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Australian adults' behaviours, knowledge and perceptions of risk factors for heart disease: A cross-sectional study

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ABSTRACT

This research aimed to determine Australian adults' perceptions of risk factors for heart disease, self-reported behaviours relating to modifiable risk factors, and knowledge of leading causes of death. This study reports on *HeartWatch* survey data collected between January 2015 and December 2015 in a sample of Australian adults. The setting of the research was Australian communities, with all states and territories represented in the final sample. Participants were Australian adults aged 30–59 years (n = 8425), and were representative of the wider Australian population based on key demographic and health characteristics. Half of the sample overall correctly identified *heart disease* as the biggest underlying cause of death of males, and 26% for women. For risk factors for heart disease, respondents most frequently reported; *poor diet* (58.2%, 95%CI 57.0–59.1), *physical inactivity* (49.0%, 95%CI 47.9–50.1) and *smoking* (38.7%, 95%CI 37.7–39.8). A low proportion (< 10%) recognised underlying clinical risk factors for heart disease including *high blood pressure* (6.3%, 95%CI 5.8–6.8) and *dyslipidaemia* (9.8%, 95%CI 9.2–10.5). This study revealed broad misconceptions with regard to the leading cause of death and risk factors for heart disease among Australian men and women. Overall the lack of understanding in all groups suggests the need for a comprehensive national campaign reaching schools and the broad adult population. The health system alone cannot achieve national and international targets for disease prevention without understanding and engagement in the general community.

1. Introduction

In 2015, ischaemic heart disease (IHD) was the leading cause of death for both Australian men and women (Australian Bureau of Statistics, 2016). IHD includes angina, heart attack and other forms of coronary artery disease. The collective term *heart disease* is used to refer to IHD and all other diseases that affect the heart including valve disease, cardiomyopathy, arrhythmia and heart failure. In 2015, there were a total of 29,576 deaths attributed to heart disease in Australia, including 15,427 deaths among men, and 14,149 among women (Australian Bureau of Statistics, 2016). Cardiovascular diseases (CVD) broadly, including all heart, stroke and blood vessel diseases, were the cause of 45,392 deaths of Australians in 2015 (Australian Bureau of Statistics, 2016). The need for awareness of heart and cardiovascular disease and its causes in the Australian community is of critical importance as much is preventable.

Modifiable lifestyle behaviours that contribute to the development of heart disease include tobacco use, poor diet, overweight/obesity and physical inactivity (World Health Organization, 2013). High levels of alcohol consumption, or single heavy drinking sessions (binge drinking) can cause stress to the heart, arrhythmia and raise blood pressure (World Health Organization, 2012). The clinical risk factors for heart disease include dyslipidaemia (including high cholesterol), high blood pressure, and diabetes. Stress and psychological health are also associated with heart disease, partly through interactions with other risk behaviours, and comorbidity with mental disorders (Stansfeld & Marmot, 2002). There are also genetic risk factors for heart disease. A recent cross-sectional study of over 130,000 Australian General Practitioner records demonstrated that specific sub-groups are more (e.g., diabetics) or less (e.g., women) likely to be screened for CVD risk factors, and < 2% had all clinical, lifestyle, and other major risk factors recorded. Identifying high risk individuals through clinical practice and enhancing risk factor knowledge are critical factors in the prevention and management of heart disease.

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Current Australian and global public health policy aims to tackle the significant burden of these risk factors and prevent disease. With such population-wide efforts, it is imperative to understand the level of population awareness of heart disease risk factors and to engage the public. Given known inequalities in the burden and prevalence of heart disease (Nichols et al., 2014), it is also of interest whether demographic characteristics such as gender, age and area of residence, in addition to health characteristics, are associated with risk factor awareness.

The present study addressed the following research questions;

1. What do Australian adults report as the leading cause of death for men and women?
2. What clinical, lifestyle, genetic, and psychological factors do Australian adults recognise as increasing their risk of heart disease, and what demographic associations exist?
3. What health characteristics are associated with risk factor awareness of heart disease?

2. Methods

The *HeartWatch* survey was developed by the National Heart Foundation of Australia and this study examines data collected during January 2015 to December 2015. *HeartWatch* is an online survey (except the Northern Territory which was a Computer Assisted Telephone Interview) that has been reported bi-annually since July 2009 among cross-sectional samples of Australian adults aged between 30 and 65 years. The study sample was recruited from an online panel. A purposive non-probability sampling method was used with all panel members qualifying for survey completion, up to quotas for age, gender and area of residence to reflect the wider Australian population based on Australian Demographic Census (Australian Bureau of Statistics, 2017). The survey captures Australian adults' understanding of heart disease and associated risk factors, in addition to health behaviours and existing health conditions. This study received an ethics waiver from the Alfred Health Human Ethics Committee.

