Article

# Guilt and the Consumption of Products with an Unhealthy Image

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**Abstract:** This study has investigated the effect of nutrition labeling on consumer guilt, in situations where consumers ingest products that have an unhealthy image. The first investigation has examined the effects of types of nutrition labeling (adding healthy ingredients/reducing unhealthy ingredients). The second investigation has examined the influence of two goal-activation types(utilitarian and hedonic) and nutrition labeling on consumer guilt. The findings reveal that the utilitarian-goal-activation group felt less guilty about consuming a product with a reduced unhealthy ingredient than they did about consuming a product with an added healthy ingredient. In addition, there were interactions between the two variables, since consumer goal activation had more effect on consumer guilt about products with reduced unhealthy ingredients than on products with added healthy ingredients. Based on these results, the academic and practical implications of the present study are discussed. and proposes several directions for future research.

**Keywords:** Product with an healthey/unhealthy image, Guilt, Nutrition labeling, Goal activation, Food-cue effects

## 1. Introduction

Guilt has played a critical role of mediating or moderating consumer choice [1–5] and consumer purchase intention [6–8]. In recent years, such studies have gradually changed to focus more on the psychological basis of guilt. Guilt can be categorized as a negative emotion; the guilt induced by consumption situations can limit consumer decision-making [6–7,9]. Early researches have suggested ways of reducing guilt through personal effort, through self-control, maintaining emotional balance during specific actions, charity work, and various clues provided at the moment of purchase. Among various ways of reducing consumer guilt, studies of company-provided food cues mainly relate to food packaging [10–13]. These cues include highlighting the nutrition labels displayed on products [14–16,5], adjusting the price and composition of products [17], and providing additional clues[18], such as nutrition information [19].

The literature has gradually expanded to include research that predicts consumer behavior in response to provided food cues [20,15], the positive or negative effects of nutritional product information [21], and consumer reactions to various types of nutrition labeling [15,16,20,22]. However, very few studies have explored either the shift in consumer guilt in various consumption situations or the limitations caused by inconsistent findings on the direction of nutritional information. This research aims to fill this gap by investigating changes in consumer guilt caused by product-nutrition labeling and consumption-related goal activation, focusing on foods with an unhealthy image, such as instant and fast foods.

This paper presents three studies based on the theoretical background and logic needed to establish hypotheses, and presents a research methodology and results that verify those hypotheses.

To be specific, this study aims to verify the effect of consumer guilt by labeling product ingredients in situations where unhealthy-image products are ingested (Study 1). Next, given that consumer characteristics change, depending on the situation, Study 2 investigates the goal activation associated with ingesting unhealthy-image products and the guilt caused by product-nutrition labeling, based on Study 1 (Study 2) . Lastly, consumer guilt is studied in situations that create anxiety about food, based on Study 2 (Study 3). Finally, it concludes by reviewing various theoretical and practical implications based on the research results.

## 2. Literature review Materials and Methods

### 2.1. Food-cue effects

The product-attribute cues influencing consumer product evaluations can be divided into two main categories: extrinsic and intrinsic cues. Intrinsic cues present the physical characteristics or functions of the product itself, while extrinsic cues include product origins, advertisements, price, brand names, and other information attached to the product [23]. Most consumers tend to evaluate products based more on extrinsic than intrinsic cues [24]. As consumers have become more interested in health, ancillary food labeling related to food origins and unhealthy ingredients, and labelling related to nutrition and organic processing, have become important factors influencing consumer-purchasing decisions [26].

Previous studies of food cues have investigated consumer perceptions of the size and shape of food packaging[4,10,12,27]. Coelho do Vale et al. (2008)[11] and Scott et al. (2008)[12] examined the association between food consumption and packaging size (food in small vs. large containers). The findings showed that food consumption increased when the same product quantity was presented in several smaller containers, rather than one large container. This result was explained as consumers becoming sensitive to their own consumption when considering a large amount of food in one container; small containers decreased sensitivity, increasing consumption.

Research has also been conducted on consumer evaluations of product-nutrition labels, moving beyond the shape and image of food packaging[14–16,26]. For example, consumers assessed products with “organic” labeling as low in calories and high in nutrition [15]; similarly, “low-fat” labeling made consumers perceive fewer calories, somewhat increasing food intake [14]. Donato et al. (2021)[26]have examined consumer perceptions by highlighting the positive and negative attributes of hotdogs, an unhealthy food. When their positive attributes were highlighted, health concepts became more accessible to consumers. As these results show, food-related cues play a decisive role in consumers’ product judgments and emotions.

### *2.2. Guilt*

Guilt is the emotion we feel when a moral, social, or ethical principle is violated[28]; it entails a process of psychological regret, along with a “guilty conscience” associated with the knowledge of having done something wrong [29,30]. Guilt arising from consumption situations has become a critical factor influencing consumer decision-making [31-34]. This pattern can lead to a reversal of existing preferences in selection situations [3,35]. Among many previous studies, early research from Okada (2005)[3] , which investigated consumers' choice of grocery gift cards and dinner gift certificates. When two alternatives were presented separately, consumers attributed higher value to dinner gift certificates than to grocery gift cards. Consumer guilt was found to cause a reversal of preference, when both alternatives were presented at the same time. In other words, the purpose of consumption caused guilt-inducing emotion in consumers seeking hedonic value in consumption situations, even though they were choosing between the same products [31,33].

