



Research report

Psychosocial determinants of fruit and vegetable consumption among students in a New Zealand university. Results of focus group interviews [☆]



Hilde Hartman ^{a,b}, Daniel P. Wadsworth ^{a,*}, Suzi Penny ^a, Patricia van Assema ^b, Rachel Page ^a

^a Health and Life Sciences Division, Institute of Food, Nutrition and Human Health, Massey University, PO Box 756, Wellington, New Zealand

^b Dept. of Health Promotion, Maastricht University, The Netherlands

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ABSTRACT

The '5+ a day' fruit and vegetable servings recommendation was introduced in New Zealand in 1994, but consumption has remained low in young adults ever since. This study aimed to identify psychosocial determinants of fruit and vegetable consumption among New Zealand university students approximately a decade after the guidelines' introduction. Twenty-nine students, aged 18–24 years, took part in focus group interviews. Important determinants included taste and health awareness/knowledge. Flatmates and partners had the greatest social influence. Cost and availability were major barriers to consumption. To improve consumption participants suggested: cooking sessions providing quick/easy recipes; more-varied nutritional information; 'made-to-measure' interventions; increasing awareness of cheap sources of fruit/vegetables; and increasing campus availability of fruit. Determinants including a negative attitude, a lack of self-efficacy and an unawareness of dietary guidelines/health consequences should be considered when developing interventions for this group, whilst a variety of different delivery channels should be used. Participants in the study were not representative of all university students, who generally have a different lifestyle to other young adults and specific determinants for fruit/vegetable consumption. Consequently, additional research is required among other young adults and university students with lower fruit and vegetable intake, so that promotional strategies can be specifically targeted.

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Introduction

Non-communicable diseases such as cardiovascular disease, cancer, and type 2 diabetes mellitus kill more people worldwide every year than any other cause of death (Lock, Pomerleau, Causer, Altmann, & McKee, 2005). Intake of at least 400 g of fruit and vegetables per day (or 5+ servings a day) is proposed to help prevent these non-communicable diseases and assist in weight control (Ministry of Health, 2003; World Health Organisation, 2005). These recommendations were introduced to New Zealand in 1994 through the '5+ a day' campaign. However, survey data and statistics from the Food and Agriculture Organisation (FAO) imply that most populations are not meeting the recommended intake of fruit and vegetables (Ashfield-Watt, Stewart, & Scheffer, 2004; Cancer Society New Zealand, 2004; Food & Agriculture Organization, 2004; University of Otago & Ministry of Health, 2011). Moreover, consumption decreases with age in adolescents (Krolner et al.,

2011; Lien, Lytle, & Klepp, 2001), and is particularly low in young adults aged 18–25 years old (Keim, Stewart, & Voichick, 1997; Krebs-Smith et al., 1995; Ministry of Health, 2004; Serdula et al., 2004; Song, Schuette, Huang, & Hoerr, 1996; University of Otago & Ministry of Health, 2011; Ünüsan, 2004). In 2003, the Cancer Society of New Zealand undertook a major survey among adult New Zealanders, aged 16 and over (Cancer Society of New Zealand, 2004). This postal survey received 8163 useable responses, and for the first time in New Zealand provided detailed information not only on eating behaviour, but also on attitudes, motivations, and perceived barriers of eating fruit and vegetables (Cancer Society New Zealand, 2004). Cost and convenience were recurrent themes for determining fruit and vegetable consumption, yet the survey gave no consideration to different age-groups within the population, instead reporting findings as adult New Zealanders. Worldwide studies have shown that higher education (HE) students engage in numerous unhealthy lifestyle practices, with between 66% and 95% eating less than the recommended '5+ a day' fruit and vegetable servings (Dodd, Al-Nakeeb, Nevill, & Forshaw, 2010; Keller, Maddock, Hannöver, Thyrian, & Basler, 2008; Papadaki, Hondros, Scott, & Kapsokafalou, 2007; Ünüsan, 2004). Moreover, Ministry of Health dietary surveys (Ministry of Health, 2004; University of Otago & Ministry of Health, 2011) have shown young adults in New Zealand to exhibit similar behaviours. However,

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* Corresponding author.

E-mail address: d.p.wadsworth@massey.ac.nz (D.P. Wadsworth).

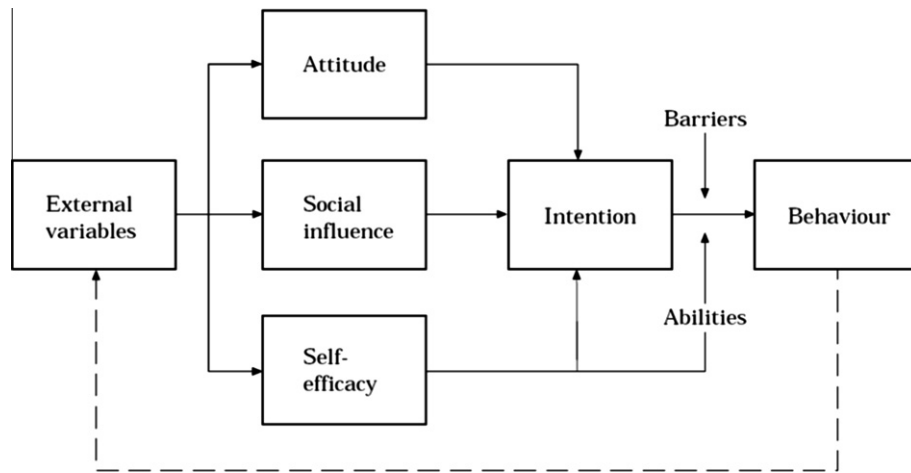


Fig. 1. Attitudes, social influences and self-efficacy (ASE) model of determinants of behaviour Kreuger, (2000).

to-date there has been no research into what determines the food choices of young adults in higher education in New Zealand.

