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Research report

Similar but different. Health behaviour pathways differ between men and women ☆

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ABSTRACT

The purpose of the study was to examine middle to older aged Australians' healthy eating, eating out, and physical activity behaviours and to investigate their relationships with likely antecedents such as demographics, personal values, health background, and attention to weight and health habits. A mail survey was conducted among a random sample of men and women aged between 38 and 79 years; 1105 usable questionnaires were obtained. Structural equation modelling was used to examine relationships between the variables. The results showed that there were distinct relationships between predictive variables and behavioural and BMI outcomes for men and women. For example, healthy eating, eating out behaviours were positively associated with body weight for women but not men while attention to weight and health habits was positively related to hedonism values for women but not for men. The interrelationships among the predictors and the outcome variables appear to be more complex for women than men. The implications of the findings for nutrition communication are discussed.

Introduction

Many of the challenges of ageing populations in developed countries relate to the poor state of older people's health. Larger numbers of people are living longer with relatively high prevalence of chronic disease (Mathers & Loncar, 2006). This is a major problem that may have a fundamental effect on the economic sustainability of modern society, especially the viability of publically funded health and social services (Berwick, Nolan, & Whittington, 2008).

Fortunately, many of the leading causes of death and morbidity are lifestyle-related illnesses, which may be reversed or ameliorated by changing individuals' health risk behaviours such as poor dietary and physically inactive behaviours, and substance abuse, particularly smoking and alcohol abuse (Sacks et al., 2001). To bring about changes in health risk behaviours, more understanding of the influences on them is required. In this paper, we examine the likely influence of several sets of personal characteristics on selected eating and physical activity behaviours of middle and older aged Australians.

Much research has been reported on the likely antecedents of health risk behaviours; most of it relates to possible demographic influences such as the effects of age, income, education, marital status. For example, there is considerable evidence that food behaviours are associated with:

(a) Age: older individuals tend to have different food consumption behaviours to younger people (Dean, Raats, Grunert, Lumbers, & The Food in Later Life Team, 2009).
(b) Socio-economic status: people from lower socio-economic status (SES) backgrounds (as indicated by education and family income) tend to consume more energy dense foods (e.g., Drewnowski & Specter, 2004; Worsley, Blasche, Ball, & Crawford, 2004).

There is also a stream of research which examines the likely influence of psychological factors such as personal values (e.g., Grunert & Juhl, 1995; Povey, Conner, Sparks, James, & Shepherd, 2000); and social ideologies (Wang, Worsley, & Cunningham, 2008, 2009). In particular, universalism (appreciation, of community and nature (Schwartz, 1992)) may be positively related to healthy diet (Brunsø, Scholderer, & Grunert, 2004). In contrast, hedonist values focus on pleasure and sensuous gratification (Schwartz, 1992) and may be negatively related to the practise of healthy eating and health behaviours (Hoyer & MacInnis, 2008).

One recent study which incorporated several sets of lifestyle behaviours in relation to the number of daily fruit and vegetable servings, minutes per week of physical activity, dining out behaviour, and confidence in one's ability to engage in behavioural

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strategies was that by Kruger, Blanck, and Gillespie (2008). In the American 2004 Styles survey, they found that adults who controlled their eating behaviours when dining out, who ate five or more servings of fruit and vegetables per day and undertook regular physical activity through the week, were more successful at maintaining their body weight. However, BMI was assessed only in terms of broad categories, and the precursors of the healthy eating, dining out, and physical activity behaviours were not examined.

The associations of antecedent factors with health risk behaviours and more distal outcomes such as body weight are variable, complex, and often interdependent. This has made it difficult to make strong generalisations about the likely influence of particular variables such as age or socio-economic status on behaviours. In part, this can be remedied through the inclusion of "mediating" variables in predictive models between demographic and personal characteristics, and, behavioural or biomedical outcomes (such as body weight). So weight consciousness and weight monitoring may mediate relationships between demographics, and food and physical activity behaviours and body weight (Conner & Sparks, 2005). Similarly, alcohol drinking and tobacco smoking may moderate relationships between personal characteristics and food and health behavioural outcomes (Padrao, Lunet, Santos, & Barros, 2007).

