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# Nutrition Consideration in Food Choice

Senhui He, Stanley Fletcher, and Arbindra Rimal

Nutrition intake is very important to health. The United States Department of Agriculture (USDA) has estimated that billions of dollars in medical-care costs can be saved each year by the improvement of dietary patterns (Frazao 1995). Great efforts have been made by means such as dissemination of nutrition information through food labels to help consumers adopt a healthy diet. The expected effect of information dissemination can be realized only when consumers actually use the information in making food-consumption decisions. As a result, many studies have explored factors affecting consumer use of nutrition labels in food purchasing. However, such studies shed no light on consumer consideration of specific nutrients in food choice. This study explores factors influencing consumer consideration of six important nutrients in food choices: fat, cholesterol, sodium, vitamins, protein, and dietary fiber.

Consumers' actual nutrition intakes are affected by their perceptions of their nutritional needs. Perception of personal need for a given nutrient depends on such factors as age, weight, gender, health condition, and level of physical activity, so consumers may have different opinions about the importance of a specific nutrient in their food choice. Depending on their perceived personal nutritional needs, some consumers may frequently take a specific nutrient into consideration when they make food choices while others rarely do so. Insights about the factors affecting the frequency of nutrition consideration in food choice provide useful information for food-policy makers and food producers. Developing effective nutrition-education programs, designing informative food labels, and helping food producers and marketers to understand and to meet consumer demand for specific nutrients may be helpful.

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Senhui He and Stanley Fletcher are research associate and professor, respectively, in the Department of Agricultural and Applied Economics, University of Georgia, Athens. Arbindra Rimal is an assistant professor in the Department of Agriculture-Agribusiness, Southwest Missouri State University, Springfield.

## Survey, Data, and Model

The data are from a nationwide telephone survey of 2880 U.S. households on various issues of food consumption, conducted by the Gallup Organization of Lincoln, Nebraska in 1997. The survey was designed to obtain information on consumption of peanut butter, snack peanuts, and in-shell peanuts, and on various issues related to food consumption, including consumer nutrition consideration in food choice.

Information was obtained on the frequency of consumer consideration of a group of ten types of nutrients in making decisions on choosing foods to consume. Six types of nutrients, all of which are commonly considered to be important attributes of food, are considered in this study. Among the six types of nutrients, protein, vitamins, and dietary fiber are generally considered to be beneficial to health, while excessive consumption of fat, cholesterol, and sodium are listed by the Joint Nutrition Monitoring Evaluation Committee among the six highest-priority nutrition problems related to food consumption (Anderson and Anderson 1991). And previous studies have reported that diminishing intakes of fat, cholesterol, and sodium, and increasing fiber intake can reduce the risk of health problems such as cancer and coronary heart diseases (Kim, Nayga, and Capps 2001.)

The survey results show that nutrition consideration plays an important role in food-consumption choice. In a ranking where 0 means "almost never" taking a specific nutrient into consideration in choosing food to consume and 4 means taking it into consideration "almost all the time," the mean values are 2.59 for fat, 2.05 for cholesterol, 1.89 for sodium, 1.80 for vitamins, 1.75 protein, and 1.62 for dietary fiber. It is interesting to notice that fat, cholesterol, and sodium are taken into consideration in food choices more frequently than are vitamins, protein, and fiber. It could be that consumers try harder to limit the intake of fat, cholesterol, and sodium to reduce health risks.

The categorical and ordinal nature of the data on

the frequency of nutrition consideration warrants the use of a multi-ordered response model (Maddala 1983; Moon et al. 2002). The ordered probit model, which is widely used as a framework for the analysis of categorical and ordinal responses data (Greene 1997; Zavoina and McElvey 1975), is used in this study.

The explanatory variables include respondents' age, gender, education level, ethnic status, marriage status, household income, having a non-adult family member, and level of engagement in physical activities. The first six factors are commonly included as explanatory variables in studies of issues related to food consumption. Some previous studies have reported that lifestyle—such as smoking and physical exercise—affects dietary choice (Kim, Nayga, and Capps 2000), so we include a variable “level of engagement in physical activities” in the model.

