Eating at a Fast-food Restaurant—
A Social-Psychological Analysis

Marta L. Axelson,[1] David Brinberg,[2] and Judith H. Durand[3]

[1]Department of Food, Nutrition, and Institution Administration; [2]Department of Textiles
and Consumer Economics, University of Maryland, College Park, Maryland 20742;
[3]Department of Economics, University of Colorado, Colorado Springs, Colorado 80933

ABSTRACT   This study served two purposes 1) to determine the predictive accuracy of Fishbein's theory of decision making when applied to a food-related behavior, i.e., eating at a fast-food hamburger restaurant, and 2) to obtain information about beliefs associated with eating at this type of restaurant. A total of 154 students at a large mid-Atlantic university completed a questionnaire that measured the components of the Fishbein model. Two weeks later, we asked the respondents whether they had actually eaten at a fast-food hamburger restaurant during the past two weeks. The Fishbein model successfully predicted this food-related behavior. In addition, we found two factors underlying the respondents' beliefs and described them as organoleptic-nutritious and economic. Respondents who intended to eat at this type of restaurant differed in their beliefs from those who did not. The nonintenders believed more strongly than the intenders that they would receive a limited selection of lower quality food that would not be nutritious or tasty. Researchers and practitioners may use beliefs that discriminate the intenders from the nonintenders to understand food choice and should consider such factors when attempting to influence a food-related behavior.   (*JNE* 15:94-98, 1983)

Surprisingly, the concept and use of fast foods, or foods that are served quickly, are not new (1). There are documented examples as early as 2,300 B.C. (2). However, the recent and dramatic increase in expenditures for food eaten away from home in the United States and, more specifically, in expenditures for food at fast-food restaurants (3, 4) has caused concern among some food and nutrition professionals about the impact of this food-related behavior on the nutritive value of the population's diet. Professionals have criticized the meals offered at these restaurants for having a high energy to nutrient ratio, having contents high in saturated fat and sodium, and lacking fruits, vegetables, and whole-grain food items (5).

Among the factors that may influence the use of fast-food restaurants are individuals' attitudes and beliefs. Unfortunately, investigators typically ignore these social-psychological factors. McNeal et al. (6) examined consumers' nutrition-related beliefs about fast-food restaurant meals and found that respondents considered taste as the most important factor when choosing a place to eat. Other highly rated factors included family preference, convenience, price, cleanliness, and food

quality. Respondents included nutrition as a consideration but did not rank it highly.

The participants at the Workshop on Nutrition Education Research (7) noted the need for the development and improvement of theories and methods used in food-related behavior research in addition to the need for more research on factors that influence this type of behavior. Therefore, this study (Note 1) served two purposes: 1) to determine the predictive accuracy of a social-psychological theory of decision making when applied to a food-related behavior and 2) to obtain information about beliefs associated with eating at a fast-food hamburger restaurant.

A SOCIAL-PSYCHOLOGICAL THEORY OF DECISION MAKING

Fishbein and his associates (8) have developed a theory of decision making that investigators have applied to research problems in several disciplines. Using this theory, they have studied a wide variety of behaviors, for example, voting behavior (9), blood donation (10), and fertility-related behaviors (11).

Fishbein hypothesizes that an individual's intention to perform some behavior is the best predictor of that behavior. While

intentions generally predict behavior, only through the identification of the determinants of an intention does an understanding of the reasons for the behavior occur. According to this theory, intention is a function of an individual's attitude toward performing the behavior, or act, plus the effect that significant others have on the individual's performance of the behavior, in other words, the subjective norm (8). Fishbein describes the relationships among the components of the theory in the following manner:

$$Behavior \cong Intention = Attitude_{act}\ (w_1) + Subjective\ Norm\ (w_2)\ \text{(Equation 1)}$$

The theoretical parameters, w_1 and w_2, reflect the relative importance of the attitude and subjective norm, respectively, in determining intention. Investigators usually determine these theoretical parameters, or weights, by regression analysis. The influence of such external variables as income, gender, age, and personality traits on a particular behavior is assumed to be mediated through the components of the model (8).

Attitude refers to "a learned predisposition to respond in a consistently favorable or unfavorable manner toward some object or act" (8) and is determined by the sum of the individual's salient beliefs (b_i) about the consequences of performing the behavior multiplied by the individual's evaluation (e_i) of the consequences. Fishbein expresses this relationship as follows:

$$Attitude_{act} = \Sigma b_i e_i \qquad \text{(Equation 2)}$$

The *subjective norm* refers to the individual's perception of what important others think the individual should do. The subjective norm is determined by the sum of the individual's normative beliefs (*NB*), that is, beliefs concerning what important others think about the individual's performing the particular behavior multiplied by the individual's motivation to comply with the wishes of those significant others (*Mc*).