This discussion however, treats all variables as epistemologically equal. From a historical and sociological perspective gender is, perhaps, one of the more important variables when it comes to food and health. In most societies men and women have, and continue to have, quite different food and health behaviours (Fieldhouse, 1995). More women are responsible for food shopping and preparation, care of children, the sick and disabled than men; they tend to monitor their weight and health more than men, and they live longer than men. For example, women tend to be more aware of health issues and choose more nutritious foods than men (Beardsworth et al., 2002; Worsley, 1988; Worsley & Scott, 2000; Worsley & Skrzypiec, 1997, 1998). It is likely that the predictive pathways underlying food and health behaviours and body weight may differ substantially between women and men but they have rarely been examined in detail.

Therefore, the principal aim of the present study was to examine the likely predictors of food and health behaviours separately in women and men in order to identify both common and sex specific predictive pathways.

Methods

The findings reported here are based on data from the third Baby Boomer survey, one of three random population surveys among 38–79 year olds living in Victoria, Australia (Worsley, Wang, & Hunter, 2010).

Participants

The survey was administered to a simple random sample drawn from the Electoral Rolls in Victoria, Australia. Two thousand four hundred and seventy-two people aged over 35 years were invited to participate in 2008, of whom 1105 returned usable questionnaires.

Procedure

The survey was administered following the procedures recommended by Dillman (2009). First, a preparatory letter was sent, followed a week later, by the questionnaire along with an explanatory letter; 2 weeks later a reminder postcard, and 2 weeks thereafter, a replacement questionnaire, were sent to non respondents. The demographic characteristics of the respondents are described in Table 1.

Questionnaire

Health behaviours

Respondents were asked: "How often do you do any of the following to achieve or maintain a healthy weight?" then followed a list of 10 items of heath behaviours on healthy eating, eating out, and physical activity (Table 2). The items were derived from Kruger et al. (2008) study. The response options ranged from *never* (0) to *always* (4).

Attention to weight and health habits

This set of items asked "How much attention do you usually pay to?" (a) *your personal health habits*; (b) *getting enough physical activity*; (c) *eating a healthy low-fat diet*; and (d) *controlling your weight*. A five point response scale was give ranging from *none* (1) to *very much* (5).

Personal values

Twenty-two items from the Schwartz Values Inventory (Schwartz, 1992), similar to those used in our previous studies (e.g., Worsley & Skrzypiec, 1998) were listed. Respondents were asked to rate the importance of each of these values in their lives by circling a number on five point rating scales ranging from 0 (*not important*) to 4 (*extremely important*). Universalism has been shown to be positively related to healthy food behaviours in previous studies (Worsley, 2006; Worsley & Skrzypiec, 1998). Moreover, hedonism, an opposing value in Schwartz's circumplex model (Schwartz, 1992) is likely to be negatively associated with healthy eating. Therefore, two opposite domains of personal values, *universalism* and *hedonism*, were used in the present analyses.

BMI, drinking, and smoking

BMI was calculated from self-reported height (cm) and weight (kg). Several studies have shown that self-reported height and weight are valid measures for BMI estimation (e.g., Venn et al., 2007). Alcohol drinking was assessed by a single question: *Do you drink more than two glasses of alcohol most days*? Smoking was assessed by the question: Do you *smoke cigarettes or other tobacco*? Both questions had a response option of *no* and *yes*.

Demographic information was elicited including sex, age, and family income (categorised as *less than $35,000 pa*, *$35,000 to $50.000 pa*, *$50,000 to $100,000 pa*, and *over $100,000 pa.*). Level of education was coded as *primary school or less*, *some secondary school*, *completed secondary school or on-job training*, *technical or college diploma, certificate or formal trade qualification, graduate tertiary qualification*, and *postgraduate tertiary qualification*.

Analytical procedure

Structural equation modelling (SEM) was the main analytic procedure as it extends traditional multivariate statistical analyses (e.g., multiple regression) in at least three important ways. It accounts for measurement errors involved in psychometric measures, provides assessment of goodness-of-fit for the hypothesised model to the sample data, and allows theory testing (Bollen, 1989).

The data were analysed using SPSS 17 (SPSS, 2008) and Mplus 6 (Muthén & Muthén, 1998–2011). The robust maximum likelihood (MLR) estimation method was used to account for non-normally distributed data. Model evaluations were examined by chi-square statistics and accompanying significance tests. Goodness-of-fit indices reported are the standardised root mean square residual (SRMR), root mean square error of approximation (RMSEA),