Increasing Perceptions of Tastiness and the Intent to Purchase Unbranded Food Offered in Retail Stores by Using Consummatory Images

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Food retailers offer numerous food items that do not contain brand names on the packaging or that do not highlight brands. For instance, tomatoes, fruit salad, and slices of fresh meat are frequently sold in very simple packaging that allows the customers visiting the retail store to see the “food image”. Recently, findings have been published suggesting that the use of “consummatory images” results in better product evaluations compared to the use of “food images”. We transfer this issue to food that is contained in very simple packaging without referring to a brand name. In our theoretical considerations and empirical studies, we investigate consumer responses to healthy vs. unhealthy food. We find evidence for the “healthy = tasty intuition” but cannot support the alternative approaches of the “unhealthy = tasty intuition” or the concept of consumption guilt. Based on these findings, we provide evidence for the hypothesis that consummatory images shown on packaging of “unbranded food” in retail stores should depict people expressing sportiness and fitness in a consuming pose in order to reduce concerns about the low healthiness of unhealthy food, improve perceptions of tastiness, and increase purchase intent.

1. Introduction

1.1. Unbranded food in retail

In the assortments of food retailers, there are numerous products packaged by the retailers themselves or by the providers of these products without referring to the brand name of the retailer or the suppliers’ brands. For instance, in fridge shelves, the retailer may offer pieces of cheese and meat, slices of sausages, fruit salad, sandwiches, pizza crust, and salad with extra dressing and place these items in transparent containers, nets, or styrofoam cups sealed with cling film. Numerous vegetables and fruits are sold in a similar way. For instance, seasonally available asparagus is offered in cardboard packaging. Fruits such as apples and bananas are shrink-wrapped in transparent foils. Cookies are frequently sold in similar packaging without referring to any brand name. Fig. 1 shows a sample of such products. Note that we do not postulate that all of these products are offered without referring to brand names. For instance, retailers offer bananas of the Chiquita or the Fyffes brand or cheese of particular brands. Frequently, however, certain parts of these assortments are also sold “unbranded” when the staff employed at the meat and dairy counter of the food store cut the product into pieces, wrap these pieces in transparent foil, and display them on the fridge shelf for the purpose of customer self-service.

One reason some food items are offered in this rather simple packaging is that these items cannot be stored for a longer period of time (e.g., fresh meat, fresh fruit salad, fresh strawberries, or sandwiches). Another reason is that for numerous kinds of vegetables, such as tomatoes or salads, well-known brand names have not been developed yet. To sell these products, the retailers allow customers to view the product through the transparent packaging. The retailers print the bar code, the price, and some additional information (e.g., the country of origin, the weight in grams, and the unit price) on a label that is affixed to the packaging.

Similarly, retailers such as McDonald’s offer food to go in packages that are displayed in the shelves of the store outlets. In this case, the consumer has visual contact with the packaging. The packaging shows an image of the
1.2. Food image vs. consummatory image

All the food items shown above have in common that consumers have visual contact with the product itself; in other words, they see the “food image”. Sometimes, a photo of the food item also appears on the packaging.

Recently, Poor (2012) and Poor et al. (2013) published results from fundamental research that compared the effect of photos of food images to the effect of photos of “consummatory images” on consumer responses. To illustrate the difference between food images and consummatory images, we include in Fig. 2 a sample of the test stimuli used by these authors. Poor et al. (2013, p. 124) define consummatory images as pictures showing “a person interacting with the food in a way that suggests consumption”.

Poor et al. (2013) conducted a series of studies in the US to compare the effect of an exposure to a food image to the effect of an exposure to a consummatory image. The authors’ objective was to investigate whether consumers perceive (i.e., expect or experience) a food item to be tastier depending on whether a food image or a consummatory image is shown. For instance, the authors exposed different sub-samples of consumers either to an image of apples (food image of healthy food), an image of a bar of chocolate (food image of unhealthy food), an
image of a person eating an apple (consummatory image of healthy food), or an image of a person eating a bar of chocolate (consummatory image of unhealthy food). They asked the participants to take part in a thought-listing task where the participants could report favorable and unfavorable thoughts. The authors also assessed the participants’ perceptions of the food’s tastiness. For unhealthy food (chocolate), they found that the image of a person shown in a consuming pose (vs. the food image) positively affected the favorability of thoughts, while the consummatory image (vs. the food image) had no effect on the favorability of thoughts for the healthy food (apples). Furthermore, a mediation analysis conducted for unhealthy food provided evidence that the favorability of thoughts mediated the effect of the type of image (consummatory vs. food image) on perceptions of food tastiness. [1]

1.3. Objective of this research

We adopt the idea of Poor (2012) and Poor et al. (2013) and consider consummatory images as an alternative to the use of food images for promoting food items in retail stores, and we analyze the effect on perceptions of food healthiness, affect, food tastiness, and purchase intent.