Fishbein expresses this relationship as follows:

Subjective Norm = Σ*NbMc*

$$(\text{Equation 3})$$

METHODS

Eating establishments that specialize in serving food quickly are termed fast-food restaurants. These restaurants, however, offer a variety of foods, such as pizza, hamburger, and chicken, and a variety of serving methods such as over-the-counter, cafeteria style, and waiter or waitress. As Ajzen and Fishbein (8) noted, an investigator needs to consider four basic factors when examining any behavior: action, target, context, and time. For this study, eating (the action) at a fast-food hamburger restaurant (the target and context) in the next two weeks (time) was the behavior examined.

Respondents. A total of 252 students, enrolled in introductory level human ecology courses at a large mid-Atlantic university, volunteered for this study. The students participated during one-hour classroom periods. We divided the students into two groups.

We used one group consisting of 98 respondents to construct the questionnaire. In an open-ended elicitation, these respondents indicated the advantages and disadvantages of eating at a fast-food hamburger restaurant and the people, or significant others, who are important to them when they make a decision. These 98 students were not necessarily users of fast-food restaurants and did not participate further in the study.

The second group, consisting of 154 respondents, completed the questionnaire constructed from the responses obtained from the initial 98 students. This questionnaire measured the components of Fishbein's theory. Two weeks after we administered this questionnaire, we asked the respondents whether they had actually eaten at a fast-food hamburger restaurant during the past two weeks. Of the initial 154 respondents, 104 answered this question. The responses to the questionnaire by the 50 who did not answer this later question were not significantly different from the responses of the group as a whole that answered the initial questionnaire, so we used data from all 154 respondents in all analyses except those involving whether they actually ate at a fast-food hamburger restaurant.

Because our main intent was to examine the use of a decision-making theory in relation to a food-related behavior, we made an effort to provide as strong a test as possible. The students in our study provided a more homogeneous sample than a random sampling from a larger population. If this theory were inadequate in predicting this behavior for the college student population, we would likely find it to be less effective when used with a more heterogeneous sample (12).

Instrument. Investigators (13,14) have examined the reliability and validity of the components of the Fishbein model. In their studies, the typical test-retest reliability of the scales range from .80 to .92. In addition, investigators have demonstrated that the components of the model have interval level properties (8), construct validity (13), and convergent and discriminant validity (14).

We selected the beliefs most frequently mentioned by the first group of respondents, that is, those who listed the advantages and disadvantages of eating at a fast-food hamburger restaurant, to represent the salient beliefs (b_j). The advantages listed by the respondents were quick service, low cost, location, not having to cook, and taste; the disadvantages were the limited menu selection, greasy food, high in "calories," low quality, and low nutritive value. The most frequently mentioned set of significant others selected to represent the normative beliefs (Nb) were parents, friends, and boyfriend or girlfriend.

From the information obtained from the elicitation, we constructed a questionnaire that operationalized the components of the Fishbein model (Figure 1). Students also answered questions about gender, age, residence, distance from a fast-food hamburger restaurant, which meals they most frequently ate at those restaurants, and amount of money spent per visit.

Data analysis. We used Fishbein's theory (8) to transform the data and recoded the 11-point scales to 5 to −5 point scales and the 7-point scale to a 3 to −3 point scale, where 5 and 3 represented the highest likelihood or most positive assessment.

We examined the respondents' reported behavior and intention by calculating a point-biserial correlation coefficient (refer to equation 1). In addition, we constructed a two-way contingency table to gain more insight into the relationship of intention to behavior. Using an individual's response to the intention question, we dichotomized the continuous independent variable, intention, to form an intenders and nonintenders group. An intender was someone

Examples of Statements That Measured Different Components of Fishbein's Model

Intention was measured on an 11-point probability scale.
"I intend to eat at a fast-food hamburger restaurant in the next two weeks."
Likely ___:___:___:___:___:___:___:___:___:___ Unlikely

Attitude toward the act was measured on an 11-point, bipolar semantic differential scale.
"Eating at a fast-food hamburger restaurant in the next two weeks is"
Good ___:___:___:___:___:___:___:___:___:___ Bad

Belief (bj) was measured on an 11-point probability scale.
"Eating at a fast-food hamburger restaurant in the next two weeks means that I will have an inexpensive meal."
Likely ___:___:___:___:___:___:___:___:___:___ Unlikely

