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Providing Calorie Information on Fast-Food Restaurant Menu Boards: Consumer Views

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Abstract

Purpose—To gather consumer input about approaches to providing energy composition information for foods on fast-food restaurant menus.

Design—We asked a subset of individuals ($n = 150$) in an experimental study about the influence of nutrition labeling on fast-food meal choices to evaluate calorie information on mock fast-food menus in various formats.

Setting—Three community sites in the Minneapolis-St. Paul, Minnesota, metropolitan area.

Subjects—Adolescents and adults who ate fast food at least once per week were recruited.

Measures—Via a series of open- and close-ended questions, participants gave feedback about several formats for providing energy composition information for foods on fast-food restaurant menus.

Analysis—Means and frequencies were calculated, and χ^2 tests were conducted.

Results—When asked to compare a menu that provided calorie information for each menu item with a menu that provided the number of minutes of running that would be required to burn the calories contained in each menu item, 71.0% of participants preferred the calorie information over the physical activity information. Participants also compared two approaches to providing caloric reference information on the menu (average daily calorie needs per day vs. per meal), and 61.3% preferred the calorie needs-per-meal format.

Conclusion—Our results may be useful in designing approaches to providing energy composition information for foods on fast-food restaurant menus.

Keywords

Nutrition Labeling; Fast-Food Restaurants; Calorie Information; Prevention Research

PURPOSE

In recognition of the importance that meals eaten away from home have on energy intake, a myriad of strategies have been proposed to promote more healthful food choices when eating

out.¹⁻⁴ A key recommendation is to increase the availability of nutrition information for foods eaten and prepared away from home. More specifically, it has been suggested that restaurants be required to provide quantitative nutrition information (e.g., calories) on their menu boards or on product packaging. Nationwide, two cities and one county have passed legislation mandating this type of labeling.⁵

At this time, it is unclear what type of nutrition labeling format may be most useful in informing consumer food purchase decisions in a restaurant context. To date, only a few studies⁶⁻⁹ have been conducted to evaluate labeling formats for restaurant menu items. Therefore, this research sought consumer input about different approaches to providing energy information for foods on restaurant menu boards.

METHODS

Study Design

The data reported in this study were collected as part of an experimental trial conducted to evaluate whether provision of calorie information on a fast-food restaurant menu would influence food choices and whether the elimination of value pricing (pricing larger-sized food items at a lower price per ounce than smaller-sized food items) would lead to selection of a lower-calorie meal. To address these research questions, adolescents and adults who eat regularly at fast-food restaurants were recruited. Participation involved, among other things, purchasing a dinner meal from one of four randomly assigned fast-food restaurant menus. These menus varied with respect to whether calorie information was provided for menu items and whether value pricing was in place for foods with more than one portion-size option. Participants assigned to the control menu condition (no calorie labeling and usual food pricing) were asked to provide input on several sample menu boards that presented energy composition information for menu items in various formats. Results from this component of the study are reported herein.

Sample

Participants were recruited from suburban and urban communities in the Minneapolis-St. Paul, Minnesota, metropolitan area through advertisements in the community and in high schools. A \$25 discount store gift card was offered as an incentive. Those who called the recruitment telephone number were screened and for study eligibility had to (1) be 16 years or older, (2) eat at fast-food restaurants at least once a week, and (3) be able to read and speak English. Those eligible were told that participation would involve a 2-hour evening session at which they would purchase a fast-food restaurant meal for their dinner and complete questionnaires and an interview. Participants were blinded to the true intent of the study and were told that the purpose was to learn more about fast-food meal choices. Interested participants were scheduled for a study session, with no more than 30 scheduled per session. The University of Minnesota Institutional Review Board approved the study procedures.

Measures

Study sessions were held between October 2005 and April 2006 in community locations (church meeting room and hotel conference rooms) in one urban and two suburban communities. On arrival at a study session, participants were administered a brief questionnaire and were asked to order their dinner from the study menu to which they were randomized. The meal was then purchased at a nearby McDonald's restaurant and was brought to each participant. After the meal was eaten, each participant was interviewed by a trained staff person (RF). During this one-on-one interview, nutrition knowledge and beliefs and, due to time constraints, self-report height and weight were collected. During this interview, participants randomized to the control menu were asked an additional set of questions regarding three

different sample menu boards that provided energy composition information in varying formats.

