NUTRITION LABELING: AN EVALUATION OF CONSUMER ATTITUDES

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Abstract

While numerous programs requiring more information disclosure have become law, little attention has focused on measuring their impact on consumer attitudes and behavior. This paper reports the results of an experiment which employed an unobstrusive research method to measure consumer attitudes toward nutrition labeling. The findings suggest that consumers are passive about having more nutrition information on food product labels. However, prior messages about nutrition labeling by an authoritative source may be an effective vehicle to sensitize consumers about the value of nutrition information.

Introduction

Consumer activists and public policy officials have argued that marketers should be required to disclose more information about their products and services. Support for their position can be traced to the consumers' "right to be informed" as expressed by the late President Kennedy in 1963. The "right to be informed" concept goes beyond the principle of avoiding misrepresentation--it involves providing consumers with sufficient information to help them make wise purchase decisions (1). Consumer leaders have argued that people will be able to perform more effectively in the marketplace when these comparative data are available. However, some researchers (7) have pointed out that formal education may not be sufficient to prepare consumers for the process of product evaluation and comparison. Jacoby, Speller and Kohn (9) found that too much information can be dysfunctional--people made sub-optimal decisions under a high information level experimental condition.

Nonetheless, numerous product information programs have become law; from beef grading to truth-in-lending. Many others have been proposed and several will likely become law (11). Unfortunately, far too little effort has been applied to studying the impact of such programs upon consumer attitudes and behavior. This research examines consumer attitudes toward food products which contain a relatively new type of product information -- nutrition information.

On June 30, 1975, the nutrition labeling regulation became law. It requires food manufacturers or processors to provide data about their product's nutritional value if any nutrient is added to the food or if some nutritional claim is made on the label or in advertising (6). For example, if the producer makes any reference to dieting (on the label or in advertising), the package must provide nutrition information (5). When the information is supplied, it must conform with a standard nutritional format developed by the FDA.

Nutrition labeling advocates have assumed that the availability of nutrition information would help consumers make better food purchase decisions. In theory, the information would serve to shift demand from brands offering little nutritional value to brands offering more value. Obviously, such behavior would be desirable especially among low income groups. However, previous research dealing with other types of consumer information suggests that the intended benefits may not be realized easily. Research by Kilbourne (10), Miller, Topel, and Rust (11), and Day and Brandt (4) has demonstrated that consumers are very slow to adopt product information. To increase consumer awareness and adoption of nutrition label information, the FDA developed an introductory promotional campaign which included radio and television commercials in addition to brochures for consumers.

While some consumer research exists pertaining to nutrition information, it does not provide a systematic and unbiased estimate of consumer attitudes toward nutrition labeling. For example, Asam and Bucklin (2) studied the communications value of different terms used to describe the nutritional content of canned peas. Stokes (13) studied the communications value of different nutrition information formats. Direct questioning was used by Stevan (12) to measure consumer attitudes toward nutrition labeling. Direct questioning about the nutrition labeling concept may lead to considerable overstatement of attitudes by consumers. This research measured consumer attitudes toward nutrition labeling by way of a more indirect method.

Purpose of the Research

Based upon the previous research, it was hypothesized that products which supply higher levels of product information would be judged more favorably by consumers than products which provide lower levels of product information. Such a relationship, if discovered, would establish support for the importance of information. Promotional messages about an information program may also have some impact on consumer attitudes toward the program. Thus, it was hypothesized that consumer attitudes toward products which carry a specific type of product information would vary with the introduction of promotional messages. Both relationships were tested within the framework of the nutrition labeling program:

H_1: Higher levels of nutrition information on a food product label will create more favorable attitudes toward the product.

H_2: The introduction of nutrition labeling advertising messages will influence consumer attitudes toward food products which supply nutrition information.

