go to Ques R9 →)**
- 99 Don't know - **Please go to Ques R9 →)**

58 **Which pensions or benefits do you receive?** **(tick ALL that apply)**

- 1 ABSTUDY / AUSTUDY/ youth / student allowance
- 2 Age pension
- 3 Bereavement Allowance
- 4 Carer Payment / Allowance
- 5 Disability Support Pension
- 6 Family / parenting / child care benefit
- 7 Mobility Allowance
- 8 Service or defence / War widow / Repatriation Pension
- 9 Sickness Allowance
- 10 Unemployment Benefits
- 11 Wife pension
- 12 Widow/widower pension
- 13 Other
(please specify) _____

59 **Which best describe your family's money situation?** **(tick ONE box only)**

- 1 I am/We are spending more money than I/we get
- 2 I/We have just enough money to get me/us through to the next pay day
- 3 There's some money left over each week but I/we just spend it
- 4 I/We can save a bit every now and then
- 5 I/We can save a lot
- 99 Don't know

*Thank you very much for taking the time to complete this questionnaire.
Please make sure that you have answered all the questions.*

If you have any problems or questions in completing this questionnaire,
please telephone us on ☎ [REDACTED]

*If you would also like to help us by providing a lasting legacy
that will make a meaningful and lasting difference in the lives of others,
you can make a gift or bequest to the Florey Adelaide Male Ageing Study (FAMAS),
via The University of Adelaide.*

*The University is trustee of more than 400 trusts established by
gifts or bequests since its establishment in 1874.*

*For details on how to bestow a gift or make a bequest,
please contact the study on (08) 8313 4723*

A copy of this questionnaire can be obtained by contacting [REDACTED]

Appendix B

Table 1B

Chronic Health Characteristics of Study Participants by Diabetes Diagnosis

Chronic Health Variables	Total (n = 633)		Diabetes Diagnosis (n = 99)	No Diabetes Diagnosis (n = 534)
	n	%	n (%)	n
Chronic Conditions				
Diabetes ^a	99	16.0	99 (100.0)	0 (0.00)
Heart Attack / Angina	114	18.4	31 (31.3)	83 (16.0)
Stroke / Transient Ischaemic Attack	37	5.98	4 (4.04)	33 (6.36)
Atrial Fibrillation	40	6.46	8 (8.08)	32 (6.17)
High Blood Pressure	306	49.4	69 (69.7)	237 (45.7)
High Cholesterol	253	40.9	57 (57.6)	196 (37.8)
Gout	86	13.9	20 (20.2)	66 (12.7)
Asthma	79	12.8	17 (17.2)	62 (11.9)
Smoking Related Lung Condition	29	4.68	7 (7.07)	22 (4.24)
Kidney/Renal Disease	24	3.88	9 (9.09)	15 (2.89)
Enlarged Prostate / Benign Prostatic Hyperplasia	119	19.2	20 (20.2)	99 (19.1)
Cancer ^b	165	26.7	36 (36.4)	129 (24.9)
Hyper / Hypothyroidism	14	2.26	2 (2.02)	12 (2.31)
Osteoarthritis / Osteoporosis	202	32.6	23 (23.2)	179 (34.5)
Parkinson's Disease	6	0.97	1 (1.01)	5 (0.96)
Other	91	14.7	14 (14.1)	77 (14.8)
None of the Above	29	4.68	0 (0.00)	29 (5.59)
Don't Know	6	0.96	0 (0.00)	6 (1.14)
Missing	8	1.26	0 (0.00)	9 (1.69)
Psychological Conditions				
Anxiety	43	7.33	9 (9.78)	34 (6.87)
Depression	45	7.67	8 (8.70)	37 (7.47)
Insomnia	18	3.07	4 (4.35)	14 (2.83)
Stress Related Condition	36	6.13	6 (6.52)	30 (6.06)
Other	15	2.56	1 (1.09)	14 (2.83)
None of the Above	486	82.8	73 (79.3)	413 (83.4)
Don't Know	21	3.45	3 (3.16)	18 (3.51)
Missing	25	3.95	4 (4.04)	21 (3.93)

Note. All percentages exclude cases with missing values or “Don’t Know” responses, with the exception of percentages for missing counts which include all cases. *Smoking Related Lung Condition:* includes Chronic Obstructive Pulmonary Disease (COPD), Chronic Obstructive Airways Disease (COAD), emphysema, and bronchitis.