Consumers also felt guilty when consuming products with hedonic attributes[36,37]. The psychological basis for this guilt was the perception that it was more difficult to “justify” the consumption of products with hedonic attributes or a hedonic purpose than the consumption of products with a utilitarian attribute or purpose [36]. While early studies of guilt focused on

guilt-inducing factors, such as the purpose of products and consumption, most recent studies have focused on ways to reduce guilt during the decision-making and consumption processes[4,6,38]. Khan and Dhar (2006)[6] showed that a group engaging in moral behavior intended to purchase more luxury goods than a group that was not. This suggests a "licensing effect," which permits the purchase of hedonic products or the intake of high-calorie foods after good actions, such as charity activities. The positive self-esteem caused by altruistic behavior allows for hedonic consumption.

Mullen and Monin (2016)[4] have argued that people who have engaged in deviant behaviors in the past tend to undertake more reward-related behaviors (doing good things) in the present. Similarly, those who have done good things try to maintain their psychological balance by engaging in deviant behaviors. According to Oh et al. (2014)[9], when a subject has engaged in moral behavior, such as making a donation, his or her intention to purchase unhealthy food is higher than that of an individual who has engaged in immoral behavior. Related studies have researched ways of resolving guilt through both personal initiative and active corporate involvement.

## 3. Develping Hypotheses

### 3.1. Guilt in response to product-nutrition labeling

Prior research on eating and guilt has generally shown that guilt controls or mediates consumption; it has not attempted to mitigate guilt directly. To date, there are insufficient studies on the direct association between product-nutrition labeling and guilt. However, the impact of guilt on directions in product-nutrition labeling can be inferred from existing advertising messages and product clues. The present study deduces the presence of guilt when products or industries cause negative emotions. This occurs when products are considered unhealthy and viewed negatively.

First, a review of the literature on the positive and negative message-framing effect of advertising messages has uncovered studies of advertisements designed to make people stop smoking. These studies found that positive framing was effective for anti-smoking advertising targeting tobacco companies, while negative framing had a positive effect on the intention to stop smoking [39]. Sundar et al. (2021)[40] classified nutritional information on fast-food menus as preferred and non-preferred foods; this investigation of purchase intentions and attitudes showed that purchase intention was stronger when preferred nutritional information was presented than when non-preferred nutritional information was presented. Although it is somewhat difficult to elicit consistent results according to message direction through such studies, it is meaningful to investigate consumer perceptions of message framing by targeting products with negative images among consumers. In addition, the degree of guilt can be inferred, based on previous research on product cues. In a study of food packaging carried out by Silayoi and Speece (2007)[9], the visual aspect of packaging was related to the emotional aspect of the consumer's decision-making process, while informational elements, such as product nutrition, were related to consumer perceptions. Consumers also apply heuristics when selecting products. Instead of considering all healthy ingredients objectively, they base their decisions on ingredients they are interested in, such as fat [41]. Mishra and Mishra (2011)[17] studied that consumers prefer discounted prices on unhealthy foods, such as chocolate, and bonus packs of foods with a healthy image, such as salads. The reason for this is that consumers can alleviate their guilt by coming up with a justifiable reason for making a particular choice.

When it comes to unhealthy food, Jiang and Lei (2014)[18] looked at cheesecake: when a healthy fruit topping was added, the cheesecake was perceived to be healthier than the equivalent cheesecake with no fruit topping. Overall, this study showed that toppings, although they constitute only a small part of food products, are used disproportionately to evaluate the general characteristics of food. Healthy toppings justify consuming food with an unhealthy image and thus reduce consumer guilt. Similarly, consumers tend to rate products positively, simply on the basis of their health-related claims [42]. Thus, claims that a food contains beneficial ingredients, such as

vitamins or calcium, can act as a cue to induce a positive response from consumers [16,40]. We therefore infer that consumer guilt can be reduced through nutrition labeling and health-related claims.

Among various studies related to nutritional claims, Garreston and Burton (2000)[43] investigated consumer product evaluations in relation to the healthy ingredients listed in nutritional claims and on labels on the back of frozen-food packaging. Their findings showed that, while differences in fat content (viewed as negative) affected nutritional attitude, brand attitude, and perception of disease risk, fiber content (viewed as positive) had no effect on product evaluation. Moreover, Kim and Yang (2010)[16] investigated the effect of the nutritional claims of two different healthy-image products on consumer product evaluations and perceptions of disease risk. Their research showed that, even when positive messaging about healthy ingredients was reinforced in products with a healthy image, the products were not considered healthier than ordinary products. By contrast, when ingredients seen as unhealthy were reduced, the products were considered healthier than ordinary products. In the case of products with an unhealthy image, adding healthy ingredients and reducing unhealthy ingredients both caused consumers to perceive the products as healthier. Thus, in the present study, based on Garreston and Burton (2000)[43] and Kim and Yang (2010)[16], consumer guilt about foods with an unhealthy image is likely to be mitigated more by reducing unhealthy ingredients than by adding healthy ingredients. Hypothesis 1 is therefore established, as follows:

Hypothesis 1. In a situation in which consumers ingest products with an unhealthy image, consumer guilt is lower for products with reduced unhealthy ingredients than for products with added healthy ingredients.

