Screening Tools for Classification Consumers of Food Products Based on Eating Healthy Criteria

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Abstract

To have a reliable consumer study, the most important step is to determine the target population from which to collect representative data. However, in terms of healthy food products there is no specific tool for consumer screening developed based on consumer's diet or degree of healthiness of their eating habit. This study was designed to determine a set of questions that could classify consumer who belonged in different groups based on both a Healthy Eating Index (HEI) score and the Stages of Change model for healthful eating. In addition, the study was conducted in both Thailand and the United States in order to determine applicability to alternative countries. The Food Neophobia Scale (FNS), Food Involvement Scale (FIS), and Health and Taste Attitude Scale (HTAS) were included in the questionnaire together with a set of Stages of Change questions and 7-day self-administrated food recall questionnaire. FNS, FIS and HTAS showed differences in attitudes towards foods between Thai and US consumers. According to the scale, US consumers are more involved in food activities and more opened to try new foods or unfamiliar foods than Thais. It was found that consumers who belonged in different group according to Stage of Change model responded differently to some HTAS subscales such as General Health Interest, Using Food as a Reward, and Natural Product Interest. However, no single statement nor combination of statements from FNS, FIS and HTAS were able to distinguish consumers who belonged in different group according to HEI scores or who belong in different stages according to Stage of Change Model. Thus, the 5 question stages of change model probably does the best job of segmenting consumers who are interested in more healthful eating.

Material and Method

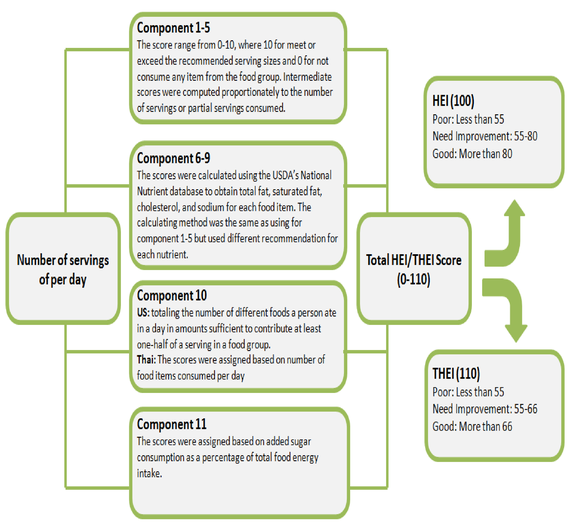
Consumer

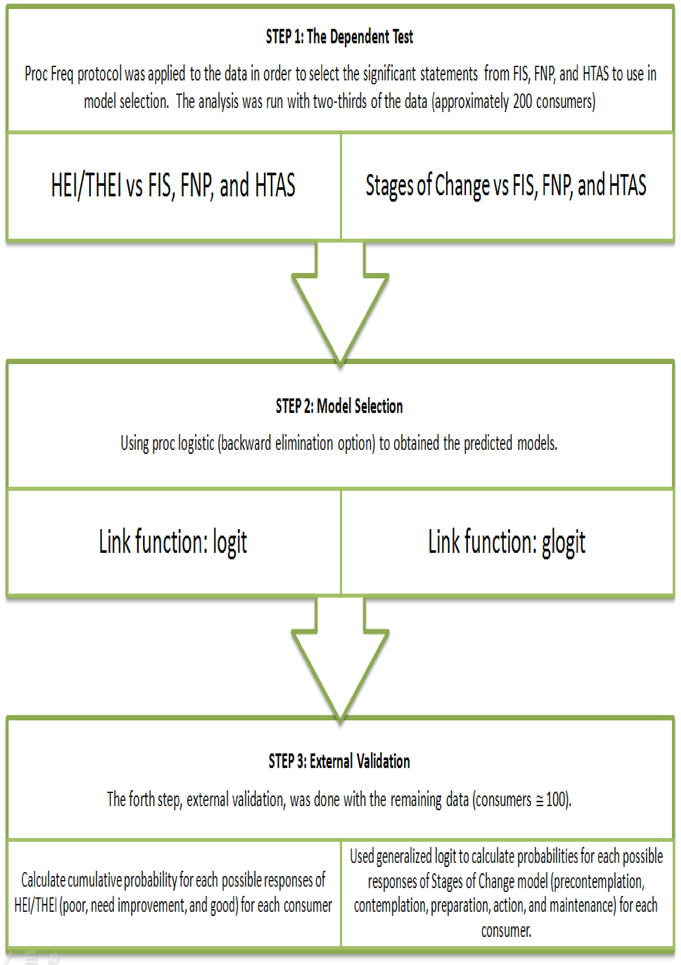
- Thailand and the United State: 300 consumers from each country
- 18 years old
- Not taken more than more than one nutrition course at an undergraduate level
- Thai consumer: finish at least high school