^aIncludes both Type I and II diabetes, but it is likely that the majority of participants have Type II as it occurs in about 85% of all diabetes cases (ABS, 2015). ^bAt least one history of a type of cancer (Skin, Melanoma, Bladder, Prostate, Bowel, Kidney, Lung, Non-Hodgkin’s Lymphoma, Pancreatic, and/or Other) is considered as one count. The most common cancers reported were skin cancer (*n* = 78), prostate cancer (*n* = 48) and melanoma cancer (*n* = 33).

Appendix C

Assumptions of Binomial Logistic Regressions

Linearity in the Log-Odds Tables with Total and Domain-Specific Masculinity

A Bonferroni correction was applied based on all nine terms in each model, recommended as a sensible step to conduct (Tabachnick & Fidell, 2014). Consequently, the statistical significance was accepted when $p < .006$.

Table C1

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Total

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Total	-.243	.171	2.023	1	.155	.785	.562	1.096
	Age (years)	1.146	.911	1.585	1	.208	3.147	.528	18.749
	Comorbidities	1.304	.477	7.467	1	.006	3.684	1.446	9.385
	Weight (kg)	.322	.345	.870	1	.351	1.380	.702	2.713
	Masculinity Total by Log_Masculinity Total	.043	.033	1.707	1	.191	1.044	.979	1.113
	Age by Log_Age	-.220	.175	1.589	1	.208	.802	.570	1.130
	Comorbidities by Log_Comorbidities	-.370	.188	3.870	1	.049	.691	.478	.999
	Weight by Log_Weight	-.054	.062	.750	1	.386	.948	.839	1.070
	Constant	-21.513	12.337	3.041	1	.081	.000		

Table C2

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Strength

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Strength	-.486	.572	.721	1	.396	.615	.201	1.887
	Age (years)	1.085	.902	1.445	1	.229	2.958	.505	17.335
	Comorbidities	1.266	.480	6.962	1	.008	3.545	1.385	9.078
	Weight (kg)	.353	.346	1.042	1	.307	1.424	.722	2.806
	Masculinity Strength by Log_Strength	.105	.152	.481	1	.488	1.111	.825	1.496
	Age by Log_Age	-.207	.173	1.435	1	.231	.813	.579	1.141
	Comorbidities by Log_Comorbidities	-.359	.190	3.585	1	.058	.698	.481	1.013
	Weight by Log_Weight	-.059	.062	.908	1	.341	.942	.834	1.065
	Constant	-22.723	12.341	3.390	1	.066	.000		

Table C3

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Sexual Importance/Priority

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Sexual Importance/Priority	.285	.419	.465	1	.495	1.330	.586	3.023
	Age (years)	1.042	.928	1.261	1	.261	2.834	.460	17.462
	Comorbidities	1.292	.484	7.122	1	.008	3.639	1.409	9.397
	Weight (kg)	.349	.354	.971	1	.324	1.418	.708	2.838
	Masculinity Sexual Importance by Log_Sexual Importance	-.097	.122	.637	1	.425	.907	.715	1.152
	Age by Log_Age	-.201	.178	1.273	1	.259	.818	.577	1.160
	Comorbidities by Log_Comorbidities	-.361	.192	3.541	1	.060	.697	.479	1.015
	Weight by Log_Weight	-.059	.064	.854	1	.355	.943	.832	1.068
	Constant	-25.033	12.742	3.859	1	.049	.000		

Table C4

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Family Responsibilities

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Family Responsibilities	.673	.587	1.312	1	.252	1.959	.620	6.194
	Age (years)	.873	.907	.926	1	.336	2.393	.405	14.161
	Comorbidities	1.234	.485	6.468	1	.011	3.434	1.327	8.888
	Weight (kg)	.377	.355	1.128	1	.288	1.458	.727	2.922
	Masculinity Family Resp by Log_Family Responsibilities	-.202	.163	1.543	1	.214	.817	.594	1.124
	Age by Log_Age	-.166	.174	.911	1	.340	.847	.602	1.191
	Comorbidities by Log_Comorbidities	-.334	.192	3.035	1	.081	.716	.491	1.043
	Weight by Log_Weight	-.063	.064	.982	1	.322	.939	.829	1.064
	Constant	-25.531	12.670	4.060	1	.044	.000		