### 3.2. Guilt associated with nutrition-labeling products and goal activation

Consumers experience maximum conflict when their goals and behaviors diverge in relation to food choice [44]. When such conflicts arise, consumers must have reasonable evidence to justify their consumption [45]. Consumers provide a basis for justifying their consumption through various purposes in the purchasing situation [46]. In particular, product choice can be modified by different purposes (e.g., utilitarian or hedonic), which can affect information processing and consumer justification [47]. Most previous research on types of consumption purpose have shown that hedonic consumption causes more guilt than utilitarian consumption. In other words, consumers tend to choose an alternative that is easy to clarify, because it is easier to justify a choice in a utilitarian consumption situation than in a hedonic consumption situation [46]. This suggests that the product-choice process, carried out with utilitarian, hedonic, or other goals in mind, can affect the processing of consumer information [47]. In short, when consumers are exposed to different environmental cues, their consumption is activated by different goals. A specific stimulus activates each goal and makes choices to achieve that goal [48].

In a study related to consumer choice by goal activation, Dhar and Wertenbroch (2000)[35] found that consumers tended to prefer utilitarian products when they were focused on acquisition tasks, and hedonic products when they were focused on forfeiture-related tasks. According to Park (2005)[49], who expanded the findings of Dhar and Wertenbroch (2000)[35], the relative increase in preferring hedonic products during the forfeiture task shows that consumer guilt plays a moderating role.

We can thus infer that a product with reduced unhealthy ingredients in a utilitarian-goal-activation situation and a product with added healthy ingredients in a hedonistic-goal-activation situation will both induce less guilt. This result can be described as the "cleansing effect." If previous behavior was immoral, subsequent behavior tends to involve decisions designed to wash away the previous immoral behavior [9,50]. Consuming foods with an

unhealthy image can be understood within the same context. In light of prospect theory from Tversky and Kahneman(1991)[51], consumers also have loss aversion, reacting more sensitively to losses than to gains. They are likely to react more to negative product-related information than to positive information. We therefore propose the following hypothesis, anticipating that the consumer response to goal activation will be more pronounced in the case of unhealthy ingredients than healthy ones.

Hypothesis 2. In a situation in which unhealthy-image products are being consumed, the effect of consumer-goal activation on guilt will differ in accordance with the nutrition labeling.

Hypothesis 2-1. In a utilitarian-goal-activation situation, less consumer guilt will be induced by products with reduced unhealthy ingredients than by products with added healthy ingredients.

Hypothesis 2-2. In a hedonic-goal-activation situation, products with added healthy ingredients will induce less consumer guilt than products with reduced unhealthy ingredients.

Hypothesis 3. In a situation in which unhealthy-image products are being consumed, consumer goal activation will have more impact on guilt if the products have reduced unhealthy ingredients than if they have added healthy ingredients.

*3.3. Guilt in anxiety-provoking situations*

Taylor (1974)[52] introduced the concept of consumer anxiety, and studied the process of inducing anxiety through uncertainty related to possible outcomes in the context of choice, which led to risk perception. Sah and Yeo (2014)[22] defined consumer anxiety as an emotion, such as tension or anxiety, felt during the whole consumption process; this represents an expansion of consumer anxiety in purchasing situations proposed by Taylor (1974)[52]. Even when consumers experience the same risk, there may be individual differences in the anxiety they feel, especially when confronting uncontrollable or unknown risks [53]. In recent years, as access to information has improved, food-related anxiety and risk perception (previously not well understood) have been increasing; negative food-related emotions are likely to cause risk perception [54].

Earlier studies have attempted to clarify the hazard attributes that influence risk perception. Among these, specific hazards associated with food have been activated in the process of consumer perception, influencing food judgment [55–57]. Jun (2014)[57] has also studied consumer purchasing behavior around eco-friendly products and the consumption-satisfaction process.. The higher the consumer anxiety about food, the higher the intention to purchase eco-friendly products. Sah and Yeo (2014)[22] have investigated factors affecting anxiety, along with levels of consumer anxiety related to GM foods, unhealthy ingredients, and mad cow disease. The factors that cause anxiety are the consumer's objective and subjective knowledge, belief in the medium providing information, and risk perception. According to this study, consumers showed the highest level of anxiety about mad cow disease. The differences in anxiety perception were presented differently, depending on demographic characteristics, such as age and social and cultural background, including political orientation.

Hypothesis 4. In a situation where unhealthy-image products are being consumed, there will be no difference between a product with a healthy ingredient added and a product with an unhealthy ingredient reduced in terms of the effect of consumer goal activation on guilt, when product anxiety is increased.

## 4. Methodology

This research consisted of two experimental studies of consumer guilt associated with product-nutrition labeling and goal activation. Study 1 investigated the direct effect of

product-nutrition labeling, while Study 2 examined consumer guilt caused by product-nutrition labeling and goal activation. Study 3 expanded Study 2, investigating consumer guilt when consumer anxiety about unhealthy food increased.