Epidemiological evidence suggests that lifestyle habits, including food intake, formed by young adults at this transitional stage of life may have long-term health implications (Jas, 1998; Papadaki et al., 2007; Spanos & Hankey, 2010). In addition, many young adults will start having families at this time, and will model dietary behaviour for their children (Lau, Quadrel, & Hartman, 1990). Recent increased understanding of the long-term health impacts of early developmental influences and epigenetics further highlights the importance of establishing healthy dietary habits early, particularly in young women prior to childbearing (Hanley et al., 2010). Therefore, promoting adequate intake of fruit and vegetables in young adults is likely to have maximum preventive potential of developing diseases at a later stage of life (Beerman, 1991; Georgiou & Arquitt, 1992; Raitakari, Porkka, Räsänen, & Viikari, 1994). Developing successful strategies for implementing long-term behavioural changes requires recognition of the importance of variations in motivation and possible barriers between different population groups (Ammerman, Lindquist, Lohr, & Hersey, 2002; Chapman, Armitage, & Norman, 2009; Martens, van Assema, Paulussen, Schaalma, & Brug, 2006; Uglem, Frølich, Stea, & Wandel, 2008; Washi & Ageib, 2010). Perceptions about taste have been found to be an important psychosocial factor of fruit and vegetable consumption for adults (Krebs-Smith et al., 1995; Stewart & Tinsley, 1995; Ünüsan, 2004) as have satiety, digestibility, appearance and texture (Krebs-Smith et al., 1995; Stewart & Tinsley, 1995; Uetrecht, Greenberg, Dwyer, Sutherland, & Tobin, 1999; Ünüsan, 2004). Perceived health benefits of fruit and vegetables, and/or a good nutritional knowledge, have also been shown to have positive associations with fruit and vegetable consumption (Brug, Lechner, & De Vries, 1995; Wardle, Parmenter, & Waller, 2000). However, young Americans aged 18–24 years were shown to be less likely to think that five servings of fruit and vegetables per day were necessary for good health (Krebs-Smith et al., 1995). Furthermore, an individual's self-efficacy, the influence of others, and the availability and cost of fruit and vegetables have all been frequently identified as important determinants of an individual's fruit and vegetable consumption (Brug, Lechner, et al., 1995; Cancer Society New Zealand, 2004; Stewart & Tinsley, 1995; Uetrecht et al., 1999; Ünüsan, 2004). Of the studies investigating the determinants of fruit and vegetable consumption, very few have focussed on students in higher education, who for the first time in their lives have significantly greater control over their

diets, and health/well-being. Coupled with what can be an extremely stressful period, this group of individuals are vulnerable to poor diet and its health-related issues. In the studies conducted to-date focussing on university students, specific determinants of fruit and vegetable consumption identified included on-campus availability, level of food preparatory skills and family/peer influences (Papadaki et al., 2007; Ünüsan, 2004). At present, there has been no research into what determines the food choices of young adults in higher education in New Zealand. Therefore, the current study explored the psychosocial determinants associated with fruit and vegetable consumption among university students in New Zealand in order to develop more effective targeted-intervention strategies for this group. National dietary surveys have shown that young adults in New Zealand have the lowest fruit and vegetable consumption of all age-groups (Ministry of Health, 2004; University of Otago & Ministry of Health, 2011), so in order to develop effective targeted-interventions for this sub-group we have chosen a qualitative approach, which has been shown to be a useful tool in (i) drawing out yet unknown factors and (ii) developing such tailored interventions (Krolner et al., 2011).

Methods

Six focus groups were conducted for this study, each consisting of 4–5 male and female volunteers. Literature suggests that, when participants have knowledge/experiences to discuss, 3+ participants per group allows for sufficient variation in discussion while still allowing all to have input and feel at ease (Carlsen & Glenton, 2011; Onwuegbuzie, Dickinson, Leech, & Zoran, 2009). Conducting six separate focus groups has been found to be adequate in reaching a point of saturation, i.e. a point after which no more new information is retrieved from the interviews (Carlsen & Glenton, 2011; Onwuegbuzie et al., 2009). As such, six focus groups were conducted, at which point no new information appeared in the discussions, so no further focus groups were planned. Inclusion criteria for this study were that participants were aged 18–24 years old and enrolled in university studies. Participants for this study were recruited from Massey University, New Zealand, on the premise of participating in 'food-based focus groups', with no specific link made to fruit and vegetable consumption. The focus groups took place during the New Zealand winter-time in 2005. The methods and procedures of this study were approved by the Massey University Human Ethics Committee Wellington (Ethics approval number 05/23).

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