

Consumers' Feelings of Guilt as a Function of Snack Type

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Abstract

This study investigates the association between leading snack foods and consumers' feelings of guilt and willingness to share. Our hypothesis was that guilt and willingness to share will vary as a function of snack type. We further hypothesized that consumers who choose nutrient-dense snacks, would feel less guilt and increased willingness to share when compared to other less nutrient-dense snack foods. Consumers were given 6 of the leading snack brands. Data was collected on the consumers' feeling of guilt and willingness to share after reading the label and consuming each item. Results showed that consumers vary in their feeling of guilt and willingness to share as a function of snack type. These variations may be partially explained by the nutrient content and the length and makeup of the ingredients of the snacks. Higher nutrient levels and fewer ingredients may partially explain lower ratings of guilt and greater willingness to share.

Keywords: Consumers; Guilt; Sharing; Snack; Ingredients; Nutrition

Introduction

Americans consume up to 30% of their daily calories from snacks [1]. This may be problematic as snacking is generally associated with foods low in nutrient density and high in fat, sugar, and salt [2] and although consumers are able to identify examples of health snacks, there is often a disparity between ideal healthy snacks and those actually consumed [3]. Many factors influence the type and amount of food consumers consume, guilt is one of these factors.

Steenhuis reported that women experience more feelings of guilt while eating as compared to men [4]. Women tend to focus on the type of food consumed as well as the amount of calories and fat in the food; chocolate can elicit guilt responses from healthy, normal-weight women [5]. These responses are most likely induced by negative food-related cognitions that are based on culturally determined attitudes to slimness and body weight [6]. Guilt may be experienced due to the consumer's previous notions about the food they are eating or because of diet-related beliefs [7]. Some snack foods, such as candy, may elicit positive emotions when given for holidays, birthdays or anniversaries, but if eaten in excess, these same foods may elicit negative emotions [8].

Although guilt can be a motivator for food selection, research indicates that consumers will override feelings of guilt in favor of taste and pleasure when choosing foods that they consider unhealthful [9]. When anticipated emotion was a construct in a decision-making process to determine how consumers perceived healthfulness and behavior intentions, researchers found that consumers who ranked

dietary concerns as high, less frequently made choices based on anticipated pleasure than consumers who ranked dietary concerns as low. These results suggest that anticipated pleasure mediated the relationship between perceived healthfulness and behavior intentions, while anticipated guilt did not influence eating behavioral intentions as strongly [10]. Consumers in a focus group, when questioned about motives for food choices, reported that they disregarded feelings of guilt when eating unhealthful food as a reward after a stressful day [11]. When comparing feelings of guilt vs shame, consumers who anticipated shame from eating a dessert were significantly less likely to eat the cake than consumers who identified feelings of guilt from eating the dessert, possibly due to feelings of shame being associated with a stronger physiological response than guilt [12]. In a study in which consumers were asked to rank both pictures of food and their nutrition labels in terms of health, taste was a stronger predictor of attitude toward the food and past eating behavior, than feelings of health, guilt and comfort (all of these measures were significant) [13]. Guilt has been shown to be related to food intake yet the effect is trumped by taste. Across all foods, liking was the primary predictor for food choices while health and weight control were the most common predictor for daytime snacking and pleasure and visual appeal for snacks consumed at night [14].

Yet with moms, taste and pleasure do not override guilt because sharing of food with their children appears to make moms more likely to choose foods that are healthful. Pescud and Pettigrew found that, despite the child's weight, mothers felt most guilt after letting their children eat too much or after feeding their children food that was perceivably high in fat, sugar, or salt [15]. When asked why they let their children overeat or eat highly processed foods, answers included low cost of unhealthy foods, time constraints, fear of their child experiencing hunger in the future, and securing their children's affection. Moms felt guilty for feeding their children food that was considered unhealthy, yet their reasoning for doing so sometimes involved wanting to secure their child's affection.

But, while human beings are naturally inclined to share well-liked food, little research has been done on willingness to share nutrient-dense versus calorically dense foods [16]. And, although guilt is associated with willingness to share food, there is little information about the relationship of various snack foods, guilt and willingness to share. Research to assess these relationships of willingness to share and the major snack varieties is warranted.

