The Effectiveness of the Modified Expanded Rational Expectations Model to Explore Adult Consumers' Functional Foods Consumption Behavior

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ABSTRACT

Since knowledge and health consciousness have been claimed to have a great influence on dietary behavior, subjective knowledge and health consciousness constructs were added to the ERE model in order to develop Modified ERE (MERE) model. The objective of this study was to investigate the effectiveness of the MERE model in order to explain adult consumers' functional foods consumption behavior. A convenience sample of 465 adults from a Southwestern university completed the final online survey questionnaire during April and May, 2010. A series of confirmatory factor analyses and structural equation modeling were conducted. Validity and reliability of the measurement model of MERE were confirmed. Results from structural equation modeling revealed that the MERE is a viable model to explain functional foods intention to consume and actual eating behavior. The two new constructs, subjective knowledge and health consciousness, had significant relationships with other constructs of the ERE. In detail, subjective knowledge was a better predictor than objective knowledge in the functional foods context. Health consciousness was a significant predictor of attitude and intention to consume functional foods but not a significant predictor of behavior. However, health consciousness influenced behavior through attitude and intention.

Keywords: *functional foods, health consciousness, intention & behavior, modified expanded rational expectations model, subjective knowledge.*

INTRODUCTION

Some previous studies have explained consumer purchasing behavior related to health concerns, such as healthful menu options, nutrition information, health messages, and disease risk perceptions in restaurants (Burton & Creyer, 2004; Horgen & Brownell, 2002; Kozup, Creyer, & Burton, 2003; Saelens, Glanz, Sallis, & Frank, 2007; Yamamoto et al., 2005). However, studies about intention and consumption behavior of functional foods using a cognitive behavioral theory are rare. Some studies have used the Extended Rational Expectations (ERE) model to successfully explore behavioral intention on food choices (Adams, Hoover,

Arnett, & Thompson, 2000; Liu, 2007). Thus, for this study, the ERE model was used as a theoretical background. Then a Modified ERE (MERE) model was established by including subjective knowledge and health consciousness concepts in the ERE model.

In earlier studies, subjective knowledge and objective knowledge were used to explain consumers' behavior, sometimes together and other times separately. However, important issues about their effectiveness remain unaddressed (Park, Mothersbaugh, & Feick, 1994). Which of the two knowledge types is a better predictor of consumer behavior? What are the differences in the ways the two types of knowledge influence consumer intention and behavior? While there is some evidence that subjective knowledge was considered to be a better predictor of decision making because measures of subjective knowledge indicate self-confidence level as well as knowledge levels (Park & Lessig, 1981), it is not known yet which one will be a better predictor in the functional food consumption context. Thus, subjective knowledge was added to the ERE to explore the differential effects of the two types of knowledge.

Recently, consumers' health consciousness has been applied to a functional food context. Health consciousness has been found to be related to several ERE concepts such as attitude (Gould, 1998), intention (Verbeke, 2005), and behavior (Schafer et al., 1993). This study speculated that including health consciousness in ERE would increase the ability for the model to explain consumers' intention to purchase functional foods as well as their actual consumption. Thus, the purpose of this study was to examine the effectiveness of the Modified Expanded Rational Expectations (MERE) model to measure adult consumers' intention to consume and actual eating of functional foods.

LITERATURE REVIEW

Theoretical background and hypotheses

Sapp and Harrod (1989) investigated the impact of social acceptability of intention to eat beef and created the Expanded Rational Expectations Model (ERE) based on the Theory of Reasoned Action. The ERE model includes two additional constructs, the social acceptability and knowledge construct. The social acceptability construct derives from Shibutani's (1955) conceptualization of a generalized reference group. The generalized reference group represents opinions of the larger social system (Shibutani, 1955). The construct has been proposed as a measure of examining its effects in relation to the measure of attitudes and significant others (Sapp & Harrod, 1989). The ERE assumes that the knowledge construct is a significant factor in influencing behavior (Sapp & Harrod, 1989) and that it has relationships with knowledge, attitude, and behavior (Gussow & Contento, 1984; Sapp, 1991).

Sapp and Harrod's research (1989) concluded that consumer food choices are subject to popular opinion and that the knowledge construct impacts food choice behavior. Further, adopting the ERE model helps in the understanding of the social aspects of consumer food choice behaviors. The ERE model has been applied to explain food consumption behaviors (Adams, Hoover, Arnett, & Thompson, 2000; Liu, 2007). Adams et al. (2000) adapted Sapp's ERE model and created the Expanded Rational Expectations Intention (EREI) model to investigate consumers' intention to try innovative meat products, namely emu meat products, in a restaurant setting. The results of the study confirmed that social acceptability in the EREI

model was a significant predictor of attitudes, subjective norm, and intention, while the knowledge construct did not clearly support the EREI model (Adams et al., 2000). Liu (2007) studied U.S. college students' organic food consumption behavior through comparing three behavioral models: the ERE, the TpB, and the TRA. The research concluded that the ERE model has a better capability of predicting college students' organic food consumption behavior among the three cognitive behavioral theories (Liu, 2007).

