



# Nutritional information disclosure on the menu: Focusing on the roles of menu context, nutritional knowledge and motivation

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## ARTICLE INFO

### Keywords:

Nutritional information  
Menu context  
Nutritional knowledge  
Motivation to process nutritional information

## ABSTRACT

As menu labeling legislation that requires nutritional information on restaurant menus becomes increasingly prevalent, it is controversial whether the provision of nutritional information promotes consumers to select healthy items. This study aims to examine the extent to which the nutritional information presented on menus influences consumer food evaluation and choice in restaurant patronage. We also investigate the effect of menu context and individual characteristics, such as nutritional knowledge and motivation to process, on consumers' information processing. A computer-based experiment was conducted to collect data. The results show significant effects of the presence of nutritional information and the menu context, which is the healthiness of other alternatives on the menu, on consumer food decision. Consumer motivation to process the provided nutritional information significantly moderates the effect of nutritional information disclosure. These results present valuable implications for restaurateurs and policy makers interested in the effect of menu labeling.

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## 1. Introduction

Americans are gaining weight. Almost half of American adults were diagnosed as overweight or obese in the 1970s and by 2004, this proportion increased to more than two-thirds. The growing rate of obesity has received significant attention in recent years because obesity is one of the critical causes of several public health problems (Center for Disease and Control Prevention, 2007). One of the most recent concerns is how the food industry is contributing to the problem of obesity and related health problems; the increased consumption of food away from home, which often contains high calories and high fat content, may be exacerbating the problem. Foodservice companies are believed to be contributors to the growing rate of obesity, and have been accordingly imposed fines and restrictions, as well as threatened with legislation (Wansink and Chandon, 2006). Thus, food companies and legislators have sought to jointly combat this problem; not only are food companies making an effort to develop and provide more healthful options (Pizam, 2011), but the U.S. government has also encouraged consumers to purchase healthful foods and proposed the law referred to as The Menu Education and Labeling (MEAL) Act for restaurants.

The MEAL Act requires restaurants to provide nutritional information, such as the total number of calories and amount of saturated fat, trans fat, carbohydrates, and sodium in menu items (Cranage et al., 2004). This law aims to increase consumers' use of nutritional information, and help them choose healthier foods on the basis of the provided information (Burton and Andrews, 1996). This approach is supported by several previous studies, which show that food healthiness is one of the important components considered by consumers when making food choices, and that consumers are more likely to purchase healthful foods when nutritional information is provided on the menu (Burton and Creyer, 2004; Hwang and Lorenzen, 2008; Stubenitsky et al., 2007). Thus, it seems clear that providing nutritional information has a positive effect on healthy eating behavior.

However, the MEAL laws enacted by different cities or states stipulate different levels of nutritional information to be disclosed, depending on the size or type of restaurant. For example, New York City requires restaurant chains with 15 or more branches to list only the total number of calories on menus, whereas the Philadelphia City Council requires restaurants to present information on four different nutrients in addition to total calorie content (Nation's Restaurant News, 2008). No evidence or explanation has been provided as to why each of the regulations requires different levels of nutritional information, and how varying information levels influence consumer food choices.

Additionally, other studies have indicated that providing nutritional information on menus has no effect on information use, food

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evaluation, or food choices in a restaurant setting (Droms, 2006; Stubenitsky et al., 2007). The lack of effect was attributed to the fact that people consider eating out where they are allowed to eat any food, regardless of health (Stubenitsky et al., 2007). Droms (2006) also suggested that people consider other important and influential components aside from health benefits; these factors include the taste of food or individual food preferences. Moreover, awareness and use of presented nutritional information may be influenced by consumers' individual characteristics, such as motivation to perform healthy behavior, health consciousness, nutritional knowledge, and health status (Moorman, 1990).

Thus, this study focuses on what level of nutritional information can best promote healthful food choices in a restaurant setting, and which individual characteristics can encourage consumers to process nutritional information and select healthier foods at a restaurant. More specifically, we seek to determine the moderating effects of factors such as nutritional menu context, motivation to process nutritional information, and nutritional knowledge.