2.1. Design

The survey took an average 20–25 min to complete. Participation was voluntary and participants were informed that privacy laws protected the information they provided and responses would be de-identified and treated as strictly confidential. The survey consisted of eight modules, as well as demographic characteristics.

2.2. Participants

This study examined a subset of the total survey sample who participated during 2015 (n = 12,077). A total number of 8425 participants aged 30–59 years had complete data available and were included in subsequent analyses. The subset was also representative of the sample as a whole and of the Australian population in age, sex, and area of residence (Australian Bureau of Statistics, 2017).

2.3. Measures

2.3.1. Health status

Participants reported their height (in metres, centimetres, or feet and inches) and weight (in kilograms, pounds, or stones and pounds), allowing calculation of body mass index (BMI) (kg/m^2). Weight status was derived based on World Health Organization criteria whereby a BMI $>$ 25 kg/m^2 is overweight, and equal to or $>$ 30 kg/m^2 is obese (World Health Organization, 2015). Participants reported whether they currently smoke, and to report their fruit and vegetable consumption patterns. Fruit and vegetable consumption responses were combined to form an overall variable which indicated whether participants met or did not meet Australian dietary guidelines of two serves or more of fruit per day, and five serves or more of vegetables per day (National Health and Medical Research Council, 2013).

Participants were asked; '*Have you ever been told by a doctor that you (have)…?*' with a range of health outcomes listed including heart disease and diabetes. Medication status was derived from the item '*Are you currently taking medications for…?*' with responses; '*High blood pressure*', '*High cholesterol*', '*Heart disease*', and '*Diabetes*'. Previous heart-related events were assessed by the item '*In the last five years have you had…?*' '*A heart attack*', and '*Angina*'.

2.3.2. Knowledge and perceptions of heart disease and risk factors

Participants were asked '*What do you believe are the top three causes of death for women/men in Australia, ranking them from one to three, where one is the highest cause of death?*', with this item being asked of all participants, for cause of death in women and men separately. Responses were open verbatim. The order of first, second and third listed was captured by the survey software. Participants were also asked '*Based on what you know, what things do you think increase your risk of heart disease?*' with responses being open verbatim and multiple responses allowed. Items were aligned with those used in previous population health surveys (e.g., '*What is the leading cause of death of all women?*', perceptions of risk factors for, and strategies to mitigate, heart disease (Mosca et al., 2004)). The items reported here were deemed acceptable surrogates in the absence of accessible, valid and reliable measures of risk factors for heart disease (Gholizadeh et al., 2009).

2.3.3. Demographics

As part of the initial screening module on the survey, participants reported their age, gender, their state and postcode of residence. Participants also reported educational attainment, language spoken at home, and other demographic profile items relating to household and family structure.

2.4. Statistical analysis

All data were analysed using Stata release V.14.1 (Stata Corp., College Station, Texas, USA, 2013). All variables were checked for missing data. Besides weight status (where approximately 10% were missing), there were $<$ 5% missing values for all other variables and case-wise deletion was used accordingly. Little's Missing Completely At Random test was significant for weight status (Little, 1988). When missing and non-missing weight status data were further analysed with chi-square tests and logistic regression models, a subset of predictor variables (e.g., gender, age, and educational attainment) were found to be significantly associated with missing data for weight status. Case-wise deletion was deemed appropriate as unbiased estimates were expected given the inclusion of predictor variables in final regression models (Allison, 2002), and based on previous recommendations that missing data $<$ 10% should not be expected to introduce biases (Bennett, 2001).

Descriptive data and participant characteristics were calculated as proportions with 95% confidence intervals. Associations between a range of demographic and health characteristics and each of the respective clinical, lifestyle, genetic and psychological risk factors were estimated using logistic regression models and expressed as odds ratios with 95% confidence intervals. Each risk factor (dependent variable) was examined in separate models with all of the identified predictor variables; gender, age, level of education, area of residence, weight status (overweight/obese compared to normal weight), medication and diagnostic status, and whether the individual had reported experiencing a heart attack or angina in the previous five years. The purpose of these analyses was to determine any differences in level of knowledge pertaining to risk factors for heart disease, based on demographic and health characteristics. In addition, month of survey was included (not reported). Statistical significance was assumed when $p < 0.05$.