The Modified ERE (MERE) model was developed based on Sapp's (1991) Expanded Rational Expectations model in order to verify the impact of knowledge, specifically subjective and objective knowledge, and health consciousness on functional food consumption behavior. The model included nutrition knowledge, subjective knowledge, beliefs about health and diet, opinions of significant others, social acceptability, health consciousness, attitudes, subjective norms, intention, and behavior constructs. After the intensive literature reviews, the following hypotheses were proposed:

Hypothesis 1a: Subjective knowledge will have a positive effect on adult consumers' behavior to consume functional foods.
Hypothesis 1b: Subjective knowledge will have a positive effect on adult consumers' intention to consume functional foods.
Hypothesis 1c: Subjective knowledge will have a positive effect on attitude.
Hypothesis 2a: Nutrition knowledge will have a positive effect on adult consumers' behavior to consume functional foods.
Hypothesis 2b: Nutrition knowledge will have a positive effect on adult consumers' intention to consume functional foods.
Hypothesis 2c: Nutrition knowledge will have a positive effect on attitude.
Hypothesis 3: Beliefs about health and diet will have a positive effect on attitude.
Hypothesis 4: Opinions of significant others will have a positive effect on subjective norm.
Hypothesis 5a: Social acceptability will have a positive effect on attitude.
Hypothesis 5b: Social acceptability will have a positive effect on subjective norm.
Hypothesis 5c: Social acceptability will have a positive effect on intention.
Hypothesis 6a: Health consciousness will have a positive effect on attitude.
Hypothesis 6b: Health consciousness will have a positive effect on intention.
Hypothesis 6c: Health consciousness will have a positive effect on behavior.
Hypothesis 7: Attitude will have a positive effect on intention.
Hypothesis 8: Subjective norm will have a positive effect on intention.
Hypothesis 9: Intention will have a positive effect on adult consumers' behavior to consume functional foods.

METHOD

Instrument development

The survey questionnaire for this study was developed based on previous food consumption research survey questionnaires (Cox et al., 2004; Liu, 2007; Riveria, 2004; Roman-Shriver & Hoover, 1998). Eight theory constructs were adapted from the ERE model, and two constructs (subjective knowledge and health consciousness) were added for the purpose of this study.

Measurements. Objective nutrition knowledge (N=23) was created based on previous studies (Cronbach's alpha = .80). Except for the measurement of nutritional knowledge, the scales were adapted from previous studies (Cox et al., 2004; Liu, 2007; Riveria, 2004; Roman-Shriver & Hoover, 1998) with some changes in wording to reflect the current study's purpose.

Pretest and pilot studies. The initial questionnaire was modified after reviewing the results of a pretest (N = 25). Then two pilot studies (N = 179) were conducted. The reliabilities of final measurements were all above .74, indicating internal consistency (Nunnally, 1978).

Sample and data collection

The study sample was a self-selected convenience sample consisting of students, faculty, and staff members at a Southwestern university. Qualtrics software program (Qualtrics, Inc, 2010) was used to administer an online survey. Electronic advertisements with the URL link to the online survey were sent out using the university's daily email announcement during April and May, 2010. A total number of 536 respondents participated in the online survey, and 483 respondents completed the survey. Among 483 responses, 18 responses were deleted because of partial completion. Thus, 465 responses were used for data analysis.

Data analysis

Collected data were analyzed using SPSS 17.0 (SPSS Inc, 2007) and AMOS 16 (Arbuckle, 2007). To access the effectiveness of the MERE, two steps of data analysis based on the recommendations by Anderson and Gerbing (1998) were conducted. First, a series of Confirmatory Factor Analyses (CFA) was conducted in order to assess the measurement model. Then Structural Equation Modeling (SEM) was conducted to investigate the overall fit of the MPMT.

RESULTS AND CONCLUSION

Validity and reliability of the measurement model of MERE were confirmed. Results from structural equation modeling revealed that the MERE is a viable model to explain functional foods intention to consume and actual eating behavior. The two new constructs, subjective knowledge and health consciousness, had significant relationships with other constructs of the ERE. In detail, subjective knowledge was a better predictor than objective knowledge in the functional foods context. Health consciousness was a significant predictor of attitude and intention to consume functional foods but not a significant predictor of behavior. However, health consciousness influenced behavior through attitude and intention (Figure 1).