Methodology

Research Design

A 3 x 3 factorial experimental design was developed to test the above relationships. The two experimental variables were introduced to subjects (Ss) simultaneously in a laboratory setting. One variable represented exposure to nutrition labeling advertising messages (NAM) at various levels. The other variable dealt with the amount of nutrition information provided on the label (NIL). Each variable had three treatment levels--high, medium and low. A schematic of the

research design is provided in Table 1.

TABLE 1

SCHEMATIC OF THE RESEARCH DESIGN AND SAMPLE SIZE PER TREATMENT

Nutrition Advertising Level	Nutrition Information Level		
	Low	Medium	High
Low	15	15	15
Medium	15	15	15
High	15	15	15

A self-administered questionnaire was developed to measure consumer reaction to the advertising and product stimuli. The questionnaire contained a small battery of questions which pertained specifically to the product stimulus. The objective was to measure Ss' attitudes toward the stimuli and gather basic demographic and life style information. Three product-related questions were used as indicators of the Ss' attitudes toward the test product; overall opinion and perceived nutritional value (measured on seven-point hedonic scales), and purchase interest (measured on an eleven-point purchase probability scale). Thus, differences attributed to the manipulation of the NAM and NIL factors could be measured by examining the attitudinal dependent variables between experimental treatments as all other design aspects remained constant.

Subjects

The research was conducted among 135 adult women in a medium-size, mid-Atlantic city. While family member roles are changing, data developed by Haley and Overholser (8) indicate that adult women are still the most important segment of consumers for food purchase decisions. Ss were recruited at two large shopping malls and the test was administered in a central location in the mall. Ss were randomly assigned to one of the nine experimental conditions with 15 Ss per cell.

Experimental Procedure

After agreeing to participate in the research, Ss were given a portfolio to examine which contained ten newspaper advertisements. One of the advertisements was a test ad which promoted the nutrition labeling information program. The other nine advertisements contained promotional messages for a wide variety of products and services. The objective was to briefly expose Ss to messages about nutrition labeling (as the FDA planned to do in launching the program), thereby extending the external validity of the experiment. Since the FDA ads would not be viewed in isolation, a competitive advertising environment was created for the research. As mentioned earlier, the experiment was designed to permit multiple message exposures among some Ss. Specifically, some Ss viewed one portfolio (low exposure level), while others viewed two portfolios (medium exposure level) or three portfolios (high exposure level). Table 2 describes the message content of the advertising portfolios. A short, dummy questionnaire was distributed to Ss after the portfolio(s) were examined.

After a short break, Ss were given an unfamiliar packaged food product to briefly examine. The package displayed typical types of objective product information

TABLE 2

PORTFOLIO COMPOSITION

Advertisements	Message Class
1	Cigarettes
2	Bread Products
3	Automobiles
4	Vegetables
5	Test Ads
6	Spirits
7	Milk Products
8	Jewelry
9	Car Rental
10	Other Foods

(ingredients list, price, weight, etc.) in addition to various promotional elements (brand name, usage suggestions, etc.). Among the various design elements was a panel containing nutrition information. Some of the Ss examined a product with a low level of nutrition information (5 items), while others examined an identical product with a medium level of nutrition information (14 items), or a high level of nutrition information (19 items).

On the basis of a consumer pilot test with 15 women, a product judged to be moderately low with respect to its nutrition value, was selected as the test product. The author wished to see if manipulation of the experimenral variables would have any impact on the way people judged a product not noted for its nutritional benefit. In other words, would consumers attitudes toward such a product be likely to change by merely introducing the experimental variables? An unfamiliar seven-ounce box of vanilla wafers, with a fictitious brand name, was used as the product stimulus.

Analysis

The data were analyzed through use of both univariate and multivariate analysis of variance. Multivariate analysis of variance (MANOVA) is a generalization of the classical ANOVA model to cases in which more than one dependent variable is involved. A univariate analysis, one which examines the mean values of each response variable separately, ignores the intercorrelations among the three response variables.