Table C5

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Emotional Self-Reliance

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Emotional Self-Reliance	-1.103	.709	2.423	1	.120	.332	.083	1.331
	Age (years)	.880	.881	.999	1	.318	2.411	.429	13.550
	Comorbidities	1.311	.483	7.368	1	.007	3.710	1.440	9.562
	Weight (kg)	.256	.347	.545	1	.460	1.291	.655	2.547
	Masculinity Emotional by Log_Emo SR	.373	.250	2.230	1	.135	1.453	.890	2.372
	Age by Log_Age	-.168	.169	.992	1	.319	.845	.607	1.177
	Comorbidities by Log_Comorbidities	-.365	.191	3.657	1	.056	.694	.478	1.009
	Weight by Log_Weight	-.042	.062	.455	1	.500	.959	.849	1.083
	Constant	-19.093	12.173	2.460	1	.117	.000		

Table C6

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Optimistic Capacity

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Optimistic Capacity	-.567	.616	.848	1	.357	.567	.170	1.896
	Age (years)	.808	.883	.838	1	.360	2.244	.398	12.660
	Comorbidities	1.344	.477	7.927	1	.005	3.833	1.504	9.766
	Weight (kg)	.301	.346	.755	1	.385	1.351	.686	2.660
	Masculinity Optimistic Capacity by Log_Optimistic Cap	.155	.172	.814	1	.367	1.167	.834	1.634
	Age by Log_Age	-.154	.169	.827	1	.363	.857	.615	1.195
	Comorbidities by Log_Comorbidities	-.384	.188	4.162	1	.041	.681	.471	.985
	Weight by Log_Weight	-.050	.062	.643	1	.423	.951	.842	1.075
	Constant	-19.485	12.176	2.561	1	.110	.000		

Table C7

Testing Assumptions of Linearity Using the Box-Tidwell Procedure: Masculinity Domain Action Approach

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	Masculinity Action Approach	-.502	.677	.549	1	.459	.605	.161	2.282
	Age (years)	.804	.878	.837	1	.360	2.234	.399	12.493
	Comorbidities	1.304	.477	7.473	1	.006	3.685	1.447	9.388
	Weight (kg)	.264	.345	.587	1	.443	1.303	.662	2.562
	Masculinity Action Approach by Log_Action Approach	.137	.207	.442	1	.506	1.147	.765	1.721
	Age by Log_Age	-.153	.168	.830	1	.362	.858	.617	1.193
	Comorbidities by Log_Comorbidities	-.371	.188	3.870	1	.049	.690	.477	.999
	Weight by Log_Weight	-.043	.062	.488	1	.485	.958	.848	1.081
	Constant	-18.962	12.217	2.409	1	.121	.000		

Multicollinearity Tables with Total and Domain-Specific Masculinity

Table C8

Testing Multicollinearity of Binomial Logistic Regression: Total Masculinity

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.354	.225		1.572	.117		
	Masculinity Total	-.002	.001	-.093	-2.153	.032	.897	1.114
	Age (years)	-.005	.002	-.131	-1.970	.049	.379	2.640
	Education	-.047	.020	-.102	-2.365	.018	.888	1.126
	Income	-.029	.025	-.057	-1.135	.257	.662	1.511
	Work Status	.046	.044	.064	1.060	.290	.463	2.161
	Comorbidities	.056	.008	.308	6.885	.000	.832	1.203
	Weight (kg)	.003	.001	.131	3.052	.002	.901	1.110
	Current Smoking Status	-.080	.052	-.065	-1.540	.124	.944	1.059
	Alcohol Intake	-.040	.032	-.055	-1.265	.207	.892	1.121

a. Dependent Variable: Diabetics

Table C9

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Strength

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.337	.216		1.557	.120		
	Masculinity Strength	-.010	.004	-.107	-2.570	.010	.950	1.053
	Age (years)	-.004	.002	-.120	-1.813	.070	.380	2.632
	Education	-.049	.020	-.107	-2.474	.014	.887	1.127
	Income	-.030	.025	-.059	-1.187	.236	.664	1.506
	Work Status	.044	.044	.061	1.015	.311	.462	2.163
	Comorbidities	.055	.008	.305	6.834	.000	.831	1.203
	Weight (kg)	.003	.001	.129	2.997	.003	.900	1.111
	Current Smoking Status	-.087	.052	-.070	-1.678	.094	.941	1.063
	Alcohol Intake	-.041	.032	-.055	-1.288	.198	.894	1.118