Evaluation (ej) was measured on an 11-point, bipolar semantic differential scale.
"Having an inexpensive meal is..."
Good ___:___:___:___:___:___:___:___:___:___ Bad

Subjective Norm was measured on an 11-point probability scale.
"Most people who are important to me think that I should eat at a fast-food hamburger restaurant in the next two weeks."
Likely ___:___:___:___:___:___:___:___:___:___ Unlikely

Normative belief (Nb) was measured on an 11-point probability scale.
"My parents think that I should eat at a fast-food hamburger restaurant in the next two weeks."
Likely ___:___:___:___:___:___:___:___:___:___ Unlikely

Motivation to comply (Mc) was measured on a 7-point, bipolar scale.
"Generally speaking, I want to do or I want not to do what my parents think that I should do."
Want to do ___:___:___:___:___:___ Want not to do

Figure 1

who had responded on the likely side of neutral whereas the nonintender was someone who had responded on the unlikely side. We eliminated from this analysis those respondents with a neutral intention.

A multiple correlation assessed the relationship of $Attitude_{act}$ and *Subjective Norm* to intention (refer to equation 1). The standardized regression coefficients associated with each component determined the relative importance of $Attitude_{act}$ and *Subjective Norm* in predicting intention. We calculated correlation coefficients to determine the relationship between $Attitude_{act}$ and $\Sigma b_i e_i$ (refer to equation 2) and between *Subjective Norm and* $\Sigma NbMc$ (refer to equation 3).

We examined the underlying dimensions of the respondents' salient beliefs (b_i) by using factor analysis, specifically, a principal component solution with a Varimax rotation. Only the beliefs with factor-loading values greater than .500 were used in the interpretation of the factors. The factor-loading value indicates the strength of the association between a variable, or belief, and the factor.

We used a Hotelling's T^2 analysis to compare the beliefs (b_i) of individuals who intended to eat at a fast-food hamburger restaurant with those who did not. With this analysis, we made a comparison between the group's mean score for each belief and the groups' mean scores for all beliefs. We calculated this using *Biomedical Computer Programs, P-Series* (15). For all other statistical analyses, we used SPSS (16) computer programs.

RESULTS

Respondent characteristics. The respondents were primarily female (70%) with an average of 20.5 years. A total of 37% of the respondents lived off campus in their own home, 32% with their parents, and 27% in a dormitory. Most (71%) lived within one mile of a fast-food hamburger restaurant. The majority of respondents used this type of restaurant most frequently for lunch, with an average of $2.88 spent per visit.

Predictive accuracy of Fishbein's theory. The correlation coefficient between intention and reported behavior was 0.41 ($p < .01$) (refer to equation 1). Seventy-four percent of the respondents reportedly behaved in a manner consistent with their intention, that is, 45 of the 57 intenders reported that they had eaten at a fast-food

Table 1 Comparison of mean scores of intenders and nonintenders for beliefs about eating at fast-food hamburger restaurants[a]

Belief—Eating at a Fast-food Hamburger Restaurant Means That the Food Is:	Scores			
	Intenders (n = 84)		Nonintenders (n = 54)	
	Mean	SEM	Mean	SEM
Low quality	0.63**	.31	2.20	.31
Not nutritious	−0.08*	.34	1.02	.37
High in "calories"	3.19	.23	3.72	.21
Tasty	1.23**	.27	−0.15	.42
Greasy	3.04	.23	3.26	.31
Limited selection	2.21**	.32	3.44	.24
No cooking	2.67	.38	3.17	.40
Location	3.66	.20	3.63	.28
Quick	2.13	.28	2.52	.27
Inexpensive	1.45	.32	1.52	.37

[a] Prior to analysis we eliminated respondents who had neutral intentions. Scale ranged from 5 (extremely likely) to −5 (extremely unlikely).
*$p < .05$ **$p < .01$

hamburger restaurant and 21 of the 32 nonintenders reported that they had not.

The multiple correlation regressing $Attitude_{act}$ and *Subjective Norm* on intention was 0.647 ($p < .01$) (refer to equation 1). This value of the multiple correlation indicates that Fishbein's theory did predict an individual's intention to eat at a fast-food hamburger restaurant. The coefficient associated with the attitude component was significant (b = 0.637; $p < .01$), indicating that the respondents' attitude toward eating at a fast-food hamburger restaurant contributed significantly to the prediction of the respondents' intention. The subjective norm did not contribute significantly (b = 0.034) to the prediction of intention, suggesting that significant others were not important when an individual thinks about eating at a fast-food hamburger restaurant.