### 4.1. Study1

Study 1 set out to verify the direct effect of two types of product-nutrition labeling (adding a healthy ingredient/reducing an unhealthy ingredient) in order to investigate the effect of product-nutrition labeling on consumer guilt in situations where products perceived as unhealthy were being consumed. A survey was conducted, with undergraduate and graduate college students as the subjects, to test the hypotheses. Product-nutrition labeling was separating into two groups: labeling with an added healthy ingredient and labeling with an unhealthy ingredient reduced. Appropriate stimuli were then presented. The mean difference between the product-nutrition labeling and consumption according to guilt was investigated to determine the effect of each group. Based on the pre-test, a virtual brand was used; there were 30 participants in each group experiment.

#### 4.1.1. Pre-test

We conducted a pre-test to select a product to test. It was important for the product to be: first, familiar to many people; second, considered unhealthy by many people; and third, able to have healthy ingredients added or reduced. An FGI (Focus Group Interview) was carried out with five graduate students to select ten products (pizza, chocolate, ice cream, ramen, chicken, frozen dumplings, mixed coffee, cola, hamburger, and fried food). To choose the product with the most unhealthy image, a survey of 30 undergraduate students was carried out. To gather opinions of each product, Wertenbroch's (1998)[1] study was revised to fit this study. For each food, the students rated 3 items, using a 5-point scale (1 likely to have low levels of a healthy ingredient – 5 likely to have high levels of a healthy ingredient; 1 likely to be unhealthy – 5 likely to be healthy; 1 I do not feel that this food is healthy – 5 I feel that this food is healthy). The means were derived in the following order for pizza, ramen, coke, hamburger, chocolate, ice cream, mixed coffee, fried food, frozen dumplings, and chicken. The difference between pizza and ramen, which had the highest mean values, was found to be insignificant, so a pre-test survey was conducted on these two products alone. These products were presented to 20 undergraduate students, who completed a simple questionnaire to choose the product with the more unhealthy image; 7 students chose pizza and 13 chose ramen. Ramen was therefore selected as the product with the most unhealthy image; instant cup noodles had the least healthy image among various ramen products. As the next section involved food-nutrition labeling, ingredients were collected from the website of the ramen company; they included protein, carbohydrate, fat, trans fat, saturated fat, cholesterol, calcium, sodium, sugar, and dietary fiber. Just as in the product-selection process, five graduate students were allowed to freely discuss the ingredients that should be added or reduced to improve the healthiness of instant ramen, regardless of taste or flavor, as in the FGI method. After some discussion, dietary fiber was selected as the best healthy ingredient to add to ramen, and sodium was selected as the ingredient to reduce, given the nature of ramen and the need to properly harmonize any changes.

#### 4.1.2. Main Study

For Study 1, two cup-noodle advertising stimulants were created. A black-and-white image of the cup-noodle container was shown to the experiment participants. It was important not to use an actual ramen brand, which would have triggered participants' usual responses, regardless of the product-nutrition labeling or goal activation. We therefore created a virtual brand, "The Ramen." The brand name, as a stimulus, was placed at the top and the ingredients were placed at the bottom. The healthy ingredient was added as follows: "with 50% more dietary fiber than recommended daily amount of dietary fiber." The unhealthy ingredient was flagged as "50% less sodium than ordinary ramen." Then, on the assumption that the product was consumed, the association between

consumer guilt and product-nutrition labeling was investigated. Sixty undergraduate and graduate students were separated into two groups, using a convenient sampling method. The participants were randomly assigned to two experimental situations, each consisting of 30 people. In this study, consumer guilt related to product consumption was selected as the dependent variable. Since guilt is a negative emotion, involving consumption-related regret and shame, the scale used by Kivetz and Simonson (2002)[31] was modified and used for this study, with a focus on food consumption. Specifically, the questions involved the feelings of a certain "A" after eating cup noodles: "I think A was being careless about his/her health when he/she ate cup noodles;" "Eating cup noodles isn't good for A's body;" "If A thinks about his/her health, I think he/she will regret eating cup noodles;" and "A seems to feel guilty about eating ramen." The participants' responses were measured using a 7-point Likert scale ($\alpha$ =.784).

4.1.3. Results

Study 1 set out to examine the effect of product-nutrition labeling on consumer guilt. To achieve this, an independent sample T-test between the 2 stimuli was conducted; it showed a significant difference in the mean of guilt, according to product-nutrition labeling (t (58)=-4.241, p<.001). Guilt was reduced in the unhealthy-ingredient-reduction group (M=4.45 (sd= 1.19)) more than in the healthy-ingredient-addition group (M=5.31 (sd=1.03)). Thus, Hypothesis 1 was supported; in a situation in which an unhealthy-image product is ingested, consumer guilt is lower for products with reduced unhealthy ingredients than for products with added healthy ingredients.

4.2. Study2

Study 2 was conducted to test Hypotheses 2 and 3, which argued that consumer guilt due to consuming unhealthy-image products would differ, depending on the type of product-nutrition labeling and goal activation. First, goal activation was divided into utilitarian and hedonic goal activation, making it possible to examine the nutrition labeling effect of each type of activation. Second, we investigated which type of product labeling had a greater effect on goal activation.