Contribution to prior research: In short, Poor et al. (2013) argue that consumers face a conflict between expected pleasure to consume unhealthy food and concerns about food healthiness. They denote this conflict as feelings of consumption guilt. They argue that contact with a consummatory image reduces this conflict because consumers perceive that they can imitate the behavior of other people. However, findings from prior research on consumer responses to food indicate that feelings of consumption guilt do not necessarily play a major role when consumers decide among food items. Alternative approaches suggest that consumers directly infer food tastiness from perceptions of food healthiness. In summation, there are different theoretical approaches (the healthiness-tastiness intuitions and the consumption-guilt model) that can be used for predicting perceptions of food tastiness and purchase intent. Depending on which of these approaches is valid, consummatory images should signal particular information to the consumers in order to be highly effective. Poor et al. (2013) considered the consummatory images per se (see Fig. 2). We expand this research by investigating which type of consummatory image should be used to substitute “food images”.

Expected benefits for retail practice: Poor (2012) and Poor et al. (2013) did not link the possibility of using consummatory images to product packaging. However, it is obvious that these images can be shown on product packaging. For instance, Wansink and Chandon (2006, p. 606) postulate that packaging labels can “influence how much pleasure or guilt a person anticipates feeling by eating” certain food items. We visited several retail stores in Germany and looked for consummatory images on packaging of branded and unbranded food products, i.e., packaging containing a photo that shows a person interacting with the product in a way that suggests consumption. We mainly found images of persons who are not in a consuming pose (e.g., photos of faces of persons). We identified only a few examples of the use of consummatory images on branded food items (e.g., the face of the former tennis player Steffi Graf holding a cup of tea of the Teekanne brand; the face of a female person indicating pleasure after the consumption of Nestlé cereal bars; a portrayal of a young man holding a cup of buttermilk of the Müller brand; see Fig. 3).

In the next section, we present two models developed in prior research for predicting the response to healthy vs. unhealthy food (healthiness-tastiness intuitions and the consumption-guilt model). We do this because the answer to the question about which characteristics consummatory images should have in order to be highly effective is contingent on the validity of these approaches. For each of the approaches, we derive conclusions about what kind of information a consummatory image should convey. We will provide arguments for the presumption that consummatory images should signal healthiness when consumers utilize the healthiness-tastiness intuition; we also provide arguments for the thesis that consummatory images should show a group of persons in a consuming pose when the consumption-guilt model is valid. Subsequently, we present the findings from two experiments. In the first experiment, we test the approaches to infer which approach is valid. In the second experiment, we manipulate the kind of consummatory image and test the effect on perceptions of food healthiness.
2. Theoretical considerations

Numerous authors divide food items into two categories. For instance, Rozin et al. (1996, p. 438) suggest a distinction between food that is good for one’s health (e.g., fruits and vegetables) and food that is bad for one’s health (e.g., candies and fast food). Similarly, Okada (2005, p. 43) considers hedonic food and utilitarian food. Wertenbroch (1998, p. 317) classifies food products in food that is associated with “vices” or with “virtues”. Poor et al. (2013), referring to these classifications, classify food as healthy or unhealthy.

There are two main theoretical approaches in literature that describe the responses of consumers to unhealthy vs. healthy food: (1) the presumption that perceptions of food tastiness are contingent on perceptions of food healthiness, which both spill over onto purchase intent (e.g., Raghunathan et al. 2006; Werle et al. 2013), and (2) the concept of consumption guilt (Poor et al. 2013).

2.1. Healthiness-tastiness intuitions

“Unhealthy = tasty intuition”: The mostly cited research study in this area has been conducted by Raghunathan et al. (2006). These researchers presume that consumers rely on the “unhealthy = tasty intuition”. They argue that this intuition is the result of unconscious processing of information from parental education and reports in mass media. The intuition manifests itself in associations of unhealthy food with aspects such as fun, enjoyment, and excitement and in associations of healthy food with aspects such as “nourishing” and “good for me”. In line with this presumption, Drewnowski and Greenwood (1983) found that consumers perceive products as tastier when they consume products with a higher amount of fat and sugar; thus, consumers could have learned that tastiness is negatively related to healthiness. Raghunathan et al. (2006) provide evidence for the “unhealthy = tasty intuition” through the results of an implicit association test conducted in the US. In an additional study, consumers were exposed to information about the proportion of “good fat” vs. “bad fat” contained in three different brands of cheddar-flavored snack crackers. The authors found that the test persons expected the crackers with a high portion of “bad fat” to be tastier.

“Healthy = tasty intuition”: Other researchers have found evidence for the presumption that the sign of the healthiness-tastiness relationship is contingent on the culture. For instance, Rozin et al. (1999, p. 164) compared the responses of consumers from North America to food in general with the responses of French consumers. They found that Americans consider food “as much a poison as a nutrient, and that eating is almost as dangerous as not eating,” while the French have a “more relaxed, pleasure-oriented attitude to food”. As an argument for this finding, Rozin et al. (2003) state that French consumers concentrate more on the sensory than the nutritional aspects of food. Rozin (2005) asked samples of consumers from the United States and France to indicate whether either the term “whipped” or the term “unhealthy” came more quickly to their mind when they think of heavy cream, which is considered a prototype of unhealthy food. Only approximately one-quarter of the French sample reported that “unhealthy” first came to mind, while the same response exceeded 50 % in the American sample. Werle et al. (2013) replicated the experiments of Raghunathan et al. (2006) in France and found a positive relation between perceptions of food healthiness and tastiness, motivating them to postulate the “healthy = tasty intuition” for particular countries such as France. These authors presume that food plays a different role in different cultures. For the US, they state that food primarily serves for nutrition, while for countries such as France, food is more related to “eating well,” social interactions, and culinary issues.