According to this model, attitude towards the act should be related to $Sb_i e_i$, and subjective norm related to $SNbMc$. Attitude significantly correlated with $Sb_i e_i$ ($r = 0.65$, $p < .01$) (refer to equation 2). The subjective norm also significantly correlated with $SNbMc$ ($r = 0.30$, $p < .01$) (refer to equation 3). Both these correlations indicated that the overall measures of attitude and subjective norm were significantly related to the underlying cognitive structure. This finding implies that changing the underlying structure, that is, the beliefs, is likely to lead to a change in attitude, or subjective norm, as well as a change in intention. For this study, we did

not examine normative beliefs and motivation to comply further because the subjective norm did not contribute to the prediction of intention.

Beliefs of respondents. Intenders and nonintenders differed significantly ($p < .05$) in their beliefs (b_i). The beliefs on which the two groups specifically differed were low quality, not nutritious, tasty, and limited selection (Table 1). The nonintenders believed more strongly than the intenders that they would receive a limited selection of lower quality food that would not be nutritious or tasty. The groups, however, did not differ in their evaluation of their beliefs (e_i).

We found two factors and described them as organoleptic-nutritious and economic (Table 2). The organoleptic-nutritious factor emphasized the food's overall acceptability, including both the sensory and nutritive quality. The economic factor emphasized the consideration of the value of both time and money.

DISCUSSION

The correlation between intention and behavior (0.41) is within the range of those typically found with these components (8). In addition, our finding that intention is a determinant of behavior as well as a moderator of the relationships among all other variables with behavior was in agreement with the findings of Azjen and Fishbein (8). In planning future studies, investigators should use the concept of intention if their interest is the prediction of behavior.

Table 2 Factor analysis of respondents' (n = 154) beliefs about eating at fast-food hamburger restaurant[a]

Belief—Eating at a Fast-food Hamburger Restaurant Means That the Food Is:	Factor Loadings	
	Organoleptic-Nutritious Factor	Economic Factor
Low quality	**.780**	− .031
Not nutritious	**.765**	− .103
High in "calories"	**.647**	.137
Tasty	**− .575**	.365
Greasy	**.522**	.270
Limited selection	.422	.027
No cooking	.296	.211
Location	.060	.380
Quick	− .031	**.807**
Inexpensive	.014	**.710**
Eigenvalue	*2.48*	*1.58*
Percentage of Variance	*24.8*	*15.8*

[a] We used the beliefs whose factor loadings are in bold type to interpret the factor.

In comparision to a number of conceptual models explaining factors that determine food-related behavior (17), the Fishbein model is more parsimonious. That is, the Fishbein model uses a relatively small number of factors, or components, to explain behavior whereas other models include such demographic concepts as income, gender, and age as well as the psychological concepts of attitudes and beliefs. Despite its parsimony, the model significantly predicted the food-related behavior we studied. Our use of corresponding measures of the model's components likely enhanced the predictiveness of the model, that is, the predicting of a behavior such as eating at a fast-food restaurant. Measurement of attitude, subjective norm, and intention corresponded specifically with the behavior with respect to action (eating), target and context (fast-food hamburger restaurant), and time (two weeks). Investigators interested in predicting behavior should recognize that lack of correspondence or agreement is likely to reduce the relationship among model components and thus reduce the predictive accuracy of the model.

For instance, investigators often relate attitudes toward nutrition to nutrient intake. In such cases, they define nutrient intake as the behavior. However, the four basic factors of action, target, context, and time have not defined the behavior (nutrient intake). Consequently, the measurement of attitudes does not correspond specifically with the behavior, a situation that is likely to weaken the relationship between attitudes and behavior. Possibly, investigators have not delineated more carefully nutrient intake with respect to these factors because it is really an outcome of a myriad of behaviors and not a single behavior. If nutrient intake is of interest, one strategy is for researchers to determine the behaviors that influence nutrient intake and then consider measuring attitudes that correspond with the specific behaviors.

The respondents in our study were a small group of college students and we must be cautious in making generalizations to other populations. However, consumers under the age of 35 are a major segment of the population who eat at fast-food hamburger restaurants (19). Given this, our study has certain implications for professionals involved in developing and implementing food and nutrition programs that seek to modify or change food choices.