a. Dependent Variable: Diabetics

Table C10

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Sexual Importance/Priority

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.294	.228		1.289	.198		
	Masculinity Sexual Importance/Priority	-.005	.003	-.068	-1.437	.151	.741	1.350
	Age (years)	-.005	.002	-.150	-2.171	.030	.350	2.854
	Education	-.045	.020	-.099	-2.286	.023	.886	1.129
	Income	-.033	.025	-.066	-1.316	.189	.665	1.505
	Work Status	.049	.044	.067	1.117	.264	.463	2.158
	Comorbidities	.057	.008	.316	7.079	.000	.841	1.189
	Weight (kg)	.003	.001	.125	2.888	.004	.893	1.120
	Current Smoking Status	-.081	.052	-.066	-1.557	.120	.944	1.060
	Alcohol Intake	-.040	.032	-.054	-1.249	.212	.886	1.128

a. Dependent Variable: Diabetics

Table C11

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Family Responsibilities

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.250	.213		1.175	.240		
	Masculinity Family Responsibilities	-.007	.004	-.070	-1.683	.093	.968	1.033
	Age (years)	-.004	.002	-.115	-1.732	.084	.379	2.642
	Education	-.049	.020	-.108	-2.492	.013	.883	1.132
	Income	-.028	.025	-.056	-1.114	.266	.658	1.519
	Work Status	.046	.044	.064	1.059	.290	.462	2.165
	Comorbidities	.058	.008	.318	7.158	.000	.846	1.182
	Weight (kg)	.003	.001	.131	3.035	.003	.901	1.110
	Current Smoking Status	-.080	.052	-.064	-1.524	.128	.944	1.059
	Alcohol Intake	-.042	.032	-.057	-1.319	.188	.894	1.119

a. Dependent Variable: Diabetics

Table C12

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Emotional Self-Reliance

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.184	.211		.875	.382		
	Masculinity Emotional Self-Reliance	-.005	.007	-.030	-.736	.462	.979	1.021
	Age (years)	-.004	.002	-.123	-1.852	.065	.380	2.632
	Education	-.047	.020	-.103	-2.377	.018	.888	1.126
	Income	-.033	.025	-.065	-1.291	.197	.665	1.504
	Work Status	.052	.044	.071	1.179	.239	.464	2.153
	Comorbidities	.059	.008	.324	7.253	.000	.842	1.188
	Weight (kg)	.003	.001	.132	3.062	.002	.899	1.112
	Current Smoking Status	-.076	.053	-.062	-1.454	.147	.936	1.069
	Alcohol Intake	-.044	.032	-.060	-1.388	.166	.896	1.116

a. Dependent Variable: Diabetics

Table C13

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Optimistic Capacity

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.158	.209		.755	.451		
	Masculinity Optimistic Capacity	-.001	.005	-.010	-.245	.806	.928	1.078
	Age (years)	-.004	.002	-.121	-1.809	.071	.377	2.654
	Education	-.047	.020	-.102	-2.356	.019	.888	1.126
	Income	-.032	.025	-.064	-1.262	.208	.662	1.511
	Work Status	.052	.044	.071	1.183	.237	.464	2.153
	Comorbidities	.058	.008	.319	6.975	.000	.805	1.243
	Weight (kg)	.003	.001	.133	3.036	.003	.880	1.136
	Current Smoking Status	-.080	.052	-.065	-1.529	.127	.944	1.059
	Alcohol Intake	-.045	.032	-.061	-1.406	.160	.896	1.116

a. Dependent Variable: Diabetics

Table C14

Testing Multicollinearity of Binomial Logistic Regression: Masculinity Domain Action Approach

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.193	.210		.918	.359		
	Masculinity Action Approach	-.006	.006	-.040	-.946	.345	.929	1.077
	Age (years)	-.004	.002	-.119	-1.783	.075	.379	2.640
	Education	-.046	.020	-.100	-2.305	.022	.885	1.130
	Income	-.029	.025	-.059	-1.161	.246	.656	1.526
	Work Status	.050	.044	.069	1.156	.248	.464	2.155
	Comorbidities	.057	.008	.314	6.945	.000	.822	1.217
	Weight (kg)	.003	.001	.135	3.111	.002	.893	1.120
	Current Smoking Status	-.080	.052	-.064	-1.521	.129	.944	1.060
	Alcohol Intake	-.045	.032	-.061	-1.419	.157	.896	1.116

a. Dependent Variable: Diabetics

Appendix D

Logistic Regression Covariate Selection According to Hosmer and Lemeshow Purposeful Selection Approach (Hosmer, Lemeshow, & Sturdivant, 2013)