4.2.1. Main Study

The scenario assumed the following four experimental conditions: 2 (goal activation: utilitarian vs. hedonic) x 2 (product-nutrition labeling: adding a healthy ingredient vs. reducing an unhealthy ingredient) of consumption goal activation and product-nutrition labeling. In addition, for comparison of measurement results, a control group without guilt was added and investigated. The experiments were conducted using a between-subject design. A total of 128 students participated in the experiment and 120 completed questionnaires were used for the study, excluding 8 respondents whose responses were insincere. Undergraduate and graduate students were chosen for this experiment using a convenience-sampling method; the participants were randomly assigned to all four experimental conditions. Each experimental group consisted of 30 people, who were under the control of the experimenter for about 10 minutes to ensure accurate results. In the goal-activation situation, the utilitarian goal activation involved a situation in which an individual had to eat to relieve hunger; the hedonic goal activation involved a situation in which an individual ate food for taste and enjoyment of consumption. The stimulus, a cup-noodle container, was presented as a black-and-white image file. As in Study 1, the virtual ramen brand was called "The Ramen." The arrangement and composition were produced in the same way as the stimulus in Study 1. For the goal-activation element, the scenario was produced in two ways, as a first-person view and a third-person view. Participants were asked for their opinions about the scenario. Applying the scale used in Feick and Higie (1992)[58], participants responded using a 5-point scale to questions related to the following points: "I think the situation presented in the scenario could actually occur" and "the reality of the content described in the scenario." The mean of the first-person view was 3.04 and the mean of the third-person view was 4.10; the difference between

the two groups was significant. Using these results, a scenario from the third-person point of view was constructed. A comment about "assuming that 'A' in the scenario is me" and asking for a questionnaire was included at the beginning of the scenario.

4.2.2. Manipulation Check

In the study experiments, questions were asked to ensure that participants were able to distinguish between utilitarian and hedonic goals in the goal-activation section. When asked about a utilitarian goal, 8 subjects responded with a hedonic goal; when asked about a hedonic goal, 2 subjects incorrectly responded with a utilitarian goal. In addition, in the nutrition-labeling section, 8 subjects responded incorrectly to a question about healthy-ingredient labeling. In this study, responses that were inconsistent with those of the experimental group during the manipulation check were treated as insincere and excluded from the analysis. Finally, in relation to questions about reality, the possibility of the occurrence, and whether the scenario could be imagined, the mean of the 3 questions was 5.93. Although there were no clear interpretation criteria, all three items showed a median value of 4 or more; thus, the participants judged the experimental situation to be acceptable in real life.

*4.2.3. Results*

A. Characteristics of the Sample

The characteristics of the 120 survey respondents used in the analysis were as follows: most of the respondents were in their 20s, with those aged 22–26 accounting for 90% of the total. The gender ratio was evenly distributed, with 46.7% males and 53.3% females. As for their ramen-eating habits, 18.3% of the respondents consumed ramen 3 or more times per week. The largest group (34.2%) ate ramen 1–2 times per week; 27.5% ate ramen 2-3 times a month; 6.7% ate ramen once a month, and 13.3% rarely ate ramen.

B. Verification of Hypothesis 2

In order to test Hypothesis 2, participants in the goal-activation section were divided into a utilitarian goal-activation group and a hedonic goal-activation group; an independent sample T-test related to product-nutrition labeling was carried out in each group. In the utilitarian goal-activation group, the difference in guilt related to product-nutrition labeling was statistically significant ($t(58)=2.849$, $p<.008$). In the hedonic goal-activation group, guilt related to product-nutrition labeling was lower in products with a reduced unhealthy ingredient ($M=4.03$ ($sd=.97$) than in products with an increased healthy ingredient ($M=4.86$ ($sd=1.27$). These results show that Hypothesis 2-1, "In a utilitarian-goal-activation situation, less consumer guilt will be induced by products with reduced unhealthy ingredients than by products with added healthy ingredients," was supported. Next, in the hedonic group, the mean difference was verified, according to product-nutrition labeling, and the difference in guilt related to product-nutrition labeling was statistically significant ($t(58)=-2.475$, $p<.016$). In the hedonic group, consumer guilt caused by product-nutrition labeling was lower for products with an increased healthy ingredient ($M=5.63$ ($sd$ .88)) than in products with a reduced unhealthy ingredient ($M=5.00$ ($sd$ 1.08)). Consequently, Hypothesis 2-2 was also supported. Lastly, comparing the control group without gulit and the experimental group, there was a statistically significant difference among them($F=9.62$, $p<.01$). These results show that it is useful to reduce ingredients perceived as unhealthy in products considered unhealthy when consumers are activated to achieve a utilitarian goal. By contrast, adding healthy ingredients is a better strategy when the hedonic goal is activated.

C. Verification of Hypothesis 3

Hypothesis 3 was tested using an analysis of variance (ANOVA) to examine the two-way interaction effect between goal activation and product-nutrition labeling during the consumption of unhealthy-image products. The mean and standard deviations for each experimental group are shown in <Table 1>.

**Table 1.** The mean and SD of unhealthy-image food consumption, according to goal activation and nutrition labeling

| | | Goal Activation | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | Utilitarian goal activation | | Hedonic goal activation | | | |
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| Nutrition Labeling | Healthy ingredient added (dietary fiber) | 4.86 | .97 | 5.00 | 1.08 | 4.93 | 1.02 |
| | Unhealthy ingredient reduced (sodium) | 4.03 | 1.27 | 5.63 | .89 | 4.83 | 1.30 |
| Total | | 4.45 | 1.19 | 5.31 | 1.03 | | |

The mean of guilt in <Table 1> indicates that products with reduced unhealthy ingredients ranked higher in the hedonic-activation situation, while products with reduced unhealthy ingredients ranked lower in the context of utilitarian goal activation.

