Consumer Attitudes towards Healthy Food Products: The Mediating Effects of Nutrition Claims

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Abstract: *Nowadays, consumers are exposed to a number of health related messages motivating them to eat healthy. Therefore, consumers are likely to be confused by conflicting messages in the marketplace and be interested in searching for understandable, usable, and credible information. This study investigates the possible effects of health consciousness, health as a value, trust in nutritional claims, and subjective nutritional knowledge on intention to buy healthy food products along with consumer attitudes towards food products containing nutrition claims serving as a mediator variable. Data were gathered from 308 consumers via face-to-face interviews in Mersin, Turkey. To understand the mediating effects of nutrition claims, two alternative models were suggested. The results of the study revealed that attitude towards food products containing nutrition claims has a significant mediating role on the effects of health consciousness, trust in nutritional claims, and subjective nutritional knowledge on intention to buy. The study concludes with a discussion about theoretical and practical implications.*
Keywords: *Nutrition claim, consumer attitudes, healthy food products.*

1. INTRODUCTION

Recently, consumers search for food products which reduce the risk of disease and promote well-being that is greatly driven by demographic changes such as increased life expectancy, increased proportion of the aging population, changing lifestyles and the desire for an improved quality of life (Seechurn, Neeliah & Neeliah, 2009; Christidis, Tsoulfa, Varagunam & Babatzimopoulou, 2011). For many consumers, food has, to an increasing extent, become a source of pleasure, an expression of ideology and values in life, and a means to control health and body (Boonen, 2009). One of the major instruments in trying to enable consumers to choose nutritionally appropriate food thus provide more healthy eating patterns has been nutrition claims on package of food products. Nutrition and health-related claims have become an established way of communicating to the consumer the healthiness of foods that contain extra or reduced ingredients (van Trijp & van der Lans, 2007). With the rising concern about diseases and health threatening environments, media and public attention to diverse health issues have increased over the last two decades (Hong, 2011).

Health claims for the foods influence consumer behavior (Wahba Arrafa, Saleh, Mekkawy & Ahmed, 2006). The current debate about nutrition claims on food products needs to be analyzed from the consumer behaviour perspective. This study aims to investigate whether health consciousness, health as a value, trust and subjective knowledge factors have impact on attitudes towards nutrition claims on food products. For this purpose, a questionnaire was designed to measure the effects of health consciousness, health as a value, trust in nutritional claims, and subjective nutritional knowledge on intention to buy healthy food products with consumer attitudes towards food products containing nutrition claims serving as mediator.

2. HEALTH CONSCIOUSNESS, HEALTH AS A VALUE, TRUST IN NUTRITIONAL CLAIMS, SUBJECTIVE NUTRITIONAL KNOWLEDGE

Health consciousness assesses the degree of readiness to undertake health actions (Schifferstein & Oude Ophuist, 1998). So, health conscious consumers are wellness-oriented and are concerned with health-related products and services such as nutrition and physical fitness (Kraft & Goodell, 1993). Since an individual's level of health consciousness is closely related to how he or she seeks and responds to health information (Hong, 2009), health consciousness is likely to be an important predictor of consumer attitudes towards nutrition claims on food products. It can be thus hypothesized:

H1: Health consciousness has an effect on consumer attitudes towards nutrition claims on food products.

Objective knowledge is used to refer to accurate stored information, while subjective knowledge (i.e., perceived knowledge) is defined as consumers' self-beliefs about their own knowledge (Moorman, Diehl, Brinberg & Kidwell, 2004; Carlson, Vincent, Hardesty & Bearden, 2009). It is argued that subjective knowledge is a stronger motivation for

purchase-related behaviours than objective knowledge (e.g. Selnes & Gronhaug, 1986; Feick, Park & Mothersbaugh, 1992; House et al., 2004).
There is often a marked difference between objective knowledge and subjective knowledge, especially in the nutrition domain (Wansink & Chandon, 2006). For example, Moorman et al. (2004) found that high levels of subjective nutrition knowledge led people to restrict their search to products within healthful product categories. In sum, although consumers are somewhat confused by the vast number of conflicting messages in the market place, they maintain interest in nutrition, food, and health, and desire understandable, useable, and credible information (Carlson, 2002). Therefore:
H2: Subjective nutritional knowledge has an effect on consumer attitudes towards nutrition claims on food products.
Trust is also a potentially important factor in consumers' purchasing behavior of food products (Herrera and Blanco, 2011). Consumers generally believe that claims are simply attempts by the manufacturer to sell more of its product and they are also unaware of government regulations that specify when claims can be made (Garretson & Burton, 2000). Such beliefs have led consumers to be sceptical of health and nutrition claims on packages and strongly agree with the idea that health claims should be approved by government (Williams, 2006). Unless the market or government has mechanisms to punish firms that lie, consumers would be expected to be skeptical of producer-provided information (Ippolito & Mathios, 1990). It can be hypothesized:
H3: Trust in nutritional claims has an effect on consumer attitudes towards nutrition claims on food products.