According to the general rule, the number of initial covariates chosen were based on the sample size of the smaller dependent category, one predictor per ten cases (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). Eleven initial covariates were selected based on the smaller dependent category, “participants with a diabetes diagnosis”, which had a sample size of 99. These covariates included age, marital status, highest level of education, annual household income, work status, number of comorbidities, weight, current smoking status, nutrition, alcohol intake, and physical exercise.

Age, number of comorbidities, and weight were assessed as continuous variables. Marital status was collapsed and assessed as a dichotomous categorical variable, partnered versus unpartnered. Annual household income was classified into three categories: low income was an earning between \$12 000 - \$40 000, middle income was an earning between \$40 001 - \$100 000, and high income was an earning greater than \$100 000 (see Appendix A: Section S). Work status was collapsed into employed versus retired (see Appendix A: Section J). Current smoking status was assessed according to participant reports as either smoker or non-smoker (see Appendix A: Section E). Nutrition was categorised according to the NHMRC (2013) health guidelines that state a minimum of 2 serves of fruit and 5 serves of vegetables should be eaten daily. So, fruit intake was defined as either \geq or $<$ 2 serves consumed per day and vegetable intake was defined as \geq or $<$ 5 serves consumed per day (see Appendix A: Section H). Alcohol intake was categorically assessed as either \leq or $>$ 2 standard drinks consumed on any given day, based on the NHMRC (2009) guidelines that recommend no more than 2 standard drinks on any given day

should be consumed. Physical exercise during leisure time was assessed according to three categories: sedentary indicated 0 minutes, insufficient indicated 1 – 49 minutes, and sufficient indicated 150 minutes or more of leisure exercise performed in a week. These levels were based on the National Physical Activity Guidelines for older Australians, where a minimum of 150 minutes engagement in moderate leisure activity per week is sufficient to gain health benefits (Department of Health and Aged Care, 1999).

According to the purposeful selection method, for stage one, a univariable logistic regression was conducted for each theoretically identified covariate. A criterion of $p \leq .25$ was used to determine inclusion of each covariate for the next stage (Hosmer et al., 2013). Stage two involved an age-adjusted logistic regression conducted on each covariate. The same criterion of $p \leq .25$ was used to determine inclusion for the next stage of modelling. In stage three, all qualified covariates were included in a multivariable logistic model. Those covariates not meeting the $p \leq .25$ criterion were excluded from the multivariable model, one by one. In stage four, the Nagelkerke R^2 and the estimated coefficients (OR) of the covariates in the new, reduced model were compared with the older, larger model. If a change greater than 10% occurred in the Nagelkerke R^2 or a change greater than 20% occurred in the estimated coefficients, the previously excluded covariate was reintroduced to maintain stability of model (Hosmer et al., 2013). In addition, interactions were also assessed to determine if the effect of each covariate was not constant over levels of other covariates, but no significant interactions were found.

Table D1

Stage 1 Inclusion Justification: Univariable Logistic Regression Analyses

<i>Covariate (n = 633)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Age (633)	0.02	0.01	4.83	1	.028	1.02	1.00 – 1.05
Marital Status (612)							
Partnered vs Unpartnered	0.11	0.30	0.13	1	.722	1.11	0.62 – 1.99
Education (614)							
Primary School			7.45	3	.059		
High School	-0.66	0.39	2.84	1	.092	0.52	0.24 – 1.11
TAFE/Apprenticeship/ Trade/Diploma/Other	-0.95	0.38	6.20	1	.013	0.39	0.18 – 0.82
Bachelor Degree/Higher	-1.08	0.47	5.23	1	.022	0.34	0.14 – 0.86
Income (551)							
Low			11.24	2	.004		
Middle	-0.48	0.25	3.68	1	.055	0.62	0.38 – 1.01
High	-1.42	0.45	9.86	1	.002	0.24	0.10 – 0.59
Work Status (626)							
Employed vs Retired	0.73	0.23	10.08	1	.002	2.08	1.32 – 3.28
Comorbidities (627)	0.42	0.05	59.04	1	.000	1.52	1.37 – 1.96
Weight (577)	0.03	0.01	14.70	1	.000	1.03	1.01 – 1.04
Current Smoking Status (624)	-1.02	0.53	3.72	1	.054	0.36	0.13 – 1.02
Nutrition							
Fruit Intake (608)	0.39	0.23	3.00	1	.083	1.48	0.95 – 2.30
Vegetable Intake (608)	1.13	0.41	7.69	1	.006	3.10	1.39 – 6.90
Alcohol (601)	-0.46	0.24	3.66	1	.056	0.63	0.39 – 1.01
Physical Exercise (614)							
Sedentary			5.84	2	.054		
Insufficient	-0.09	0.32	0.07	1	.790	0.92	0.49 – 1.73
Sufficient	-0.58	0.28	4.38	1	.036	0.56	0.33 – 0.96