Questionnaire

- A set of Stages of change questions
- A 7-day self-administrated food recall
- Food Involvement Scale (FIS)
- Food Neophobia Scale (FNS)
- Health and Taste Attitude Scale (HTAS)
- Demographic

Healthy Eating Index (HEI) and Thai Healthy Eating Index (THEI)





Result and Discussion

General Findings from Healthy Eating Index and Food Related Psychographic Scales

Healthy Eating Index and Thai Healthy Eating Index (HEI/ THEI): Comparing between Thai and US consumers, no significant differences were found in consumer consumption of meat, nuts, and bean consumption, total fat intake, sodium intake, and added sugar intake. Although US consumer diets contained more dairy, fruit, vegetables, and grains with less cholesterol and more variety, Thai consumers had better diets in terms of saturated fat intake.

Food Neophobia Scale (FNS): There was a significant difference between Thai and US consumers in terms of willingness to try new or unfamiliar foods. US consumers mean scores (50.8±11.5) are higher than Thai consumers (45±10.2).

Food Involvement Scale (FIS): US consumers were more involved with food than Thai consumers. When examining two subscales of FIS (Preparation and Eating subscale and Setting and Disposal subscale) US consumers had significantly higher scores in both subscales than Thai consumers .

Health and Taste Attitude Scale: Comparing Thai and US consumers, it was found that Thai consumers scored higher in Light Product Interest, Natural Product Interest and Using Food as a Reward subscales. US consumers scored higher in General Health Interest and Craving for Sweet subscales. There is no significant difference in the Pleasure subscale.

Table 1 Predicting Consumer's HEI Group

Constant from Model Selection	Thai	US
Intercept 1 (Used for calculating probability for responses of poor diet quality group)	0.143	-5.205
Intercept 2 (Used for calculating probability for responses of need improvement diet quality group)	0.57	0.57
Food Involvement scale (FIS)		
I do not like to mix or chop food.	---	1.078
Health and Taste Attitude Scale (HTAS)		
I always follow a healthy and balanced diet.	-0.887	---
In my opinion by eating light products one can eat more without getting too much calories.	---	-1.302
I try to eat foods that do not contain additives.	-0.834	---
I do not eat processed foods because I do not know what they contain.	---	1.568
I often have cravings for chocolate.	0.701	---
I avoid rewarding myself with food.	---	1.563
I finish my meal even when I do not like the food's taste.	-1.066	---

- According to model selection step, it was found that no statements from FNS were selected for both Thai and US consumers. One statement from FIS was selected for US consumers.
- There were differences in selected statements from HTAS between Thai and US consumers. The prediction model for Thai consumers included statements from General Health Interest, Natural Product Interest, Craving for Sweet, and Pleasure subscales. The statement from Light Product Interest, Natural Product Interest, and Using Food as a Reward subscale were used to predicted US consumer diet quality. Intercepts and constants of each statement are shown in Table 1
- The remaining consumer data (approximately 100 consumers) were put into the models obtained from model selection step for external validation. There were only 55% of predictions were correct from the model of Thai consumers when comparing with the actual response from HEI data. The US prediction model had a 77% match with actual responses.

Conclusion

- Thai and US consumers had the same overall diet quality, Need Improvement group, according to the Healthy Eating Index of their country.
- Using the Stages of Change model to determine what consumers thought about their diet, it showed that most considered themselves as having a healthy diet (action or maintain stage) for both Thai and US consumers.
- Using statements from FNS, FIS, and HTAS to classify consumers who belong in different groups (based on diet qualit provide low percentage of correct classification from external validation
- . Considering all possible methods for screening consumers (using HEI, Stages of Change model, and statements from FIS, FNS, and HTAS) the Stages of Change model, was not improved upon (none were good) and is the simplest method for consumer classification.of interest in healthier eating. Using the Stages of Change required less time and the least effort from consumers because there were only three questions; and interpreting results does not require calculation or analysis.