Consumers who have healthy lifestyle appear to be a strong predictor of the importance of nutrition in food choices (Glanz, Basil, Maibach, Goldberg & Snyder, 1998). According to cognitive theories of psychology, people process messages with respect to their existing values, beliefs, and behavior. Thus, marketing efforts attempting to change people's perception of the importance of nutrition will be interpreted in terms of existing values and beliefs (Glanz et al., 1998). Thus:
H4: Health as a value has an effect on consumer attitudes towards nutrition claims on food products.

3. NUTRITION CLAIMS

Nutrition information appearing on food products includes nutrition labels and nutrition claims. Nutrition labels provide quantitative information about the nutritional properties of particular foods and nutrients (Mhurchu & Gorton, 2007). Nutrition claim means any representation which states, suggests or implies that a food has particular nutritional properties including but not limited to the energy value and to the content of protein, fat and carbohydrates, as well as the content of vitamins and minerals (Hawkes, 2004). Since Kellogg's use of health claims in 1984, a rapid increase in the number and types of nutrition and health claims has been seen in advertising and on food labels (Roe, Levy & Derby, 1999). In this paper we use the term *nutrition claim* when referring to the common or scientific nutrient content messages (such as "containing antioxidant") stated on the package of healthy food products.
Consumers may vary in their attitude towards nutritional claims. Some consumers may find nutritional claims helpful as a basis for food choice, leading to a positive attitude towards nutritional claims. Others may have a less positive attitude if they believe that nutritional claims made by marketers are exaggerated, scientifically untested, or based on advertising puffery (Hansen, Mukherjee & Thomsen, 2011). Thus it can be argued that consumers' attitude towards nutritional claims moderates the effects of stated independent variables on intention to buy healthy food products. Therefore,
H5: The effect of independent variables on intention to buy healthy food products is moderated by attitude towards nutritional claims.

4. INTENTION

According to the research by Fishbein and Ajzen (1975), the Theory of Reasoned Action (TRA) proposes that intentions can predict behavior. Also, consumer attitudes are strong predictors of behavioral intentions (Conner et al., 2011). Studies show that when nutrition information or claims are provided to consumers, they had more favorable attitudes toward nutrition and purchase intentions (Kozup et al., 2003; Cranage et al., 2004).

5. METHOD

5.1 Research design and instrument

Data were collected from 327 consumers via face-to-face interviews in Mersin, Turkey, during the fall of 2011. A total of 308 usable responses in which participants met study criteria were used in statistical analyses. It took 8-10 minutes to complete the survey. The questionnaire was developed based on a literature review and an evaluation of a pilot focus group. The questionnaire included measurement scales regarding health consciousness, health as a value, trust in nutritional claims, subjective nutritional knowledge, attitude towards food products containing nutrition claims intention to buy food products. Figure 1 illustrates the proposed relationships between constructs. Since H1, H2, H3, H4 and H5 are explained before, H1a, H2a, H3a and H4a indicate the direct effects of each independent variable on intention to buy healthy food products.