Note: Covariates highlighted in boldface met the inclusion criterion ($p \leq .25$), they continue to the next stage of modelling.

^aP values = .000 are <.001.

Table D2

Stage 2 Inclusion Justification: Age-Adjusted Logistic Regression Analyses

<i>Covariate (n = 633)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Education (614)							
Primary School			4.23	3	.238		
High School	-0.49	0.41	1.44	1	.231	0.62	0.28 – 1.36
TAFE/Apprenticeship/ Trade/Diploma/Other	-0.75	0.40	3.46	1	.063	0.47	0.22 – 1.04
Bachelor Degree/Higher	-0.83	0.49	2.86	1	.091	0.44	0.17 – 1.14
Income (551)							
Low			7.06	2	.029		
Middle	-0.40	0.28	2.10	1	.148	0.67	0.39 – 1.15
High	-1.29	0.49	6.80	1	.009	0.28	0.11 – 0.73
Work Status (626)							
Employed vs Retired	0.78	0.32	5.80	1	.016	2.18	1.16 – 4.12
Comorbidities (627)							
	0.43	0.06	54.87	1	.000	1.53	1.37 – 1.71
Weight (577)							
	0.03	0.01	20.06	1	.000	1.03	1.02 – 1.05
Current Smoking Status (624)							
	-0.93	0.53	3.08	1	.079	0.39	0.14 – 1.12
Nutrition							
Fruit Intake (608)	0.37	0.23	2.62	1	.105	1.44	0.93 – 2.25
Vegetable Intake (608)	1.15	0.41	7.86	1	.005	3.15	1.41 – 7.03
Alcohol (601)							
	-0.37	0.25	2.10	1	.147	0.69	0.42 – 1.14
Physical Exercise (614)							
Sedentary			4.66	2	.097		
Insufficient	-0.06	0.33	0.03	1	.866	0.95	0.50 – 1.79
Sufficient	-0.51	0.28	3.35	1	.067	0.60	0.35 – 1.04

Note: Covariates highlighted in boldface met the inclusion criterion ($p \leq .25$), they continue to the next stage of modelling.

^aP values = .000 are <.001.

Table D3

Stage 3 & 4 Inclusion Justification: Multivariable Logistic Regression Analysis

<i>Covariate (n = 470)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Age	-0.03	0.02	1.30	1	.255	0.97	0.93 – 1.02
Education							
Primary School			7.40	3	.060		
High School	-1.13	0.59	3.68	1	.055	0.32	0.10 – 1.03
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.58	0.59	7.10	1	.008	0.21	0.07 - 0.66
Bachelor Degree/Higher	-1.22	0.69	3.15	1	.076	0.30	0.08 – 1.14
Income							
Low			4.07	2	.131		
Middle	0.12	0.35	0.11	1	.740	1.12	0.57 – 2.23
High	-1.06	0.63	2.85	1	.091	0.35	0.10 – 1.19
Work Status							
Full-time vs Retired	0.15	0.41	0.13	1	.717	1.16	0.52 – 2.60
Comorbidities							
	0.47	0.08	37.22	1	.000	1.60	1.37 – 1.85
Weight							
	0.03	0.01	9.33	1	.002	1.03	1.01 – 1.05
Current Smoking Status							
	-0.93	0.71	1.71	1	.191	0.40	0.10 – 1.59
Nutrition							
Fruit Intake	0.19	0.32	0.37	1	.545	1.21	0.65 – 2.25
Vegetable Intake	0.57	0.57	0.98	1	.321	1.77	0.57 – 5.44
Alcohol							
	-0.50	0.33	2.32	1	.128	0.61	0.32 – 1.15
Physical Exercise							
Sedentary			1.69	2	.429		
Insufficient	0.57	0.48	1.40	1	.237	1.77	0.69 – 4.54
Sufficient	0.49	0.42	1.38	1	.241	1.64	0.72 – 3.74