## 2. Literature review

### 2.1. Influence of providing nutritional information on consumers' menu choices

Studies on consumer menu choices have recently been conducted in a restaurant setting (Burton et al., 2006; Cranage et al., 2004; Hwang and Lorenzen, 2008; Roberto et al., 2010). According to the survey of Burton et al. (2006), consumers are unaware of the exact levels of nutrients in foods offered in restaurants and tend to underestimate the content of nutrients such as calories, fat, and sodium. The results are even worse for unhealthy items such as the chef's salad and hamburger with fries. However, consumers are more likely to select a healthier item and their purchase intention for unhealthy items decreases when nutritional information is provided on the menu. Additionally, the provision of nutritional information helps consumers more accurately evaluate the nutrients in menu items. Consistent findings are shown in similar studies.

Nutritional information disclosure at the point of purchase increases customer satisfaction with food quality and future purchase intention in a campus cafeteria (Cranage et al., 2004). In addition, consumers are willing to select more healthful items and are more responsible in their choices after exposure to nutritional information.

Hwang and Lorenzen (2008) indicated that as more nutritional information is added, the more strongly consumers feel that the provided nutritional information is helpful and credible. The authors also found that consumers have a more unfavorable nutritional attitude, as well as a more negative overall food attitude, when nutritional information is provided.

Recent research demonstrated a positive effect of calorie labels on consumer food choices and intake; this effect increases with the addition of a recommended daily calorie requirement (Roberto et al., 2010).

In conclusion, previous studies have demonstrated that providing nutritional information on menus influences consumer food evaluation and choice. On the basis of literature reviewed, the following hypothesis is proposed:

**H1.** The presence of nutritional information on menus significantly influences consumer decision making, especially their *nutritional perception, overall food evaluation, and purchase intention*.

### 2.2. Influence of nutritional menu context on consumers' menu choices

Evidence shows that consumer preferences and product choices are affected by choice context (Dhar et al., 1999; Simonson and Tversky, 1992). In comparing the utilities or subjective values associated with each alternative, consumers tend to choose the alternative with the highest utility or subjective value. In analyzing consumer choice, therefore, it is important to determine not only which products are in the choice set, but also which act as alternatives. For instance, consumers are more likely to choose a product in a context consisting of alternatives with unique good features than in a context consisting of alternatives with unique bad features (Dhar et al., 1999). Furthermore, when consumers perceive that the nutritional values of the available options are similar, they are more likely to search for additional information to distinguish between the products; this search behavior influences product evaluation and decision behavior (Balasubramanian and Cole, 2002). However, since the enactment of the Nutrition Labeling and Education Act, the intensity of information search has decreased with increasing similarity in nutrition across brands. As a result, the nature of the context effect on food choices when nutritional information is provided requires further investigation; thus far, only a few studies have been carried out in a restaurant setting (Burton and Creyer, 2004; Kozup et al., 2003).

Kozup et al. (2003) found that the nutritional context of alternative menu items has a significant effect on attitude toward a menu item and purchase intention. Specifically, the nutritional context significantly moderates the effects of health claims and nutritional information on consumer attitudes toward a menu item. Therefore, healthy information about a target item has a less pronounced effect on consumer attitude toward that item and its nutritional value when the nutrient contents of non-target items are healthy than when they are unhealthy. To identify and examine the nutritional context effect, Burton and Creyer (2004) built upon the experiment conducted by Kozup et al. (2003). Compared with the attitude toward non-target menu items, that toward target items and purchase intention for the target item is positive when nutritional information is offered. Significant interaction effects between nutritional information and nutritional context occur on overall food attitude and purchase intention for a target menu item. The study also shows that the nutritional levels of other options on the menu should be considered as important as the provision of nutritional information on the item itself.

Thus, the nutritional levels of alternatives in a menu context have significant impact on food evaluation, and moderate the effects of nutritional information on the item itself. Using previous literature as basis, we put forward the hypotheses:

**H2.** Nutritional menu context significantly influences consumer decision making, especially their *nutritional perception, overall food evaluation, and purchase intention*.

**H3.** Nutritional menu context significantly moderates the effect of nutritional information disclosure on *consumers' nutritional perception, overall food evaluation, and purchase intention*.

### 2.3. Roles of nutritional knowledge and motivation to process nutritional information

Nutritional knowledge and the motivation to engage in healthy behaviors are the other critical factors that have been examined in a number of studies that focus on healthy eating behavior and food choice (Moorman et al., 2004; Moorman and Matulich, 1993; Wardle et al., 2000).

Nutritional knowledge refers to the ability to accurately use nutritional and health information (Moorman, 1993). In particular,

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