**Table 2.** The results of the variance analysis of consuming unhealthy-image food, in accordance with goal activation and nutrition labeling

| Variance | SS | df | MS | F |
|---|---|---|---|---|
| A. Goal activation | 22.53 | 1 | 22.53 | 19.89*** |
| B. Nutrition Labeling | .30 | 1 | .30 | .26 |
| A * B | 16.13 | 1 | 16.13 | 14.24*** |
| error | 131.40 | 116 | 1.13 | |
| Total | 3032.00 | 120 | | |

***$p$<.000

Via the variance analysis shown in <Table 2>, product-nutrition labeling and goal activation were found to have a significant interaction (F=14.24, p<.000). Thus, Hypothesis 2 was supported. Specifically, as shown in <Figure 1>, which shows the moderating effect, there was little difference in the case of products with added healthy ingredients, regardless of goal activation. For products with reduced unhealthy ingredients, the degree of guilt varied in accordance with the goal activation. These results reveal that products with added healthy ingredients show little difference, regardless of goal activation. By contrast, in products with reduced unhealthy ingredients, the degree of guilt varies, depending on the goal activation.

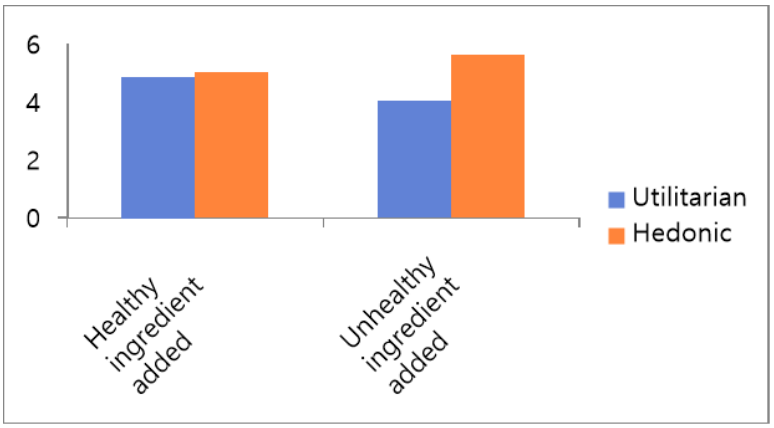


**Figure 1.** The mean difference of unhealthy-image food consumption, according to goal activation and nutrition labeling

4.3. Study 3

Study 3 was carried out to verify Hypothesis 4, "In a situation where unhealthy-image products are being consumed, there is no difference between a product with a healthy ingredient added and a product with an unhealthy ingredient reduced in terms of the effect of consumer goal activation on guilt, when product anxiety is increased." Goal activation was divided into two categories (utilitarian and hedonic), as in Study 2, to discover which type of product labeling had a greater influence on guilt.

4.3.1. Main Study

The scenario presented anxiety about the experimental product, and then consumption goal activation 2 (goal activation: utilitarian vs. hedonic) × nutrition labeling 2 (product nutrition information: healthy ingredient added vs. unhealthy ingredient reduced). Four experimental conditions were created, constituting the between-subject design. In addition, for comparison of measurement results, a control group without anxiety was added and investigated. A total of 120 students participated in the experiment. Undergraduate and graduate students were chosen for the experiment using a convenience sampling method; the participants were randomly assigned to all four experimental conditions. Each experimental group consisted of 29–31 participants, who were under the control of the experimenter for about 10 minutes to ensure accurate results. As an experimental stimulus designed to show anxiety about the product, the newspaper-article method was adopted. Consumer access to information can be divided into temporary and long-term accessibility because news media and news reports are frequently activated on a temporary basis, making it easy to temporarily increase accessibility (Higgins 1996). Furthermore, news reports are a medium believed to have high consumer confidence, among various sources of information. For this reason, an online newspaper article was produced as a stimulus; the article stated that ramen, the experimental stimulus, increased the risk of various diseases. The rest of the stimuli were created in the same manner as in Study 2.

4.3.2. Manipulation Check

To carry out the manipulation check for anxiety, the first questions were about the article. Out of 5 items, 3 were related to the newspaper article, and 2 were not. In total, 62 participants (75%) selected 3 questions related to the newspaper article, while 16 (20%) selected 2 questions. Thus, about 95% of the participants were found to be aware of content of the experimental article. Moreover, in questions about reality, the possibility of the occurrence, and whether the scenario could be imagined, the mean of the 3 questions was 5.63. Although there were no clear interpretation

criteria, all three items showed a median value of 4 or more, and the participants judged the experimental situation to be acceptable in real life.

4.3.3. Results

A. Characteristics of the Sample

The characteristics of the 83 survey respondents were as follows: most of the respondents were in their 20s, with those aged 22–26 accounting for 98% of the total. The gender ratio was evenly distributed, with 40 (48%) males and 43 (52%) females. As for their ramen-eating habits, 13 (16%) of respondents consumed ramen 3 or more times a week. The largest group (40 (48%)) ate ramen 1–2 times per week; 18 (22%) ate ramen 2–3 times a month; 5 (6.%) ate ramen once a month, and 7 (8%) rarely ate ramen.