The MANOVA results, which are shown in Table 3, indicates that the response centroids for the nine experimental groups were indeed different at the.0.5 level of significance. However, the NIL factor (nutrition information level) was not statistically significant

TABLE 3
MANOVA RESULTS

	F Value	Degrees of Freedom	Significance of F
Nutrition Advertising Message (NAM)	2.477	248	.024
Nutrition Information Level (NIL)	.849	248	.533
NMA x NIL Interaction	1.444	328.365	.144

across the set of criterion variables. The differences in response centroids appear to be attributed to the NAM factor (nutrition advertisng message). In other words, exposure to messages about nutrition labeling had a real influence on consumer attitudes toward the product stimulus. The effects due to interaction (NAM x NIL) were found not to be statistically significant.

Table 4 describes the results of the univariate ANOVAs which examined differences between treatments for each criterion variable considered separately. The univariabe ANOVAs provide a check for stability of the MANOVA findings as well as a procedure for examining test group differences more closely. First, the response variable overall opinion was examined separately and the analysis revealed a statistically-significant main effect for NAM while the NIL and NAM x NIL effects were not significant. The same general pattern was found for the next dependent variable, purchase probability--the only statistically significant effect was attributed to NAM. The ANOVA results for the last dependent measure, perceived nutrition value were slightly different. As shown in Table 4, there was a statistically-significant interaction effect in addition to the significance of the NAM factor (again, NIL was not significant).

Since manipulation of the NAM variable produced statistically significant differences on each dependent variable, the author proceeded to determine the nature and direction of the differences. This was done by simply plotting the mean values of the dependent variables at the various NAM levels. The results are displayed in Figure 1 (overall opinion), Figure 2 (purchase probability), and Figure 3 (perceived nutrition value). As clearly shown, the relationship was a negative one for each dependent variable. As the number of messages went up, Ss' attitudes toward the test product went down.

Discussion of the Findings

Based on these results, H_1 was rejected and H_2 was not rejected. In other words, consumers' attitudes toward a food product were not influenced by the amount of information provided on the label. Ss' attitudes toward the test product remained fairly even although the level of nutrition information increased. The findings suggest, however, that consumers' attitudes toward food products may change if they are exposed to promotional messages about nutrition labeling. Ss downgraded the test product (which initially was perceived to be low in nutrition value) when advertising messages about nutrition labeling were provided. Thus, repeated

TABLE 4
UNIVARIATE ANOVA RESULTS

	Sum of Squares	df	Mean Square	F ratio	Significance
Overall Opinion:					
Main Effects					
Advertising Level	19.600	2	9.800	6.352	.003
Nutrition Level	1.378	2	.689	.447	.999
Interaction Effect	1.556	4	.389	.252	.999
Error	194.400	126	1.543		
Total	216.933	134	1.619		
Purchase Probability:					
Main Effects					
Advertising Level	63.348	2	31.674	3.760	.025
Nutrition Level	15.348	2	7.674	.911	.999
Interaction Effect	27.141	4	6.785	.805	.999
Error	1061.467	126	8.424		
Total	1167.304	134	8.711		
Perceived Nutrition Value:					
Main Effects					
Advertising Level	15.126	2	7.563	3.053	.049
Nutrition Level	1.348	2	.674	.272	.999
Interaction Effect	25.274	4	6.319	2.551	.042
Error	312.133	126	2.477		
Total	353.881	134	2.641		

