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Willingness to trial functional foods and vitamin supplements: The role of attitudes, subjective norms, and dread of risks

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ABSTRACT

Australian non-users of vitamin supplements ($N = 162$) and functional foods ($N = 226$) responded to a questionnaire examining their attitudes, subjective norms, and perceived behavioural control from the Theory of Planned Behaviour (TPB), risk dread and risk familiarity, and willingness to engage in free product trials. The impact of participants' gender and age was also examined. Attitude and subjective norms were significant determinants of non-users willingness to trial each of the health products. Participants' dread of the risk associated with the product was also a determinant of willingness to use functional foods. The overall models predicted between 25% and 30% of the variance in people's willingness to trial the products. The findings provided some support for the TPB in predicting people's willingness to trial functional foods and vitamin supplements and suggested, for willingness to trial functional foods, that non-users' are also influenced by their dread of the risk associated with product use.

1. Introduction

Vitamin supplements and functional foods have a range of applications, including medicinal, therapeutic, and cosmetic. These products also have the potential to provide nutritional benefits to their users. Certain functional foods and vitamin supplements have been developed to provide consumers with nutrients that may be lacking in some people's diets, or that the body is unable to produce and may occur in insufficient levels in the food supply. As identified by previous reviews of the scientific and commercial development of functional foods (e.g. Tapsell, 2008), expanding research into social and consumer areas is important to increase the positive influence of such health products. Also, to help health practitioners understand people's reasons for not using these products, research should examine groups who do not currently use functional foods or vitamin supplements. Previous research has reported that non-users of functional foods cite lack of knowledge, low perceived importance or interest in functional foods, and price as reasons to not use the products (Niva, 2006). Further research into potential consumers' perceptions of vitamin supplements and functional foods may assist efforts to encourage some individuals in the population to use health products appropriately, even if only on a trial basis, as a potential precursor to more regular use.

Supplements are typically high-potency concentrations of vitamins (or vitamins and minerals) which are sold separately to the regular food supply, generally as tablets, liquid or powders (the American Dietetic Association, 2009). Functional foods are food items that have been purposefully designed to provide added benefit beyond normal nutritional value in such a way that it improves health (Urala & Lähteenmäki, 2003) or reduced disease (Diplock et al., 1999). The most widely accepted definition of functional foods includes the qualification that functional foods are not pills, remain food and are "part of the normal food pattern" (Diplock et al., 1999). In the United States of America, the American Dietetic Association (2009) have acknowledged this distinction between functional foods and vitamin supplements with functional foods being defined as enhanced or enriched products that can be used as conventional foods and supplements a substance ingested to increase intake of a nutrient presented outside the conventional food of a diet and presented in tablet, powder, or liquid form.

Clear working definitions of vitamin supplements and functional foods are important to facilitate consumer research, although it is uncertain whether consumers also make these distinctions. In an attempt to understand consumer responses to these products, Cox and Bastiaans (2007) compared consumer preference for vitamin supplements and foods that are enriched

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during manufacturing or bio-enriched foods (pre-manufacturing enrichment, e.g. through animal feed). Participants indicated that they would prefer vitamin supplements and bio-enriched foods over foods enriched during manufacturing but when the method of food enrichment was not specified, participants were more likely to buy enriched foods and expressed more confidence in consuming enriched foods compared to supplement products. Although Cox and Bastiaans did not examine separately those high and low on intention to use the products, this finding indicates that, on some level, consumer groups do differentiate between vitamin supplements and functional foods.

Previous research has examined the cognitive determinants of people's openness to consuming vitamin supplements and functional foods. A positive attitude about the importance of health has been found to be significant predictor of older users of vitamin supplements (Sebastian, Cleveland, Goldman, & Moshfegh, 2007) and a positive attitude towards functional foods has been reported as a strong predictor of use (Urala & Lähteenmäki, 2004). Also, self efficacy (confidence in one's ability to perform a behaviour) has been reported as a significant predictor of people's acceptance of functional foods in a number of contexts including perceived importance of consuming of selenium (a mineral connected with disease risk reduction; Cox & Bastiaans, 2007) and, in a middle-aged sample, people's intentions to consume foods enhanced to offset memory loss (Cox, Koster, & Russell, 2004).

One model which incorporates measures of attitude and control (incorporating the notion of self efficacy), in addition to normative perceptions, as determinants of people's behavioural decision-making is the TPB (Ajzen, 1991). The TPB contends that people's behaviour is best predicted by two variables, the intention to perform the behaviour and the individual's actual control over performing the behaviour (Armitage & Conner, 2001). In turn, intentions are predicted by attitudes, the positive or negative evaluation of the performance of a behaviour, subjective norms, the perceived social pressure to perform or not perform a behaviour, and perceived behavioural control (PBC), an individual's perception of the degree of control that they have over the behaviour (Ajzen, 2002). In addition, attitudes, subjective norms, and perceived behavioural control are determined by underlying behavioural, normative, and control beliefs, respectively.