B. Verification of Hypothesis 4

Assuming a state of increased consumer anxiety about the product, Hypothesis 4 was tested using an ANOVA to examine the two-way interaction effect between goal activation and product-nutrition labeling when consuming an unhealthy-image product. The mean and standard deviation for each experimental group are shown in <Table 3>. Specifically, the mean of guilt in <Table 3> shows that products with added healthy ingredients ranked higher in the hedonic-goal-activation situation, while products with reduced unhealthy ingredients ranked lower in the context of utilitarian goal activation. These results differ from those in Study 2, which did not present an anxiety situation, In Study 2, the product with reduced unhealthy ingredients was associated with a higher level of consumer guilt in the hedonic-goal-activation situation.

**Table 3.** The mean and SD of consuming unhealthy-image food, associated with goal activation and nutrition labeling in relation to product anxiety.

| | | **Goal Activation** | | | | **Total** | |
|---|---|---|---|---|---|---|---|
| | | Utilitarian goal activation | | Hedonic goal activation | | | |
| | | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** |
| **Nutrition Labeling** | Healthy ingredient added (dietary fiber) | 4.98 | 1.05 | 5.79 | .87 | 5.39 | .99 |
| | Unhealthy ingredient reduced (sodium) | 4.53 | 1.08 | 5.50 | .60 | 5.02 | .99 |
| | Total | 4.75 | 1.07 | 5.65 | .74 | 5.21 | .99 |

As a result of the variance analysis shown in <Table 4>, product-nutrition labeling and goal activation were found to have an insignificant interaction ($F=0.76$ $p<.38$). Thus, Hypothesis 4 was rejected. Specifically, as shown in <Figure 2>, guilt was generally higher in the hedonic-goal-activation situation than in the context of utilitarian goal activation. Lastly, comparing the control group without anxiety and the experimental group, there was a statistically significant difference among them($F=18.248$ $p<.01$). This result different from that of Study 2: as consumer anxiety about the product increased, the mean of guilt overall also increased; the interaction effect of the two variables was not significant.

**Table 4.** The results of the variance analysis of consuming unhealthy-image food, according to goal activation and nutrition labeling

| Variate | SSS | df | MS | F |
|---|---|---|---|---|
| A. Goal activation | 11.63 | 1 | 11.63 | 13.54*** |
| B. Nutrition Labeling | 1.57 | 1 | 1.57 | 1.83 |
| A * B | .65 | 1 | .65 | .76 |
| error | 67.87 | 79 | .86 | - |
| Total | 2258.00 | 120 | - | - |

***$p$<.000

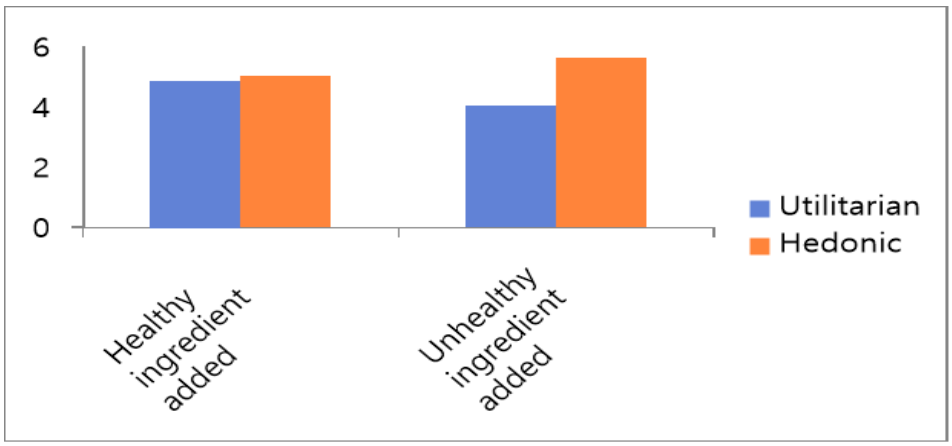


**Figure 2.** The mean difference of consuming unhealthy-image food, associated with goal activation and nutrition labeling in relation to product anxiety

## 5. Conclusions

### *5.1. Results*

In recent years, more consumers have become concerned about their health and increasingly interested in product ingredients and nutrition labels, unhealthy ingredients, and health foods. There has also been a steadily increasing consumer trend of searching for eco-friendly and organic products. However, there is also a contrasting phenomenon: more and more people are looking for convenience foods and turning to handy meals, due to busy schedules and a lack of time. The market for convenience-store lunchboxes and ready-to-cook food is growing. These contradictory phenomena arise from the increasing number of situations in which unhealthy foods are consumed for various reasons, including cost and time, by people who aim to pursue a healthy lifestyle. It has therefore become important to find factors that reduce the guilt associated with eating unhealthy foods in modern society. The present study has empirically analyzed the way in which the negative emotion of guilt, in situations involving consumer consumption of unhealthy-image products, varies according to product-nutrition labeling and consumer goal activation. The findings confirm a method of reducing the guilt that consumers feel when consuming unhealthy-image products. The research results are summarized below.