In evaluation of nutrition consideration in food choice, we should understand that a respondent may choose food for himself alone, such as when eating out alone, or choose food for the household, such as when grocery shopping for the family. When making food choices for the household he may take the nutritional needs of other family members into consideration, especially the nutritional needs of children, because the nutritional needs of a child are different than those of an adult. Thus we include a variable “having a non-adult family member” in the estimation.

## Results

Six ordered probit models are estimated using the maximum-likelihood procedure to explore factors affecting consumer nutrition consideration in food choice. The results show that age positively affects consideration of cholesterol, sodium, vitamins, protein, and dietary fiber in food choice. The effect could be due to age-related changes in health conditions. Generally, health conditions decline with age. Particularly, older people are more likely to have diet-related diseases such as diabetes and coronary heart diseases, so older people tend to pay more attention to nutrient intakes than do younger people. Furthermore, as health declines, people may be more aware of the importance of health and hence more aware of the importance of a healthy diet.

Gender is found to significantly affect nutrition consideration in all six models. As expected, females tend to take nutrition into consideration

more frequently than males. The gender effect could be due to task assignment within household. In the United States, females usually play a more important role than do males in the household production of family health (Sindelar 1982; Kim, Nayga, and Capps 2001). Particularly, females are usually the main meal planners of the households. A main meal planner is usually responsible for the food choices for the household and therefore tends to take the nutritional needs of the whole family into consideration when she makes food-consumption decisions. This may motivate her intention to take nutrition into consideration more frequently. For example, a person may not care much about the intake of a particular nutrient herself, but if she is responsible for the food choices for the household and she has a young child who needs the nutrient, she is likely to take the nutrient into consideration more frequently.

Ethnic status is found to have a significant effect on nutrition consideration in all six models. White people tend to take fat into consideration more frequently, while nonwhites pay more attention to cholesterol, sodium, vitamins, protein, and fiber. The race effect may reflect the impact of the difference between dietary traditions of whites and nonwhites.

Those who have college education tend to take cholesterol, sodium, vitamins, protein, and fiber into consideration more frequently. More-educated people are exposed to more diet and health information and are better able to understand and process it (Kenkel 1990). Better educated people are more knowledgeable about the effects of nutrient intakes on health, and so tend to take nutrition into consideration more frequently in food choice. The result is consistent with previous findings. For example, Kim, Nayga, and Capps (2000) reported that the higher the education level of a consumer, the lower the intake of fat and cholesterol and the higher the intake of fiber (Kim, Nayga, and Capps 2000.)

Household income is found to positively affect fat and cholesterol consideration but to negatively affect vitamin consideration in food choice. Some researchers (Kim, Nayga, and Capps 2001) think that in addition to purchasing power, income may indicate human capital beyond that given by formal education and may reflect greater efficiency in obtaining and processing diet and health information. This may be a plausible explanation for the positive effect of income on fat and cholesterol consider-

ation, but we have no convincing explanation for its negative effect on vitamin consideration.

Presence of a non-adult member in a household is positively linked to consideration of vitamins and protein. The effect may be due to consideration of the nutritional needs of non-adult members of the household because nutritional needs of a non-adult, especially of a young child, are different than those of an adult. In particular, among all the nutrients, vitamins and protein are especially important for non-adults.

Those who exercise four or more times per week tend to take all six types of nutrients into consideration more frequently. Frequent physical exercise reflects consumers' emphasis on the importance of health. A person who emphasizes the importance of health is likely to pay more attention to maintaining good health through a healthy diet, and hence is more likely to take nutrition into consideration when choosing food to consume.

## Conclusion

Nutrition consideration is playing an increasingly important role in food choices as consumers become more aware of the benefits of a healthy diet. Insights about factors affecting consumer consideration of specific nutrients in food choice are useful to food producers, marketers, and policy makers. However, little has been done to gain such information. This study explores factors affecting consumer consideration of six important nutrients in food choice, aiming to fill the gap in the literature of food consumption.

Demographic characters, especially consumers' age, gender, education level, and ethnic status, are found to be important determinants of nutrition consideration in food choice. The parameter estimates of these characteristics may reflect the effects of some latent factors embodied in these characteristics. For example, the estimated age effect may reflect the impact of the general trend of change in health conditions over the years, and the gender effect may reflect the impact of intra-household

resource allocation. Such information is useful for the development of an effective nutrition-education program and is essential for the design of an informative nutrition label.

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