In a more recent study, Dubé et al (2016) exposed consumers from the US and from India to verbal descriptions of six food products and analyzed the relationship between perceptions of food healthiness and tastiness. Contrary to the “unhealthy = tasty intuition” suggested by Raghunathan et al. (2006), they found positive relationships for both cultures; however, the positive relationship was weaker among US consumers. The phenomenon that certain samples of consumers infer higher tastiness from lower healthiness and vice versa is probably only valid for very particular consumer segments that are described as holding a “protestant work ethic,” considering luxury items as frivolous items, giving priority of utilitarian items over hedonic items, and associating fun with forbidden activity (Werle et al. 2013).

In summation, this stream of research suggests that the type of food produces thoughts about food healthiness. These beliefs spill over onto perceptions of tastiness (while the sign of the effect is contingent on the moral orientation of the individual, e.g., her/his attitudes to-
ward luxury items, hedonic items, and fun in general). With some exceptions, a positive relation has been found. Favorable expectations and perceptions of food healthiness and tastiness contribute positively to behavioral intentions such as purchase intent.

2.2. Consumption-guilt model

Affective-cognitive model: One stream of research on consumption guilt is advanced by Shiv and his co-authors, who developed the so-called affective-cognitive model. Shiv and Fedorikhin (1999) hypothesize that unhealthy food such as chocolate cake elicits positive affective responses, which are lower or absent for healthy food such as fruit salad. The affective response manifests itself when the consumer feels the desire to grab the food, i.e., when s/he feels an irresistible urge to take it. In contrast, healthy food is presumed to be primarily associated with cognitive responses, where consumers evaluate the food for whether it is beneficial, useful, good for one’s health, and a wise choice. Consequently, contact with food results in a “conflict between heart and mind” and thus creates a condition where the consumer has to find a solution for two competing goals. Shiv and Fedorikhin (1999) found that exposing consumers to real chocolate cake (compared to presenting a photo of this cake) makes the affective component (the desire to take the cake) more salient. Wansink and Chandon (2006, p. 607) provide similar arguments and state that “feelings of guilt arise because food consumption decisions frequently entail a conflict between two opposite goals: the hedonic goal of short-term pleasure gratification versus the utilitarian goal of long-term health preservation and enhancement”. Shiv and Fedorikhin (2002) argue that the affective response is the result of the activation of appetitive, gratification-seeking goals in people based on an automatic, instinctive physical desire. According to this approach, the choice of unhealthy food when the alternative of healthy food is available results in the state of “guilty pleasure” (see also Giner-Sorolla 1999, p. 454). Similarly, Nowlis and Shiv (2005) posit that both the affective responses to a food item such as the expected pleasure, delight, and gratification and the cognitive responses such as the expectation about sweetness, texture, and health-related consequences are the factors or components that influence expectations and perceptions about food tastiness. Fletcher et al. (2007, p. 211) postulate that “chocolate is often a subject of a love-hate relationship” because of its “pleasurable taste, scent and texture” (love) and the “perceived high calorific and sugar content” (hate), which leads people to experience both craving and guilt (Rogers and Smit 2000, p. 4).

Right to indulge: Another stream of research postulates that the difficulty of justifying the choice of an option is the antecedent of feeling guilt (Okada 2005; Xu and Schwarz 2009). For instance, Kivetz and Simonson (2002a, 2002b) state that consuming luxury items is more difficult to justify than consuming necessities. They present visiting a gourmet restaurant as an example of luxurious consumption. These authors argue that people can justify the consumption of luxurious products (to which unhealthy food may count) when they have “earned the right to indulge” such products, e.g., by participating in charity or blood donation activities (Strahilverz and Myers 1998). In summation, this research suggests that people are prone to consume unhealthy food that induces a feeling of guilt but are simultaneously looking for reasons that justify consuming this type of food to reduce feelings of guilt.

In a more recent work, Poor et al. (2013) used these approaches and concluded that food is associated with a pleasant affective state (pleasure while eating) and cognitions (concerns) regarding the healthiness of the food. Unhealthy food is associated with a more “positive affect related to pleasure, delight, and gratification of consumption” but also with stronger “negative cognitions pertaining to the health-related consequences of consumption” (p. 127). Thus, “consumption or even expected consumption of unhealthy food can evoke an enhanced sense of conflict”. The authors denote this conflict as “consumption guilt,” which is equivalent to the concept of guilty pleasure. Moreover, they argue that strong experiences of consumption guilt (high conflict) reduce tastiness expectancies and experiences of unhealthy food. When the negative cognitions regarding low healthiness of food are predominant (i.e., are not compensated by pleasant affect) consumers cannot enjoy or indulge unhealthy food, which reduces perceptions of tastiness. The authors presume that a reduction of the conflict between affect and cognitions is “leading to increased taste and subsequent preference for unhealthy options”. They count the desire for more, the willingness to pay, and purchase intent as variables that are affected by expectations and perceptions of tastiness. These arguments can be summarized in the model shown in Fig. 5.