FIGURE 1
MEAN VALUES FOR OVERALL RATING VARIABLE AT THREE ADVERTISING LEVELS

FIGURE 2
MEAN VALUES FOR PURCHASE PROBABILITY VARIABLE AT THREE ADVERTISING LEVELS

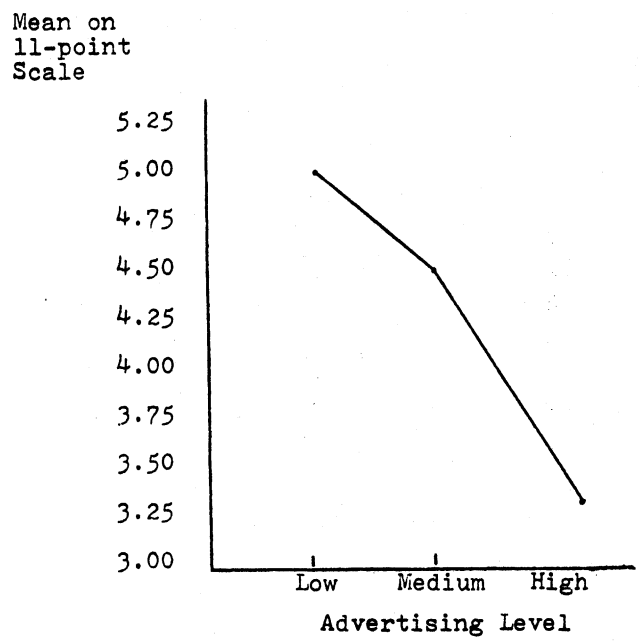
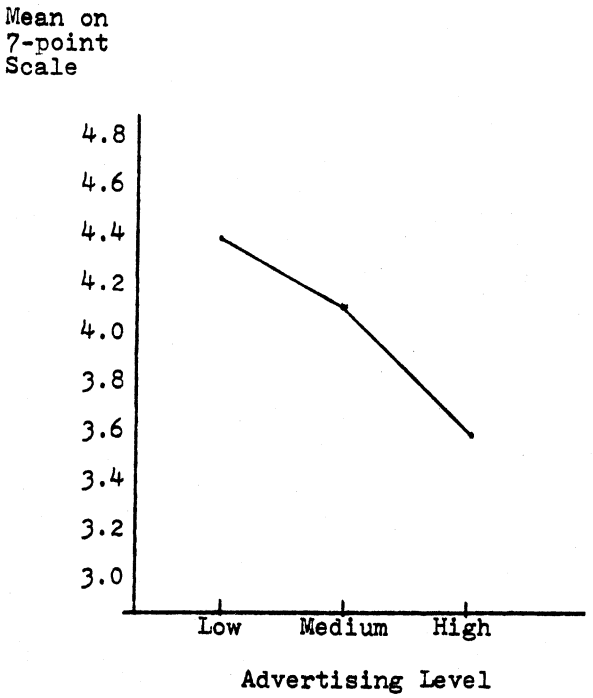


FIGURE 3
MEAN VALUE FOR PERCEIVED NUTRITION VARIABLE AT THREE ADVERTISING LEVELS



exposure to promotional messages about nutrition labeling (by the FDA or other authoritative sources) may have the desirable result of making people conscious of the nutrition value of packaged food products. Further research with other classes of food products and other types of product information is needed to confirm these relationships.

As with other forms of consumer research, it is importtant to recognize the limitations of measuring individual attitudes via a highly-structured research environment. Attitudes are mental states which are often difficult to assess precisely. Additionally, the experiment was conducted in a central location under controlled conditions. Under normal circumstances, it is doubtful that the product stimuli would have received such close attention from consumers. However, these limitations prevailed equally across all treatments and should not have affected the overall comparative results.

Conclusions and Implications

This research was designed to provide an indirect measure of consumer reaction to the nutrition labeling program while avoiding attitude overstatement, which often results from direct questioning. Although earlier consumer research indicated a high level of interest in nutrition labeling, this experiment showed a low level of consumer involvement. However, the research also demonstrated that it may be possible to stimulate consumer involvement by introducing promotional messages which deal with the concept of nutrition labeling. Thus, to increase the adoption of new forms of product information by consumers, public policy officials should strongly consider promotional activities. In other words, it does not seem to be enough to just

provide the information, additional steps are necessary to encourage consumers to utilize the information. Adoption may also be facilitated by discovering better ways to communicate the information while simplfying the information processing task.

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