The relationship of guilt, willingness to share and snacking has not been specifically studied. Considering that snacking provides a large percentage of the calories in the American diet, it would be beneficial to study the major snack categories in relation to guilt. The integrative nature of the Family and consumer's body of knowledge provides a unique framework to view the interactions as basic human needs. These basic human needs include, "material well-being", social well-being, freedom of choice and psychological well-being.

Materials and Methods

To determine the association of snack choice with guilt and willingness to share the major snack categories were studied: potato chips, cookies, corn chips, crackers, candies, and nuts. A leading brand in each category was selected for analysis: potato chips (Lay's), cookies (Oreos), corn chips (Nacho Cheese Doritos), crackers (Ritz), candy (M&Ms), nuts (Wonderful Pistachios). Participants (N = 100) were a convenience sample of students and staff recruited from a mid-western university. Participants signed an informed consent at the beginning of the study. The participants were then given a pre-survey prior to tasting the snack or seeing the food label. For the purpose of our study the food label was defined as the nutrition facts panel and ingredient list. Participants ranked their agreement with two statements: Eating (___) makes me feel guilty and (___) are a food I would feel good about sharing with my friends and family using a 4-point Likert Scale (1 = strongly disagree to 4 = strongly agree) and answered one open ended question, "eating (___) makes me feel (___)". Individual snacks then were administered one at a time rotating the sequence of the 6 snacks. The investigator read the ingredient list out loud to each participant. Participants were given a 100-calorie portion of the snack, asked to read the food label information and consume as much of the 100-calorie serving as desired during the eating occasion. All of the food labels given to the participants displayed an ingredient list and nutrition facts panel but did not have any health messaging. The nutritional information was made available for the participants to look at throughout the eating occasion. After food tasting and reading the label, the participants were given a post-survey that was identi-

cal to the pre-survey consisting of the same two statements and one question. Data was recorded by number so the participants' names were confidential. The survey was validated for this population. The university's Internal Review Board approved the study protocol.

Results and Discussion

Were there differences in feeling guilty about eating the various snacks? There was an overall difference at pre-intervention, $F(5, 370) = 49.30, p < 0.001, \eta^2 = .40$ (see Table 1). Nuts received the lowest guilty rating. Post-hoc pairwise comparison tests with a Bonferroni adjustment indicated that the participants would feel significantly less guilty eating nuts than eating each of the other five snacks. Crackers had the second lowest guilty rating. Participants also would feel significantly less guilty eating crackers than each of the other four snacks. Candy received the third lowest guilty rating. This was significantly lower than the rating given to potato chips. All other pairwise comparisons were not found to be statistically significant.

At post-intervention, there was also an overall difference in guilty ratings across snacks, $F(5, 370) = 23.58, p < 0.001, \eta^2 = 0.24$ (Table 1). As in the pre-intervention stage, nuts had the lowest guilty rating, and participants felt significantly less guilty eating nuts than each of the other five snacks. All other pairwise comparisons were not found to be statistically significant. To summarize, the participants reported differences in feeling guilty about eating the various snacks. In particular, they would feel significantly less guilty about eating nuts than the other snacks.

Did the participants change their feelings of guilt after the intervention? The participants felt significantly more guilty after reading the label for and consuming crackers, $t(74) = 3.49, p = 0.001$ (Table 1). The changes in ratings for the other five snacks were not found to be statistically significant.

| | Corn Chips | Potato Chips | Candy | Cookies | Nuts | Crackers |
|----------------------------------|-------------|--------------|-------------|-------------|------------|-------------|
| Pre-intervention Feeling Guilty | 2.87 (.98) | 3.04 (1.02) | 2.67 (1.01) | 2.85 (1.21) | 1.45 (.78) | 2.07 (.91) |
| Post-intervention Feeling Guilty | 2.72 (1.20) | 2.87 (1.10) | 2.76 (1.11) | 2.79 (1.15) | 1.48 (.78) | 2.44 (1.08) |
| Change in Feeling Guilty | -.15 (1.23) | -.17 (1.02) | .09 (1.33) | -.07 (1.26) | .03 (1.00) | .37 (.93) |

Table 1: *Feeling Guilty Ratings for the Various Snacks.*

Note: Pre- and post-intervention ratings range from 1 (lowest) to 4 (highest); standard deviations are in parentheses