Admittedly, the differences between the approaches presented above are small. According to the first approach, healthy food induces higher perceptions of tastiness. Both the favorable perceptions of healthiness and tastiness affect purchase intent (a different relation exists for people who strongly obey rules that advise avoiding any hedonic experiences; see Kivetz and Simonson 2002a, p. 157; Xu and Schwarz 2009). According to the second approach, unhealthy food produces a sense of conflict between the pleasurable consumption and the cognitions pertaining the negative health-related consequences; the lower this conflict is, the more favorable are the perceptions of tastiness and purchase intent.

However, different conclusions about how to improve perceptions of tastiness and the purchase intent of unhealthy food can be derived from these approaches. We will focus on these consequences in the next section.
2.3. Effect of characteristics of consummatory images

General relevancy of social influence

There are numerous studies providing evidence that people experience uncertainty in how to respond appropriately to unhealthy food items. The findings indicate that people rely on the behavior of others to guide them. For instance, Roth et al. (2001) found that test participants consumed more unhealthy cookies when they were told that other test participants had eaten a higher number of these cookies. They argue that consumers adopt the behavior of others because that behavior is a piece of “information as to how to behave appropriately” to food. In an experiment by Burger et al. (2010), test participants were asked to wait in a room before the announced test would start. While they waited, they saw an empty wrapper of either an unhealthy or a healthy product (Snickers candy vs. Nutrigrain bar) that seemingly was thrown away by a preceding test person. At the beginning of the test procedure, they received the information that the test’s objective was to examine the impact of a sip of cold vs. warm water on the taste of food products. They could choose a piece of an unhealthy or a healthy snack (e.g., either Snickers or Nutrigrain bar) for the test. The authors found that the test participants tended to adopt the consummatory behavior of the preceding test person. The proportion of test participants selecting a healthy (vs. unhealthy) snack to experience its taste in combination with a sip of cold vs. warm water was higher when they noticed that the preceding test person had also chosen a healthy (vs. unhealthy) snack bar. In summation, these experiments indicate that consumers tend to adopt the behavior of others when they respond to unhealthy food.

Use of a consummatory image to evoke social influence

Poor et al. (2013, p. 126) argue that cues that are able to provide social proof should be used to generate favorable responses to unhealthy food. They posit that “people are more likely to accept the actions of others as correct when they are unsure of themselves and when the situation is unclear or ambiguous, as in the case of competing goals”. As an effective cue, the authors refer to information that can serve as social proof, meaning that consumers can observe others consuming the unhealthy food. In summation, depicting a consummatory image on the packaging of food could be an effective measure because it shows the behavior of others and may induce a tendency in consumers to adopt such behavior.

Next, the question arises about what characteristics consummatory images should have to make them highly effective. The answer to this question depends on which approach (healthiness-tastiness intuitions or consumption-guilt model) is valid.

Implications of the healthiness-tastiness intuitions

According to the “healthy = tasty intuition,” suppliers of unhealthy food should take measures that suppress negative thoughts about unfavorable consequences of such food for one’s health. A consummatory image included on the packaging of unhealthy food should evoke thoughts such as “This food is not so bad for my health because other people eat the same”. The “healthy = tasty intuition” that is predominant among consumers whose behavior is not guided by a negative attitude toward pleasure, fun, delight, and hedonic and luxurious items predicts improved perceptions of food tastiness when perceptions of healthiness are improved.

Subsequently, the question has to be answered of how a consummatory image should look to improve perceptions of healthiness. We presume that an image of a sporty person in a consuming pose enhances perceptions of food healthiness, and we test:

**H1:** An image that shows a sporty person (indicating a high level of health) interacting with unhealthy food in a way that suggests consumption is more effective at improving perceptions of healthiness than an image showing a person with a normal level of health and who is shown in a consuming pose.
Implications of the consumption-guilt model