As demonstrated by meta-analyses conducted across a variety of behaviours (e.g. Armitage & Conner, 2001) and within the health context (e.g. Godin & Kok, 1996), the TPB is established as a valid predictive model of health behaviours. For example, the TPB has predicted people's intentions to engage in healthy eating (Astrom & Rise, 2001; Guardia, Guerrero, Gelabert, Gou, & Arnau, 2006). The TPB has also been successfully used to predict people's intentions to consume foods enriched with omega-3 fatty acids (Patch, Williams, & Tapsell, 2005).

Although the TPB is traditionally used in the context of people's intentions to perform a behaviour, in the current sample of non-users, pre-determined intentions to use or avoid the health products were expected to be weak. An alternative outcome measure used in situations which are unfamiliar or involve spontaneous decisions is willingness from the Prototype/Willingness Model (Gibbons & Gerrard, 1995, 1997, 1998). Previous literature has revealed that willingness is a more suitable outcome measure than intention when the person is confronted with an unexpected situation and must make a spontaneous decision (Gibbons & Gerrard, 1995, 1997, 1998), or when the person has had less experience of the behaviour (Pomery, Gibbons, Reis-Bergan, & Gerrad, 2009). Willingness does not relate to what a participant intends to do but rather what they would be willing to do if the situation arose in which there was the opportunity to perform a behaviour. As the current study targeted non-users of the health products, to account for less planned or rational decision-making, the outcome measure adopted in this study was people's willingness (Gibbons, Gerrard, Blanton, & Russell, 1998).

Despite the success of the TPB in predicting people's behaviour in a variety of contexts, a construct that is not considered explicitly by this model is the psychological concept of risk and the impact that risk has on decision-making. For instance, in the TPB, risk has been considered as a separate element to be added to the standard TPB predictors (e.g. Bonetti et al., 2006) as well as a factor that is subsumed in the model's existing constructs (see, Ajzen, 2002; Hsu & Chiu, 2004). Given that previous studies of Australian consumers (Food Standards Australia, 2007) have revealed that moderate proportions of people have concerns about genetically modified foods (25.3%), and functional foods (12.1%), consumer perceptions of risk may be relevant to understanding people's willingness to trial functional foods. Previous research also suggests that the uptake of the newer functional food products involves some degree of uncertainty (Huotilainen, Prittilä-backman, & Tuorila, 2006). These findings indicate that perceptions of risk may influence people's diet-related decision-making.

To determine the underlying factors that contribute to the general public's evaluations of technological risk, Slovic and colleagues (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978; Slovic, 1987; Slovic, Fischhoff, & Lichtenstein, 1976) asked participants to evaluate 30 different activities and technologies (including food colorings and additives) with regard to various risk characteristics such as the perceived benefits to society, the perceived risks, and the acceptability of current risk levels. The underlying factors identified were the participants' perceptions of how devastating the consequences of the risk would be (herein referred to as risk dread) and knowledge about the risk and the certainty of the consequences versus no knowledge or understanding of the consequences (herein referred to as risk familiarity). As functional foods and vitamin supplements may be perceived as food technologies with similar risks to other forms of technology, these two risk-related factors, then, will be considered in the present study to assess the additional impact of these factors after accounting for the standard TPB predictors.

The primary aim of this research was to contribute to the understanding of potential consumer behaviour by exploring the determinants of non-users' willingness to accept a free trial of vitamin supplements or functional foods. As previous research suggests that gender and age play a role in decision-making for health products (e.g. Cox et al., 2004; Satia-Abouta et al., 2003), these demographic characteristics were considered in the current study. It was expected that the TPB constructs of attitude, subjective norm, and PBC would be determinants of non-users' willingness to trial vitamin supplements and functional foods. Given that functional foods may be viewed as less established products (e.g. Huotilainen et al., 2006) with potentially less consumer knowledge and acceptance, it was expected that the risk measures of dread and familiarity would have more of an impact on non-users' willingness to trial functional foods than on their willingness to trial vitamin supplements.

2. Method

2.1. Participants

A total sample of 271 non-users was recruited as part of a study examining a number of health products using two methods: an offer of research participation credit to students enrolled in first year psychology units at a major Australian university ($n = 190$, age $M = 23.68$ years, $SD = 7.64$; 117 females) and a general community sample ($n = 81$, age: $M = 37.05$ years; $SD = 13.91$; 52 females) gained through a snowballing effect of friends and colleagues.