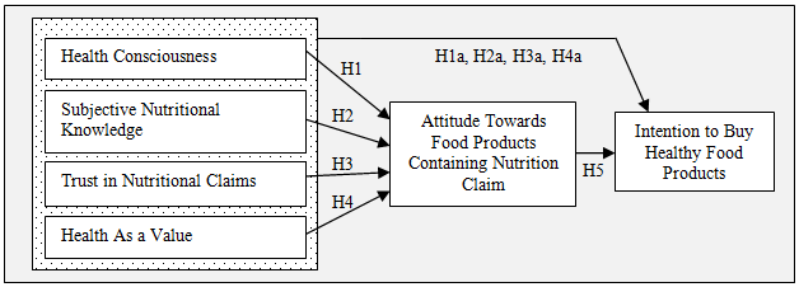

Figure 1: Proposed (base) research model

Health Consciousness was measured by the scale initially developed by Kraft and Goodell (1993), and reduced from 6 to 3 items by Labrecque et al. (2011); health as a value was measured by the scale used by Glanz et al. (1998); subjective knowledge was measured by the scale developed by Flynn and Goldsmith (1999); trust in nutritional claims items were adapted from the scale developed by Singer et al. (2006); and intention to buy healthy food products was measured by the scale used by Michaelidou and Hassan (2008). Each variable (except attitudes towards food products containing nutrition claims) was measured using three or five items on a 5-point Likert scale (i.e., 1 = strongly disagree and 5 = strongly agree). Consumers' attitudes towards food products containing nutrition claims items were measured by a 5-point Likert scale (from 1 = not important at all to 5 = very important) by asking them to evaluate the importance of nutrition claims such as "Containing antioxidant" or "Source of fiber" on the package of healthy food products.

5.2. Validity and reliability

In order to investigate the underlying dimensions, an exploratory factor analysis was conducted through SPSS 15.0 for Windows. Then, a confirmatory factor analysis was conducted through LISREL 8.51 (Jöreskog & Sörbom, 2001).
Confirmatory factor analysis (CFA) was used to examine the convergent validity of each construct. Result of the factor analysis shows that the factor loadings of all items surpass the recommended level, 0.60 (Chin, Gopal & Salisbury, 1997), thus demonstrating convergent validity. To evaluate the internal reliability of each scale, Cronbach's alpha coefficient was used. Cronbach's alpha coefficient ranged from 0.692 to 0.927, which is considered in the substantial (0.61-0.80) to almost perfect (0.81-1.0) range (Landis & Koch, 1977).

5.3. Results

Statistical analyses were conducted by SPSS and LISREL 8.51. Selected demographic characteristics of survey participants are presented in Table 1.

Table 1: Distribution of demographic characteristics in the study population

Demographic variable	**n**	**%**	**Demographic variable**	**n**	**%**
Gender			**Education**		
Female	150	48.7	<Completed 8 years compulsory school	75	24.3
Male	158	51.3	High school	85	27.6
Total	308	100	Undergraduate	103	33.4
Age			Graduate +	45	14.6
18-24	38	12.3	**Total**	308	100
25-34	60	19.5	**Income**		
35-44	97	31.5	< 1000 TL	45	14.6
45-54	72	23.4	1001-1500 TL	64	20.8
55-60	25	8.1	1501-2000 TL	67	21.8
61 +	16	5.2	2001-3000 TL	54	17.5
Total	308	100	3001-4000 TL	26	8.4
			4001 +	52	16.8
			Total	308	100

The sample was comprised of 150 females (49 %) and 158 males (51 %), and about sixty-eight percent of the respondents were over the age of 35. Participants represented a range of education and income levels.
The results showed that "Some" mediation is indicated when both of the (independent variables) $X\rightarrow$ (mediator) M and $M\rightarrow$ (dependent variable) Y coefficients are significant (Iacobucci, Saldanha & Deng, 2007). To test for mediation, the model was fit model via SEM and relationships were examined.
According to the first (base) model, 6 latent and 20 observed variables suggested. In the first model, chi-square value (χ^2) of 444.57 with a corresponding df value of 159 was found ($p<0.00$). The ratio of df to χ^2 value was 2.796 which was acceptable fit, but slightly above 2, the ideal ratio (Schermelleh-Engel, Moosbrugger & Müller, 2003). Once the model is established and the relationships are estimated the goodness-of-fit should be evaluated (Hair et al., 2010). The root mean square error of approximation (RMSEA) was 0.076 which was between 0.05 and 0.08, the acceptable values (Schermelleh-Engel et al., 2003). Parameter estimates are significant at the 0.05 level if the t value exceeds 1.96 and at the 0.01 level if the t value exceeds 2.56 (Hoyle, 1995). The effects of health consciousness (t-value = 3.24), trust in nutritional claims (t-value = 2.65), and subjective nutritional knowledge (t-value = 5.05) on intention to buy healthy

food products with consumer attitudes towards food products containing nutrition claims are significant at 0.01 level, effect of health as a value on attitudes towards food products containing nutrition claims is not significant (t-value = 0.94).