One of the main contributions of this study is to confirm the importance of health consciousness in explaining consumer's behavior regarding functional foods. The results reveal that health consciousness is a very important factor to explain consumer's food consumption behavior and that it adds explanatory power to the MERE model. Limitations of the study were resulted from the nature of convenience sampling. The findings of this study indicate that functional foods consumption can be promoted by increasing levels of certain factors: attitude, education campaign about functional foods and health benefits, and approval from significant others. Promoting functional foods will bring opportunities for product differentiation based on a health-related positioning, and the foodservice industry will have a good chance to prepare for future food market.

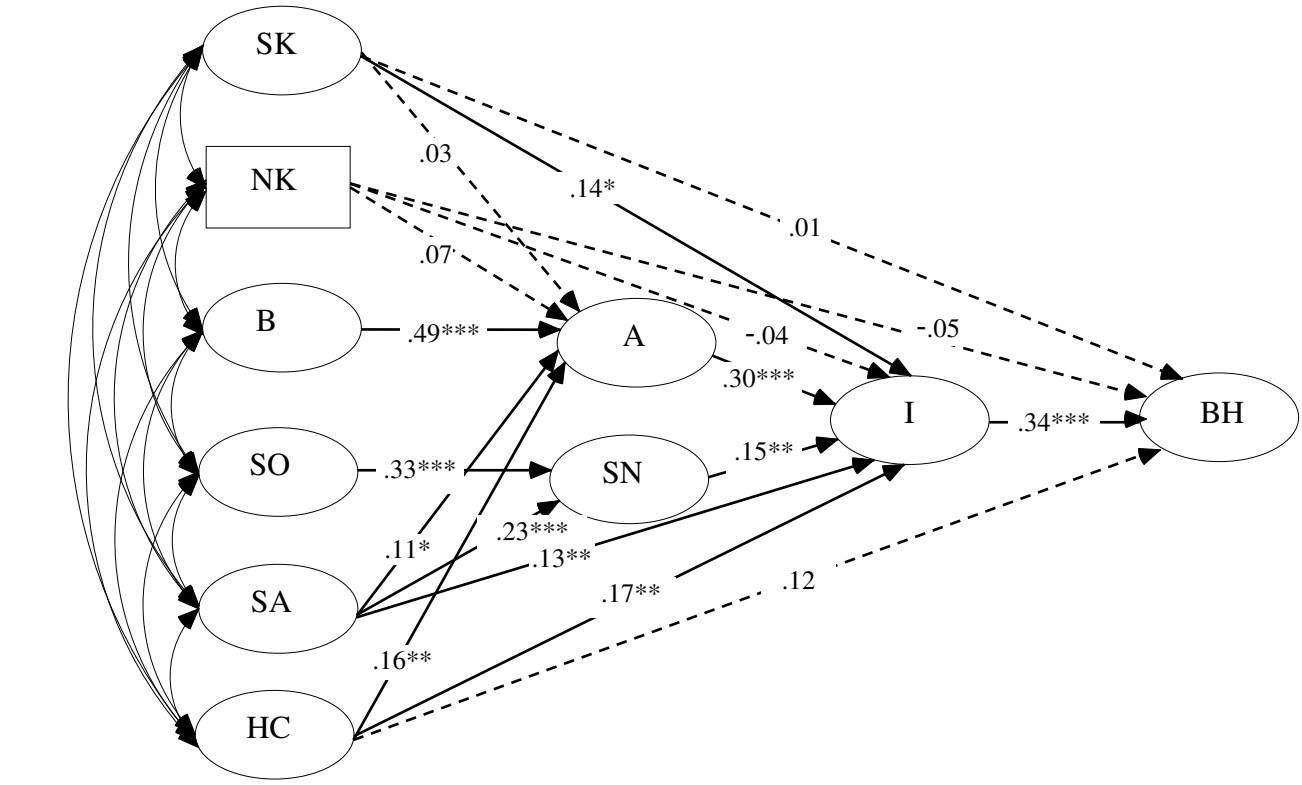

Figure 1. Structural Relationships among Latent Constructs in the MERE Model

Note. SK = Subjective Knowledge; NK= Nutrition Knowledge ;B= Beliefs about health and diet: SO = Opinions of Significant Others; SA = Social Acceptability; HC = Health Consciousness; A = Attitude; SN = Subjective Norm; I = Intention; BH = Behavior; MERE = Modified Expanded Rational Expectations. ———— Hypothesis supported; ------ Hypothesis not supported.

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