Poor et al. (2013) argue that suppliers of unhealthy food can improve perceptions of tastiness when they reduce the conflict between affect and cognition. Thus, cues should evoke thoughts such as “My behavior cannot be entirely morally wrong because other people eat the same”. They argue that cues that are able to provide social proof should be used. What fosters the tendency to adopt the behavior of others to reduce a conflict? There are several theories predicting that people are more prone to adopt the behavior of others in order to deal with a conflict when a higher number of other people can be imitated. For instance, Bergstrom and Neighbors (2006, p. 980) state that people tend to use social norms in “situations in which there is uncertainty or confusion that then prompts individuals to look to the group to determine what is acceptable or common” (see also Sherif 1936). Similarly, McFerran et al. (2010, p. 916) hypothesize with regard to the consumption of unhealthy food (e.g., M&Ms) vs. healthy food (e.g., granola): “As the group size increases, no one wants to stand out, and people increasingly conform to the group average”. As a theoretical basis for this presumption, we can refer to the focus theory of normative conduct (Cialdini et al. 1990; Reno et al. 1993), which posits that people rely on the collective wisdom of others. Thus, consumers are likely to find it easier to adopt the behavior of a group of persons than the behavior of a single person to reduce a conflict. Moreover, according to the social impact theory, people can satisfy their need for conformity to a higher extent when they conform to a group of others compared conforming to a single person (Asch 1956; Festinger 1954; Latané and Wolf 1981; Tesser et al. 1983).

When these arguments are valid, an image showing a higher number of people consuming unhealthy food should be highly effective at reducing consumption guilt, producing positive effects on perceptions of food tastiness, and increasing purchase intent. Poor (2012, p. 92) also recommended analyzing the effect of the number of consuming models depicted in consummatory images to improve the effectiveness of these images. We test:

**H2:** An image that shows a higher number of persons interacting with unhealthy food in a way that suggests consumption is more effective at improving perceptions of healthiness than an image showing only one person in a consuming pose.

In summation, we investigate whether consummatory images should either (1) show a person in a consuming pose to elicit thoughts about healthiness or (2) show a group of persons in a consuming pose to express some kind of consensus among other consumers to consume unhealthy food.

### 3. Experiment 1

**Objective of the experiment:** The objective of Experiment 1 was to test the relationships among the type of food (unhealthy vs. healthy), perceptions of food healthiness, affect, food tastiness, and purchase intent.

**Conceptual model:** Our model, shown in Fig. 6, combines both approaches presented above (healthiness-tastiness intuitions and consumption-guilt model). Moreover, it includes a variable that represents the type of image (consummatory vs. food image), as suggested by Poor et al. (2013), as an additional variable. We expect to find an answer to the question about which approach is valid when we estimate and test the coefficients of the relationships. However, we refrain from considering the concepts of the individual’s moral orientation and feelings of consumption guilt in the following descriptions and analyses. The reason for this is that feelings of guilt were rather weak even in the condition in which the taste of unhealthy food had to be evaluated in our experiments. [2]

**Experimental design:** We used an experimental 2 (type of food: unhealthy vs. healthy) × 2 (type of image: consummatory vs. food image) × 2 (product category: cook-
ies or strawberries) factorial between-subjects design, resulting in eight experimental conditions. For the cookies, chocolate cookies (vs. whole-grain cookies) were used as the unhealthy (vs. healthy) food. For the strawberries, fruit gums shaped as strawberries (vs. fresh fruit) were used as the unhealthy (vs. healthy) food. In the experiment, each test person saw the package of the respective product. On its label was shown either a consummatory image or a food image.

**Manipulation of type of food:** We conducted pretests to identify unhealthy and healthy food. We exposed 68 female students to either an image of a package of chocolate cookies or an image of a package of whole-grain cookies. We exposed a different sample of 68 female students to either an image of fruit gums in the shape of strawberries or an image of fresh strawberries. We asked them to indicate perceptions of product healthiness (“unhealthy/healthy,” “high/low in calories,” and “bad/good for one’s health”) on a seven-point scale ($\alpha = .874$). For the cookies, the whole-grain cookies were associated with higher perceptions of healthiness than the chocolate cookies ($M_{chocolate} = 2.40$, $M_{whole-grain} = 4.82$, $F_{1, 66} = 60.669$, $p < .001$). In the case of the strawberries, the fruit gum version was perceived as less healthy than fresh strawberries ($M_{fruit gum} = 2.04$, $M_{fresh fruit} = 4.81$, $F_{1, 66} = 178.324$, $p < .001$). Thus, we decided to use these products for the experiment.

**Manipulation of the type of image:** The products were packaged in transparent clamshell boxes, as they are usually utilized in retail stores to sell “unbranded food”. On these boxes, labels were affixed that either showed a person consuming the product (consummatory image) or an additional picture of the food (food image). The backs of these boxes contained additional information about the products (e.g., nutritional information). The boxes containing the strawberries are shown in Fig. 7. The boxes containing the cookies were designed similarly.

**Procedure and measures:** We decided to analyze the response of female individuals to food images vs. consummatory images because prior research states that “women often change their eating behavior after comparing themselves with other women” (Bergstrom and Neighbors 2006, p. 987). A sample of 504 female students ($M_{age} = 22.48$, $SD = 2.97$) were contacted in the library, cafeterias, and refectories of a university located in Germany and were allocated to the experimental conditions at random. They were asked to look at the strawberries (or cookies) contained in the packaging and then answer some questions about their anticipated affect (“I would feel pleasure,” “I would feel delight,” and “I would feel gratification,” $\alpha = .890$), their cognitions about the product’s healthiness (adopted from the pretest, $\alpha = .898$), and tastiness (“likely tastes good,” “likely tastes delicious,” and “likely is appetizing,” $\alpha = .783$), and their purchase intent (“would buy”). The measures for affect were adopted from Poor et al. (2013, p. 134). [3] The test persons reported additional data about their interest in the respective product categories (“consume frequently” and “like to consume”); these measures did not systematically differ across the type-of-image conditions. All scales were seven-point scales.