To fully understand food choices, Bayton (19) asserts that investigators must determine the "discriminating influence," or the particular beliefs that play an active role in people's selection or rejection of specific foods. We found four beliefs that differentiate the intenders from the nonintenders. Three of the beliefs (low quality, not nutritious, and tasty) are included in the organoleptic-nutritious factor that was identified (Table 2). Although sensory evaluation techniques can measure individuals' organoleptic perceptions such as

the evaluation of the taste or quality of foods, we do not completely understand the factors that determine and influence these perceptions (20). In other words, we can measure whether people like or dislike a food, but we do not know the reasons for the development of these preferences. Therefore, effective methods to change or influence these perceptions would be difficult to develop. Consequently, emphasizing the nutritive value of various food combinations within the offered food selections rather than trying to change people's likes and dislikes probably would be the more effective approach to good nutrition.

NOTES

1 The Committee on Human Subjects Research of the Department of Food, Nutrition and Institution Administration at the University of Maryland approved this study.

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COFFEE AND BLADDER CANCER

In 1976 an estimated 80% of adults in the United States were coffee drinkers, with 20% consuming five or more cups a day. A study conducted in the early 1970s (D. Cole, *Lancet* 2:104, 1971) revealed an excess risk of bladder tumors among persons drinking one or more cups of coffee a day. Results of subsequent studies were inconsistent, and a strong dose-response relationship was never demonstrated. Recently, Marrett et al. (*American Journal of Epidemiology* 117:113-27, 1983) further investigated the relationship between coffee consumption and bladder cancer as part of a large collaborative study to elucidate risk factors of this disease.

The investigators drew their sample from the Connecticut Tumor Registry composed of all Connecticut residents aged 21-84 with histologically confirmed bladder cancer, newly diagnosed between January 15, 1978, and January 14, 1979. They also drew an age- and sex-matched control group from the Connecticut population. They collected data on coffee consumption and other suspected risk factors through personal interviews with a structured questionnaire. The other suspected risks included: occupational exposures (dyes, rubber, leather, ink, or paint), use of tobacco, artificial sweeteners, and hair dyes.

Respondents provided data on the number of cups of coffee they consumed per week, during the winter, and one year prior to the study; the number of years they had been a coffee drinker; and the type of coffee drunk (regular or instant and caffeinated or decaffeinated). The investi-gators calculated lifetime consumption, the product of cups per week and years of consumption and expressed the results, based on a final sample of 388 bladder cancer cases and 606 controls, in odds ratios—that is, the risk of developing bladder cancer as compared to the controls' value of 1.

Of the risk factors examined other than coffee, only smoking significantly increased the risk for bladder cancer. Odds ratios were 2.8 for male smokers and 1.8 for female smokers. The relationship of smoking to bladder cancer was, therefore, controlled statistically in data analysis. Among smokers, the odds ratio for males who drank more than seven cups of coffee weekly was 1.9, but for females it was 1.0. Thus, coffee drinking increased the risk of bladder cancer among male smokers but not among female smokers. For nonsmokers, drinking more than seven cups of coffee per week increased the risk of bladder cancer in both sexes. The odds ratio was 1.9 for both males and females. Lifetime consumption of coffee was not as strong a risk factor as number of cups consumed per week. The investigators interpreted this finding to mean than intensity rather than duration of exposure to coffee is the dominant effect.

The categories for weekly consumption of coffee were: less than 7 cups, 7-20 cups, 21-34 cups, and 35+ cups. Relative to males drinking less than 7 cups per week, those drinking increasing amounts had odds ratios for bladder cancer of 1.62, 1.98, and 2.00, respectively. In females there was no significant increase in risk with increased intake.

When the investigators examined the type of coffee as a contributing factor to the increased risk of bladder cancer, there was a significant association with consumption of caffeinated coffee among only male smokers. The same trend emerged among male nonsmokers and all females, but it did not reach statistical significance. Women 65 years of age and older who smoked and drank weekly actually had a lower risk of bladder cancer than control nonsmokers. The investigators postulated that these older women, who smoked and consumed more coffee, may constitute a group of "resistant survivors" somehow protected from the damage of cigarettes and from coffee effects.

The investigators emphasized the many difficulties associated with a retrospective study of a disease, such as bladder cancer, with a long latent period and an exposure factor as prevalent as coffee. The recall of coffee consumption is likely to be imprecise: there may be under- or over-reporting due to the association of coffee with a variety of ailments, and the most relevant factors regarding coffee exposure are still unknown. The multifactorial etiology of cancer also must be considered. Despite these difficulties, the investigators concluded that "about one quarter of bladder tumors in Connecticut may be attributed to drinking more than 1 cup of coffee per day." However, until there is further confirmation from other studies and better elucidation of the mechanism of the "coffee effect," we should view this conclusion with caution.