Note: Covariates highlighted in boldface met the inclusion criterion ($p \leq .25$), they are included in the final model. Certain highlighted variables were reintroduced into the model as exclusion resulted in changes greater than 20% in the estimated coefficients of other covariates.

^a*P* values = .000 are <.001.

Final Multi-Adjusted Models with Domain-Specific Masculinity

Table D4

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Strength

<i>Covariate (469)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Strength Domain	-0.05	0.04	1.80	1	.180	0.95	0.89 – 1.02
Age	-0.03	0.02	2.03	1	.154	0.97	0.94 – 1.01
Education							
Primary School			6.08	3	.108		
High School	-0.89	0.58	2.32	1	.127	0.41	0.13 – 1.29
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.35	0.58	5.34	1	.021	0.26	0.08 – 0.82
Bachelor Degree/Higher	-0.86	0.66	1.70	1	.193	0.42	0.12 – 1.54
Income							
Low			4.88	2	.087		
Middle	0.04	0.34	0.01	1	.908	1.04	0.54 – 2.00
High	-1.21	0.61	3.96	1	.046	0.30	0.09 – 0.98
Comorbidities	0.43	0.07	36.21	1	.000	1.54	1.34 – 1.77
Weight	0.03	0.01	7.80	1	.005	1.03	1.01 – 1.05
Current Smoking Status	-1.10	0.71	2.37	1	.124	0.33	0.08 – 1.35
Alcohol	-0.48	0.32	2.33	1	.127	0.62	0.33 – 1.15

^aP values = .000 are <.001. Significance is highlighted in boldface.

Table D5

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Sexual

Importance / Priority

<i>Covariate (469)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Sexual Importance / Priority Domain	-0.01	0.03	0.03	1	.861	0.99	0.93 – 1.06
Age	-0.03	0.02	1.97	1	.160	0.97	0.93 – 1.01
Education							
Primary School			6.38	3	.094		
High School	-0.93	0.58	2.58	1	.109	0.39	0.13 – 1.23
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.39	0.58	5.68	1	.017	0.25	0.08 – 0.78
Bachelor Degree/Higher	-0.89	0.66	1.81	1	.178	0.41	0.11 – 1.50
Income							
Low			4.83	2	.089		
Middle	0.02	0.33	0.00	1	.955	1.02	0.53 – 1.96
High	-1.22	0.61	4.00	1	.046	0.30	0.09 – 0.98
Comorbidities	0.44	0.07	37.78	1	.000	1.56	1.35 – 1.79
Weight	0.03	0.01	7.53	1	.006	1.03	1.01 – 1.05
Current Smoking Status	-1.07	0.72	2.22	1	.136	0.34	0.08 – 1.40
Alcohol	-0.52	0.32	2.60	1	.107	0.60	0.32 – 1.12

^aP values = .000 are <.001. Significance is highlighted in boldface.

Table D6

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Family

Responsibilities

<i>Covariate (466)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Family Responsibilities Domain	-0.05	0.04	1.52	1	.218	0.96	0.89 – 1.03
Age	-0.03	0.02	1.63	1	.202	0.98	0.94 – 1.01
Education							
Primary School			6.27	3	.099		
High School	-0.86	0.58	2.18	1	.139	0.42	0.14 – 1.32
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.37	0.58	5.49	1	.019	0.26	0.08 – 0.80
Bachelor Degree/Higher	-0.90	0.66	1.90	1	.168	0.41	0.11 – 1.46
Income							
Low			4.25	2	.119		
Middle	-0.00	0.33	0.00	1	.996	1.00	0.52 – 1.92
High	-1.16	0.61	3.64	1	.056	0.31	0.10 – 1.03
Comorbidities	0.45	0.07	38.49	1	.000	1.57	1.36 – 1.82
Weight	0.03	0.01	8.00	1	.005	1.03	1.01 – 1.05
Current Smoking Status	-1.15	0.72	2.53	1	.112	0.32	0.08 – 1.31
Alcohol	-0.51	0.32	2.55	1	.110	0.60	0.32 – 1.12

^a*P* values = .000 are <.001. Significance is highlighted in boldface.