**Description of results:** We calculated the mean values of affect, perceptions of product healthiness, product tastiness, and purchase intent depending on the eight experimental conditions. These findings are shown in Tab. 1. The results indicate that the presence of a consummatory image (compared to the presence of the food image) does not influence affect; however, perceptions of product

<table>
<thead>
<tr>
<th>Unhealthy food (Fruit gums)</th>
<th>Healthy food (Fresh strawberries)</th>
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<tr>
<td><img src="image1" alt="Unhealthy food" /></td>
<td><img src="image2" alt="Healthy food" /></td>
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**Fig. 7: Example of test stimuli used in Experiment 1**
healthiness are affected in the unhealthy-food condition. Because the signs of the observed effects are stable across the product categories, we collapsed the data across the cookies and strawberries. For unhealthy products (chocolate cookies and fruit-gum strawberries), the consummatory image suppresses unfavorable thoughts about the healthiness of unhealthy food. Thus, we add the "unhealthy = tasty intuition" nor the consumption-guilt model. Moreover, we find that the presence of a consummatory image reduces the detrimental effect of unhealthy food on perceptions of food healthiness (ΔC = .67, p < .01). The type of image had no effect on the type-of-food/affect relationship.

**Moderating effects of the presence of a consummatory image:** The model estimates show that the effect of the type of food on perceptions of healthiness is even more negative in the food-image condition (β_{food} = -2.21, p < .001) compared to the consummatory-image condition (β_{image} = -2.21, p < .001). This means that the presence of a consummatory image reduces the detrimental effect of unhealthy food on perceptions of food healthiness (ΔC = .67, p < .01). The type of image had no effect on the type-of-food/affect relationship.

**Relations among affect, perceptions of healthiness and tastiness, and purchase intent:** Moreover, we find evidence for the presumption that affect related to pleasure, delight, and gratification and perceptions of food healthiness affect perceptions of food tastiness (β_{food} = .56, p < .001; β_{image} = .19, p < .001, β_{residual} = .20, NS), which in turn has a strong influence on purchase intent (β_{purchase} = .59, p < .001).

**Interpretation:** After omitting all non-significant relations from the model shown in Fig. 8, we obtain the model proposing a positive healthiness-tastiness intuition (Fig. 4). Thus, we can provide evidence for the "healthy = tasty intuition". Our data support neither the validity of the "unhealthy = tasty intuition" nor the consumption-guilt model. Moreover, we find that the presence of a consummatory image suppresses unfavorable thoughts about the healthiness of unhealthy food. Thus, we add
Type of image (C; 1=consummatory image, 0=food image)

Type of food (F; 1=unhealthy, 0=healthy)

Perceptions of tastiness (T; 1=low to 7=high)

Affect related to pleasure, delight, and gratification (A; 1=low to 7=high)

Perceptions of healthiness (H; 1=low to 7=high)

Purchase intent (I; 1=low to 7=high)

$\beta_{F \rightarrow A} = 0.16^{\text{NS}}$

$\beta_{F \rightarrow H} = -2.55^{***}$

$\beta_{F \rightarrow T|\text{food image}} = -2.89^{***}$

$\beta_{F \rightarrow T|\text{consummatory image}} = -2.21^{***}$

$\Delta C = -0.67^{**}$

$\beta_{A \rightarrow I} = 0.25^{***}$

$\beta_{T \rightarrow I} = 0.56^{**}$

$\beta_{H \rightarrow I} = 0.12^*$

$R^2 = 0.01$

$R^2 = 0.46$

$R^2 = 0.55$

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$, NS $p > .05$ (two-tailed tests).

Fig. 8: Estimated coefficients for the model underlying Experiment 1

Fig. 9: Effects of the type of food and the type of image supported by Experiment 1

4. Experiment 2

Objective of the experiment: In Experiment 1, we found that the presence of a consummatory image reduces unfavorable thoughts about the consequences of consuming unhealthy food for one’s health. Therefore, consummatory images should improve perceptions of healthiness in order to positively affect perceptions of tastiness and purchase intent. Thus, we have to investigate which type of consummatory image is most effective in improving perceptions of healthiness. Additionally, this experiment aims to test the hypotheses stated in Section 2.3.

Experimental design: From the findings of a pretest that aimed to identify unhealthy food, we selected unpeeled peanuts as a high-calorie food product. We consider the food-image condition and three consummatory-image conditions, for which three different packages were created: one showing one person dressed in a normal outfit in a consuming pose; one showing one person dressed in a sporty outfit in a consuming pose; and one depicting a group of three persons in a consuming pose. We choose the group size of three persons because Asch (1951, p. 233) found that a group consisting of three persons has the strongest social influence, i.e., that increasing this group size does not improve the individual’s tendency to conform to the behavior of others.