First, Study 1 verifies that consumer guilt differs, depending on product-nutrition labeling. Instant cup noodles were chosen as a stimulant, and the results od two groups (one with an added healthy ingredient and the other with a reduced unhealthy ingredient) were compared. Guilt was found to be lower in the group exposed to a product with a reduced unhealthy ingredient than in the group with an added healthy ingredient. For products perceived negatively, these results were in line with those of Seth & Migliorati(2021)[59], in which negative framing had a greater effect on advertising than positive framing.

Second, Study 2 expands Study 1, starting from the presumption that the degree of guilt is likely to differ when consumers activate utilitarian or hedonistic goals in situations where unhealthy-image foods are consumed. Using the scenario technique, consumer goal activation was manipulated, confirming a difference in consumer guilt between the utilitarian goal-activation group and the hedonic goal-activation group. Specifically, when the consumer's utilitarian goals were activated, the guilt caused by the consumption of unhealthy-image products was lower for products with reduced unhealthy ingredients than for those with added healthy ingredients. By contrast, in the context of hedonic goal activation, the guilt caused by the consumption of unhealthy-image products was lower for products containing an added healthy ingredient than for those with a reduced unhealthy ingredient. As in Khan and Dhar (2006)[6], this result shows that future behavior may vary, depending on the purpose of consumption.

Third, a statistically significant interaction effect was found in Study 2 when verifying the interaction effect of product-nutrition labeling and goal activation in relation to the impact of consumer goal-activation on guilt. Specifically, the impact of consumer goal activation on guilt was greater in products with reduced unhealthy ingredients than in products with added healthy ingredients. In other words, in unhealthy-image foods with added healthy ingredients, there was little difference caused by goal activation. However, for products with reduced unhealthy ingredients, guilt tended to increase when the hedonic consumption goal (as opposed to the utilitarian consumption goal) was activated. These results are in line with Tversky and Kahneman’s (1991)[51] prospect theory, which states that consumers are more sensitive to losses than gains, due to a loss-aversion tendency. Similar results were derived here, showing higher sensitivity to loss than gain in unhealthy-image products.

Fourth, Study 3, which expanded Study 2, investigated consumer guilt in situations with increased food anxiety. Unlike Study 2, Study 3 did not find an interaction effect between product-nutrition labeling and goal activation. These results suggest that when consumer anxiety increases in relation to unhealthy foods that already invoke guilt and anxiety, the motivation, namely, goal activation when consuming food, plays the main role in causing anxiety, regardless of nutrition.

*5.2. Implications*

The results of this empirical analysis lead to the following implications. First, when consumers ingest unhealthy-image products, their guilt is lower in utilitarian-goal-activation situations than in hedonic-goal-activation situations. Based on these results, it is important to emphasize the utilitarian aspect of these findings for marketers advertising unhealthy-image products or issuing marketing communications. Indeed, Nongshim promoted Shin Ramen Black Cup noodles by including the phrase: “Don’t skip your morning meal” at the end of an ad. In other words, by simply telling consumers that they could eat ramen in the morning, the ad emphasized the utilitarian aspect of breakfast, rather than the flavor of ramen. Thus, companies that emphasize the utilitarian function of unhealthy-image products, rather than attributes such as flavor and pleasure, will be able to promote consumption while reducing consumer guilt.

Second, products with a reduced unhealthy ingredient in the utilitarian-goal-activation situation, and products with an added healthy ingredient in the hedonic-goal-activation situation were associated with lower levels of guilt. In the case of unhealthy-image products, a different nutrition-labeling strategy can therefore be used, once the utilitarian orientation has been distinguished from the hedonic orientation. In marketing communications, if a utilitarian goal activation is chosen, the strategy of reducing unhealthy ingredients should be used; if hedonic goal activation is chosen, it would be better to emphasize added healthy ingredients.

Lastly, when it comes to unhealthy-image products, adding healthy ingredients changed very little in a context of utilitarian or hedonic goal activation. However, reducing unhealthy ingredients had a different impact, depending on the type of goal activation. It is clear that, when an unhealthy ingredient is eliminated from an unhealthy-image product, more careful selection and labeling are required. In particular, as consumers feel guilty for consuming unhealthy-image products, this study shows that their guilt can be amplified by mentioning unhealthy ingredients.

### 5.3. Limitations and Directions for Future Research

This study has some limitations. First, although ramen, which has an unhealthy image, has been used by many researchers as a stimulant, the results of this study cannot be generalized to every context. In addition, a third-person scenario was used to test the goal-activation situation; other effects are possible, depending on the consumer's actual situation. Although suitability was supplemented to some extent through a pre-test, it is difficult to rule out the possibility that other factors could be involved. Second, when it comes to nutrition labeling, both positive and unhealthy ingredients were tested; however, guilt related to products without nutrition labeling (via a control group) was not investigated. The following directions for future research can overcome these limitations. First, additional research is needed to ascertain whether other unhealthy-image products would produce the same results. Second, there is also a need for research on guilt in the absence of nutrition labeling. Future studies should also consider other variables that can reduce the guilt felt when choosing an unhealthy-image product. Third, this research should be expanded by including other products and situations that can cause guilt.

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