Sample Menu Boards

The first two sample menu boards shown to each participant randomized to the control menu included a calories column (labeled as “cal”), which listed the calorie content for each food item on the menu. The first menu board included a “Calories Count” box that contained information on the calorie needs per day for the average adult man and woman (Figure 1). The second menu board also included a “Calories Count” box but provided the calorie needs per meal for the average adult man and woman. The third menu board included a minute column (labeled as “min”). This column was defined in a “Time to Burn” box, which stated that “This is the number of minutes you would have to run in order to burn off the calories that are contained in this food item.” This labeling format was evaluated because we hypothesized that it may be a relevant and an easily understandable approach to conveying the energy content of foods. Minutes were calculated by dividing the calorie content of each food item by 9.4 kcal/min, our estimate of the energy expended per minute of running. This estimate was calculated based on the assumptions that the ratio of work metabolic rate to standard resting metabolic rate (MET) for running is 9 MET and that the resting energy expenditure is 1.04 kcal/minute.

To gather input on the sample menu boards, participants were shown each one at a time. They were asked a series of open and close-ended questions by a trained interviewer (RF).

Statistical Analysis

One-hundred fifty participants were randomized to the control menu and were asked to evaluate the three menu-labeling formats. The analyses reported herein are restricted to these participants. Descriptive statistics (means and frequencies) were used to summarize results. Chi-square tests were conducted to evaluate whether responses varied by demographic characteristics. For questions with open-ended responses, the lead author (RF) reviewed all answers and identified common themes. Two authors (RF,LH) then separately coded responses into these themes, with recoding conducted as needed to achieve acceptable interrater reliability ($\geq 85\%$ agreement) for each question. Statistical analyses were conducted using SAS version 9.0 (SAS Institute, Cary, North Carolina) and Microsoft Excel version 10.0 (Microsoft Corporation, Redmond, Washington).

RESULTS

Sample Characteristics

Fifty-nine percent of participants were female, and 76.0% were white. Approximately one-quarter were 16 to 25 years of age, 40.0% were 26 to 40 years of age, and 33.0% were older than 40 years. One-third had a college degree or higher, while one-fourth had a high school degree or less. Fifty-eight percent were classified as overweight or obese.

Menu Boards With Calorie Information

When asked what the “cal” column represented on the menu boards with calorie information, almost all participants indicated that it represented calories, with only a few responding with an alternative answer. Most participants (60.7%) stated that the calorie needs–per-day information was very useful or useful. Similarly, 58.0% of participants stated that the calorie–needs per-meal information was very useful or useful. Almost two-thirds (61.3%) indicated that the calorie needs–per-meal information was preferred over the calorie needs–per-day reference. No significant demographic differences in this response were observed (Table 1).

Most of the reasons for preferring the calorie needs–per-meal information related to the immediacy of this information or to a dislike of calorie counting. Participants stated that they favored this format because it did not require counting across meals. Many of those who preferred calorie needs–per-day information said that they liked having the “bigger picture” so they could keep track of consumption throughout the day. Some participants said that they did not like the calorie needs–per-meal information because it did not take into account the number and size of meals eaten and was deceiving or inaccurate.

Most participants (79.2%) stated that they would use calorie information if it was provided on the menu boards of fast-food restaurants at which they ate. Those who were 35 years or older, female, and overweight or obese were more likely to respond affirmatively to such use ($p < .05$) (Table 1).

Menu Board With Physical Activity Information

Most participants indicated that the “min” column on the third menu board represented minutes, with a few stating that they did not know or thought it meant minimum. When asked which would be more useful to them, providing calorie information as shown on the first two menu boards or providing physical activity information, 71.0% chose calorie information. Older and overweight or obese participants were more likely to prefer calorie information ($p < .05$) (Table 1). Many of those who preferred calorie information viewed the physical activity information as discouraging, a scare tactic, or not generalizable to everyone. Some thought that the calorie information was easier to relate to and was better for improving health.

Various reasons were given by the few who preferred physical activity information. Some thought that the information made more sense and was more self-explanatory. Other participants stated that physical activity information was more relevant to them because they lead an active lifestyle or because they dislike calorie counting. A few thought that it was more eye-catching.

An overarching concept that emerged was that the physical activity information tended to be viewed as a physical activity recommendation rather than as a food selection guide. For example, some indicated that the information was irrelevant to them because they could not run owing to physical disabilities, and a few participants noted that the information would motivate them to exercise.

DISCUSSION

Summary

Previous research has found that many adults do not know the number of calories they need each day.¹⁰ Consequently, it is not surprising that most participants indicated that the “Calories Count” boxes on the sample menu boards were useful. Most preferred the calorie needs–per-meal information over the calorie needs–per-day reference information, explaining that it was easier to use.