Test stimuli: The peanuts were placed in a type of neutral, transparent packaging that is frequently used in drug stores in Germany for unbranded food. The packaging contained two terms in the German language: “Reformhaus” and “neuform”. The first term expresses that the product is sold in drug stores; it refers neither to the brand name of a particular store nor to a brand of producers of peanuts. The second term is a quality mark expressing that additives to the natural food would be listed on the label; this term is irrelevant for unpeeled peanuts. The test stimuli are shown in Fig. 10.

Sample, procedure, and measures: In total, 137 female students ($M_{\text{age}} = 21.99$ years, $SD = 2.54$) took part in this experiment. They were randomly assigned to the four experimental conditions. The procedure was adopted from Experiment 1. The test participants indicated perceptions...
of healthiness. These statements were also adopted from Experiment 1 ($\alpha = .824$). We did not assess perceptions of tastiness and purchase intent because Experiment 1 had already shown that perceptions of healthiness spill over positively onto these variables.

**Results:** We report the findings in Tab. 2. They support the presumption that consummatory images increase perceptions of healthiness of unhealthy food ($M_{\text{food image}} = 2.96, M_{\text{consummatory image}} = 3.58, F_{1,135} = 5.209, p < .01$). A descriptive data analysis shows that an image showing a sporty person in a consuming pose has the strongest effect on the perception of food healthiness.

**Hypotheses test:** $H1$ presumed that the use of a sporty-person consummatory image results in higher perceptions of healthiness than the use of a normal-outfit-person consummatory image. Our findings are in line with $H1$ ($M_{\text{sporty}} = 3.90, M_{\text{normal outfit}} = 3.32, t_{68} = 1.847, p < .05$). $H2$ stated that showing a group of persons in a consuming pose produces more-favorable perceptions of healthiness than a normal-outfit-person consummatory image ($M_{\text{group}} = 3.51, M_{\text{normal outfit}} = 3.32, t_{65} = .538, N.S.$). The data do not provide evidence for $H2$.

**Interpretation:** Because $H2$ has to be rejected, we conclude that the effect of a consummatory image on perceptions of healthiness of unhealthy food is not merely triggered by a process of imitation. The findings of Experiment 1 suggested that consummatory images should improve perceptions of healthiness of unhealthy food. The results from Experiment 2 add to this finding and suggest that showing a sporty person in a consuming pose is the best way (among the considered images) to improve perceptions of healthiness.

5. **Conclusions**

Our study was based on the publications of Poor (2012) and Poor et al. (2013), who found that showing a consummatory image (i. e., a picture of a person in a food-consuming pose) has a favorable impact on perceptions of food tastiness compared to showing a food image (i. e., a picture of the food itself). They found that this measure is effective for unhealthy food. We expanded this research in a twofold way.

First, based on the observation that food stores offer numerous items of unbranded food (see Fig. 1), we intended to test whether the use of consummatory images on the packaging of unbranded food helps to promote sales of this food. Second, based on the discussion of the healthiness-tastiness intuitions and the consumption-guilt model, we intended to investigate which type of consummatory image is advantageous.

5.1. **Implications for retail practice**

We recommend that retailers who offer unbranded food in their assortment consider using consummatory images to promote their food, particularly food that elicits concerns about one’s health (e. g., high-calorie food containing a large amount of sugar or fat).

For numerous products such as sandwiches, cookies, pizza crust, high-calorie cheese, meat and sausages, and unpeeled peanuts, the consummatory image could be printed on the packaging of the food. Some retailers additionally offer self-service candy or self-service sweets that can be filled in plastic bags by the consumer (see Fig. 11). When the sweets and candies are contained in
glass jars, consummatory images can be affixed to these jars. In the case of offering such products in bowls, a stand-up display behind the bowls could show a consummatory image.

Furthermore, we recommend using consummatory images showing persons in a product-consuming pose who express a high degree of sportiness and fitness. Depicting the same or similar testimonials on different kinds of unbranded food offered in a retail store could give the whole assortment a consistent appearance.

5.2. Implications for consumer behavior theory

The key issue in the discussion of consumer responses to unhealthy food is the question of whether consumers experience guilt when they decide to buy and consume unhealthy food. Considerations of this issue have their origin in the US, where authors state that consumers associate unhealthy food with “guilty pleasure” (Giner-Sorolla 1999, p. 454; Shiv and Fedorikhin 2002, p. 344), think of it as being “as much a poison as a nutrient,” and suspect that eating it “is almost as dangerous as not eating” (Rozin et al. 1999, p. 164). According to this position, consumers cannot indulge unhealthy food unless they can justify its consumption by having deserved it, e.g., because they have donated blood (Strahilevitz and Myers 1998). However, investigations in different countries have found results that contradict this position. Werle et al. (2013) investigated the consumption of unhealthy food in France and denoted their divergent findings as the “healthy = tasty French intuition”. Recent findings pose doubts about whether healthy food is associated with negative thoughts about food tastiness even in the US and vice versa (Dubé et al. 2016).