Because of insignificance of health as a value variable, the model was retested by removing this independent variable from the model. In the alternative (second) model, 5 latent and 17 observed variables suggested. A chi-square value (χ^2) of 263.24 with a corresponding df value of 110 was found ($p<0.00$). The ratio of df to χ^2 value was acceptable (df/χ^2 = 2.393). RMSEA was 0.067 which was also slightly above the good value (ie, 0.05) and falls well within the recommended levels of 0.05 and 0.08. If some of the other fit indices are evaluated (Normed Fit Index, NFI = 0.92, Standardized Root Mean Square Residual, SRMR = 0.042. Comparative Fit Index, CFI = 0.95) it can be said that the overall measurement model fit statistics were also satisfactory. Moreover, lower RMSEA and higher CFI reported for the last model presented in Figure 2 reveal the better fit.
According to the t-tests, associations between independent variables and attitudes towards nutrition claim and also between attitudes towards nutrition claim and intention to buy healthy food products were evaluated. As can be seen in Figure 2, all hypotheses were tested at a 0.01 level of significance.

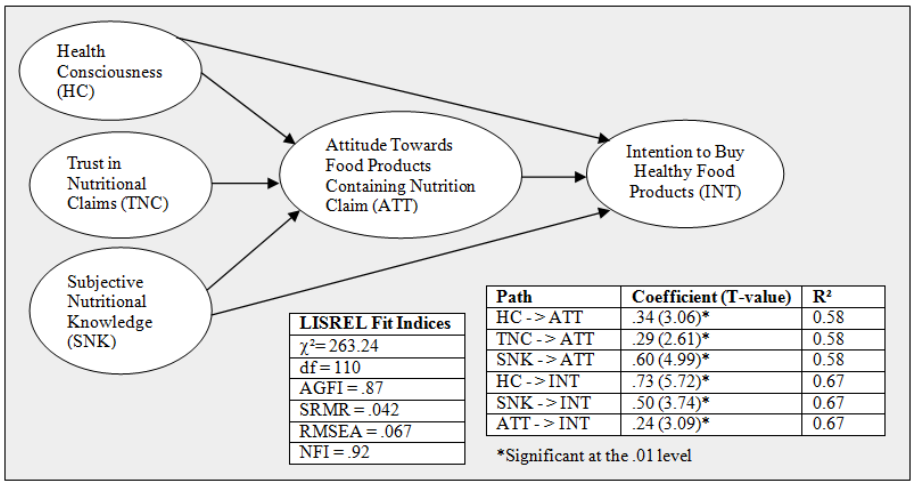

Figure 2: Theoretical network of constructs and path findings via LISREL analysis

In the second model, the effects of health consciousness, trust in nutritional claims, and subjective nutritional knowledge on consumer attitudes towards food products containing nutrition claims serving as mediator have been found significant. This was to confirm the mediating role of nutrition claims demonstrated by SEM.

6. DISCUSSION

The current rapid growth of healthy food sector is stimulated by consumers' consciousness, ageing effect, occurrence of diseases, body image, etc (Sacavém and Correia, 2009; Sun-Waterhouse, 2011). Increasing health consciousness and nutrition claim concern leads the consumer more to focus on healthy food products. This study aimed to investigate whether health consciousness, health as a value, trust in nutritional claims, and subjective nutritional knowledge on intention to buy healthy food products with consumer attitudes towards food products containing nutrition claims serving as mediator. Two alternative models were examined by use of SEMs. In the last model, it is found that attitude towards nutrition claim has a mediating role between health consciousness, trust in nutritional claims, subjective nutritional knowledge and intention to buy healthy food products.
The results also indicate that trust in nutritional claims is a fundamental factor towards intention to buy healthy food products by the mediating effects of nutrition claims. Thus, trustworthy claims have potential to motivate consumers to buy healthy food products. Besides a legal requirement that compel companies to prove truthfulness of their claims on food products (e.g., the European regulation deals with nutrition claims), increasing objective knowledge of consumers on nutrition claims by providing information more understandable and consumer-motivating format can enhance the functionality of claims. The understandable and credible information in turn, will be utilized as subjective knowledge. With this respect, to reach consumers, effective communications strategies can be developed by businesses, health professionals, regulators, and media. Perhaps, public relations will have the key role throughout this communication.
Marketing practitioners could also benefit from the findings of this study. For healthy food producers, providing nutrition claims could be a good way to attract consumers' attention among variety of other food brands and thus strengthen brand loyalty. Furthermore, companies can build a positive image of social responsibility by informing consumers.
In this study, only a limited selection of nutrition claims was considered. Variables associated with nutrition claims can be evaluated by utilizing multi-item scale. In addition to psychographic characteristics, future researches can be built

upon demographical and cultural variables. Health related statements can be examined in terms of their types, such as health claims, manufacturer-developed labels, process-related labels, nutritional labels, etc.

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