More than three-quarters of participants stated that they would use calorie information if it was provided at fast-food restaurants where they ate. This percentage is higher than the rates found in two telephone surveys conducted in Vermont in 2004, in which 44% to 57% reported that they would not use food calorie information in restaurants if it was available.¹⁰ The discrepancy between these results and ours may include methodological and participant demographic differences.

To our knowledge, this study is the first to evaluate provision of physical activity information (minutes running) as a measure of energy composition of foods on a restaurant menu. Results

suggest that physical activity information is less preferred than calorie information. The physical activity information, although likely to attract attention, was viewed negatively by many participants. Furthermore, it was not clear whether the physical activity information was seen as a tool for making food choices. Rather, it seemed that some viewed it as a dictate to exercise the number of minutes specified.

Limitations and Significance

Limitations of the study include the use of a convenience sample drawn from one metropolitan area. Consequently, the representativeness of the sample and the generalizability of results may be limited. Possible order effects regarding the three sample menu boards and social desirability bias in self-report may have affected participant responses. Nonetheless, results from this study may be useful in determining an optimal approach to providing energy composition information on restaurant menu boards.

Acknowledgments

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Figure 1.
Reference Boxes Included in the Bottom Right-Hand Corner of Each Sample Fast-Food Menu Board That Included Food Items, Calories (Menu Boards One and Two) or Minutes Running (Menu Board Three), and Price

Table 1

Opinions Regarding Various Formats for Providing Calorie Information Illustrated on Sample Fast-Food Menu Boards Among 150 Individuals by Demographic Characteristics, Weight Status, and Fast-Food Intake*

Variable	Usefulness (Very Useful or Useful) of Calorie Needs-per-day Information (n = 91), No. (%)	Usefulness (Very Useful or Useful) of Calorie Needs-per-meal Information (n = 87), No. (%)	Calorie Needs-per-day Information Preferred Over Calorie Needs-per-meal Information (n = 55), No. (%)	Would Use Calorie Information if Provided on Menu Boards (n = 118), No. (%)	Prefer Calorie Information Over Physical Activity Information (n = 105), No. (%)
Age, y					
<35	24 (44.4)	27 (50.0)	16 (30.8)	36 (66.7)	31 (57.4)
≥35	67 (69.8)	60 (62.5)	39 (43.3)	82 (86.3)	74 (78.7)
<i>p</i>	0.002	0.14	0.14	0.005	0.006
Sex					
Male	36 (59.0)	37 (60.7)	18 (32.7)	40 (65.6)	41 (68.3)
Female	55 (61.8)	50 (56.2)	37 (42.5)	78 (88.6)	64 (72.7)
<i>p</i>	0.73	0.59	0.24	0.0006	0.56
Race/ethnicity					
White	68 (59.7)	68 (59.7)	46 (42.6)	94 (82.5)	86 (76.8)
Nonwhite	23 (63.9)	19 (52.8)	9 (26.5)	24 (68.6)	19 (52.8)
<i>p</i>	0.65	0.47	0.09	0.08	0.06
Education level [†]					
Some college or less	49 (65.3)	44 (58.7)	26 (37.7)	56 (75.7)	48 (64.9)
College graduate	42 (56.8)	42 (56.8)	29 (40.3)	61 (82.4)	56 (76.7)
<i>p</i>	0.28	0.81	0.75	0.31	0.11
Body weight [‡]					
Normal weight	35 (56.5)	32 (51.6)	21 (37.5)	43 (70.5)	36 (59.0)
Overweight or obese	54 (62.8)	53 (61.6)	33 (39.3)	73 (84.9)	68 (80.0)
<i>p</i>	0.44	0.22	0.83	0.04	0.006
Fast-food frequency, times/wk					
<4	48 (62.3)	49 (63.6)	25 (33.3)	64 (83.1)	57 (76.0)
≥4	43 (58.9)	38 (52.1)	30 (44.8)	54 (75.0)	48 (65.8)
<i>p</i>	0.67	0.15	0.16	0.22	0.17

* *p* values were calculated using χ^2 analyses. Some numbers do not add up to column totals because of missing responses.

⁷For those 16 to 18 years of age, parental highest education level is reported.

⁸For those 16 to 18 years of age, body mass index for age less than 85% is classified as normal weight, 85% to 94% as overweight, and 95% or greater as obese. For those 19 years or older, body mass index lower than 25 is classified as normal weight, 25 to 29.9 as overweight, and 30 or higher as obese.