We did not conduct a cross-national survey but focused on consumers in Germany, particularly female students living in this country. Thus, our findings contribute to the knowledge about how consumers from different countries respond to unhealthy food. We found that the responses of German consumers are similar to those of French consumers. This may explain why we found evidence for the “healthy = tasty intuition” and why we had to reject alternative approaches such as the “unhealthy = tasty intuition” or the concept of consumption guilt.

Exposure to unhealthy vs. healthy food did not have an effect on anticipated affect, such as pleasure, delight, and gratification. Our findings indicate that consumption of healthy food can be as pleasurable as the consumption of unhealthy food. For instance, consumers in our samples enjoyed and indulged eating fresh strawberries to the same extent as eating fruit gums shaped as strawberries. Thus, our data do not confirm the premise that unhealthy food is connected to pleasant affect to a higher degree than healthy food, as was hypothesized by Poor et al. (2013, p. 127).

5.3. Limitations of our studies

First, we used female students to assess the responses to unhealthy vs. healthy food depending on the presence of a food vs. consummatory image. However, consumer segments suffering from obesity, for example, might exhibit a stronger response, such as more pleasant affect and stronger concerns regarding their health when they are exposed to unhealthy food; in this condition, the consumption-guilt model or the “unhealthy = tasty intuition” might be relevant. Second, we tested the effects of the type of food in combination with the type of image in rather artificial settings (e.g., in cafeterias of a university). In retail stores, the customers might respond in a more natural way to the stimuli, meaning that cognitions about food healthiness are less intense because they buy numerous items in the store and do not focus on single food items. In retail stores, consumers choose among healthy and unhealthy food (i.e., conduct a choice-task); in our experiment, the test persons could not select among different options but had to evaluate a single product (i.e., conduct an evaluation task). These differences reduce the external validity of our results. Third, our findings are obtained from consumers living in Ger-
many. Consumers living in different countries and cultures might respond differently to unhealthy food.

5.4. Suggestions for future research

To overcome the limitations of our studies with regard to their external validity, we recommend conducting store tests in the next step. For instance, retailers could offer unbranded food items for a certain span of time without using a consummatory image and then offer them in combination with consummatory images. Differences in sales would be a more valid indicator for the effectiveness of the use of consummatory images and different types of these images. We focused on the use of consummatory images of “unbranded food” sold in retail stores. As Fig. 3 indicates, consummatory images can also be used to promote brands. Thus, research should also consider the use of consummatory images for promoting this type of product.

Notes

[1] Poor et al. (2013) analyzed the mediating effect of the favorability of thoughts calculated as the difference between the number of positive (P) minus negative (N) thoughts elicited by food. In a replication study conducted in Australia, Pitt and Ang (2015) calculated the divergence of positive and negative thoughts as \(P+N\)/2-P-N. The idea underlying this formula is very simple: when both P and N have high values, the experienced conflict is high (while the favorability of thoughts indicates a neutral level in this condition). Contrary to the assumptions of Poor et al. (2013), Pitt and Ang (2015) found that a consummatory image causes a more unfavorable response (conflict) to unhealthy food in female consumers than does a food image.

[2] Poor et al. (2013, p. 134) asked test persons to agree or disagree with “feeling guilt”, “feeling remorse,” and “feeling bad” to assess feelings of consumption guilt. We used similar measures and asked the test persons participating in the main study of Experiment 1 to agree or disagree with “I would feel a strong conflict if I were to eat this food,” “I would feel guilty if I were to eat this food”, and “I would feel the need to justify my behavior” (seven-point scale, \(\alpha = .890\)). The items assessing feelings of guilt are adopted from Thompson et al. (1995). Even for the unhealthy food, the test participants indicated that the anticipated feelings of guilt are rather weak (\(M_{\text{healthy food}} = 2.39\); for only 9.9% of these test participants, a value above the scale center, i.e., 4, could be calculated). Thus, we decided not to consider this aspect further. This finding is in line with other researchers who also state that feelings of consumption guilt might only matter among consumers who rely on a “protestant work ethic”.

[3] After this step, a sub-sample of test participants could take some strawberries (or cookies) from the packaging, eat them, and answer the same questions about healthiness, tastiness, affect, and purchase intent, as they were asked prior to consumption experience. Because the results of the product test are irrelevant for answering the question about whether retailers should affix consummatory images on the packaging of unbranded food, we refrain from describing these results. For instance, in retail stores, the consumers are not allowed to open a clamshell box containing fruit salad and taste it.

[4] As noted above, we also asked a sub-sample of the test participants to eat fruit gums shaped as strawberries, to eat fresh strawberries, to eat chocolate cookies, or to eat whole-grain cookies and to indicate perceptions of healthiness, tastiness, affect, and purchase intent. Even in the condition where the consumers tasted the products, we did not find an effect of the type of food (unhealthy vs. healthy) on affect.

References


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