Table D7

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Emotional Self-Reliance

<i>Covariate (469)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Emotional Self-Reliance Domain	-0.07	0.07	0.98	1	.323	0.93	0.81 – 1.07
Age	-0.03	0.02	2.01	1	.156	0.97	0.94 – 1.01
Education							
Primary School			6.39	3	.094		
High School	-0.96	0.58	2.72	1	.099	0.38	0.12 – 1.20
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.40	0.58	5.81	1	.016	0.25	0.08 – 0.77
Bachelor Degree/Higher	-0.93	0.66	2.01	1	.156	0.39	0.11 – 1.43
Income							
Low			4.84	2	.089		
Middle	0.02	0.33	0.00	1	.960	1.02	0.53 – 1.96
High	-1.22	0.61	4.03	1	.045	0.30	0.09 – 0.97
Comorbidities	0.46	0.07	38.82	1	.000	1.58	1.37 – 1.82
Weight	0.03	0.01	8.05	1	.005	1.03	1.01 – 1.05
Current Smoking Status	-1.01	0.73	1.91	1	.167	0.37	0.09 – 1.52
Alcohol	-0.52	0.32	2.70	1	.101	0.60	0.32 – 1.11

^a*P* values = .000 are <.001. Significance is highlighted in boldface.

Table D8

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Optimistic Capacity

<i>Covariate (469)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Optimistic Capacity Domain	0.04	0.05	0.79	1	.374	1.04	0.95 – 1.15
Age	-0.03	0.02	2.43	1	.119	0.97	0.93 – 1.01
Education							
Primary School			6.57	3	.087		
High School	-0.97	0.58	2.77	1	.096	0.38	0.12 – 1.19
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.43	0.58	5.96	1	.015	0.24	0.08 – 0.76
Bachelor Degree/Higher	-0.96	0.66	2.10	1	.147	0.38	0.11 – 1.40
Income							
Low			4.91	2	.086		
Middle	-0.01	0.34	0.00	1	.981	0.99	0.51 – 1.92
High	-1.25	0.61	4.17	1	.041	0.29	0.09 – 0.95
Comorbidities	0.47	0.08	37.21	1	.000	1.59	1.37 – 1.85
Weight	0.03	0.01	6.67	1	.010	1.03	1.01 – 1.04
Current Smoking Status	-1.05	0.72	2.15	1	.143	0.35	0.09 – 1.43
Alcohol	-0.55	0.32	3.02	1	.082	0.58	0.31 – 1.07

^aP values = .000 are <.001. Significance is highlighted in boldface.

Table D9

Final Model: Multi-Adjusted Logistic Regression Analysis with Masculinity Domain Action

Approach

<i>Covariate (468)</i>	<i>B</i>	<i>S.E B</i>	<i>Wald</i>	<i>df</i>	<i>Sig.^a</i>	<i>Odds Ratio</i>	<i>C.I. Lower - Upper</i>
Action Approach Domain	-0.01	0.06	0.01	1	.918	0.99	0.88 – 1.12
Age	-0.03	0.02	1.75	1	.186	0.97	0.94 – 1.01
Education							
Primary School			6.54	3	.088		
High School	-0.98	0.59	2.78	1	.096	0.38	0.12 – 1.19
TAFE/Apprenticeship/ Trade/Diploma/Other	-1.43	0.59	5.88	1	.015	0.24	0.08 – 0.76
Bachelor Degree/Higher	-0.93	0.66	1.97	1	.160	0.39	0.11 – 1.45
Income							
Low			4.79	2	.091		
Middle	0.04	0.34	0.02	1	.898	1.05	0.53 – 2.04
High	-1.19	0.61	3.78	1	.052	0.30	0.09 – 1.01
Comorbidities	0.44	0.07	35.92	1	.000	1.56	1.35 – 1.80
Weight	0.03	0.01	7.80	1	.005	1.03	1.01 – 1.05
Current Smoking Status	-1.08	0.72	2.26	1	.133	0.34	0.08 – 1.39
Alcohol	-0.53	0.32	2.83	1	.093	0.59	0.32 – 1.09

^aP values = .000 are <.001. Significance is highlighted in boldface.