Were there differences in feeling good about sharing the various snacks? There was an overall difference at pre-intervention, $F(5, 370) = 12.21, p < 0.001, \eta^2 = 0.14$ (see Table 2). Nuts received the highest sharing rating. Post-hoc pairwise comparison tests with a Bonferroni adjustment showed that the participants would feel significantly good about sharing nuts with other people than each of the other five snacks. All other pairwise comparisons were not found to be statistically significant.

| | Corn Chips | Potato Chips | Candy | Cookies | Nuts | Crackers |
|--|-------------|--------------|-------------|-------------|------------|-------------|
| Pre-intervention Feeling Good About Sharing | 2.60 (1.01) | 2.41 (1.04) | 2.65 (1.05) | 2.35 (1.05) | 3.23 (.82) | 2.72 (.98) |
| Post-intervention Feeling Good About Sharing | 2.25 (1.02) | 2.27 (1.06) | 2.31 (1.09) | 2.20 (1.03) | 3.31 (.89) | 2.40 (1.00) |
| Change in Feeling Good About Sharing | -.35 (.94) | -.15 (.98) | -.35 (.89) | -.15 (.93) | .08 (.87) | -.32 (.93) |

Table 2: *Feeling Good About Sharing with Others' Ratings for the Various Snacks.*

Note: Pre- and post-intervention ratings range from 1 (lowest) to 4 (highest); standard deviations are in parentheses

Two coders independently classified the participants' responses to the open-ended questions at pre- and post-intervention as positive, neutral, or negative in tone. The kappa values shown in Table 3 were all statistically significant, indicating similarity in the two coders' classifications. There were moderate (kappa values between 0.40 and 0.60) to strong agreements (above 0.60) between the two coders. After the inter-rater reliability estimates were obtained, the two coders discussed and arrived at a consensus on comments where they differed in their classifications, Table 4. These final codes were utilized in succeeding data analyses involving the participant's comments.

| | Corn Chips | Potato Chips | Candy | Cookies | Nuts | Crackers |
|----------------------------|------------|--------------|-------|---------|------|----------|
| Pre-intervention Comments | .82 | .54 | .78 | .90 | .82 | .67 |
| Post-intervention Comments | .59 | .38 | .77 | .70 | .76 | .78 |

Table 3: Inter-rater Reliability Estimates (Cohen's Kappa Values).

Note: All kappa values were statistically significant at $p < .001$.

| Snack | Pre -Intervention negative responses | Post-Intervention negative responses | Percentage change | Selected Comments |
|--------------|--------------------------------------|--------------------------------------|-------------------|--|
| Corn Chips | 50 | 65 | +30% | "Unhealthy", "Bad", "Gross", "Fat", "Guilty since I am on Weight Watchers", "Unhealthy" |
| Potato Chips | 47 | 43 | -9% | "Guilty", "Bad", "Fat", "Cheating", "Overindulge" |
| Candy | 31 | 49 | +58% | "Guilty", "Bad", "Still unhealthy", "Fat" |
| Cookies | 43 | 53 | +23% | "Guilty", "Sick", "Unhealthy", "Too much sugar", "Overindulgent" |
| Nuts | 6 | 7 | +17% | "Yucky", "It's a lot of work", "Gross", "I tend to over eat them", "Unsatisfied" |
| Crackers | 13 | 30 | +131% | "Too many ingredients", "have high fructose corn syrup which is bad", "Surprised they contain lots of unhealthy ingredients" |

Table 4: Participants' Response to the Open-Ended Questions at Pre- and Post-Intervention.

Consumers' ratings of guilt and willingness to share did vary as a function of snack type. The reasons for the differences pre-intervention are beyond the scope of this paper. Post-intervention, after the consumers looked at the nutrient content, ingredient list, and consumed the snacks, there were significant changes.

Nutrient content may have contributed to the changes. Crackers displayed the greatest change where the guilt rating increased significantly ($p < 0.001$) and willingness to share decreased significantly. These changes may be partially explained by the vitamin and mineral content of the crackers as displayed on the package label, Figure 1. The nutrition facts panel provides the basic nutrient content of the foods. Crackers did not show any vitamin or mineral content on the label, the lowest of all the snacks. This corroborates the findings of Lando and Labiner-Wolfe that the nutritional value of food was a factor in food selection [17].

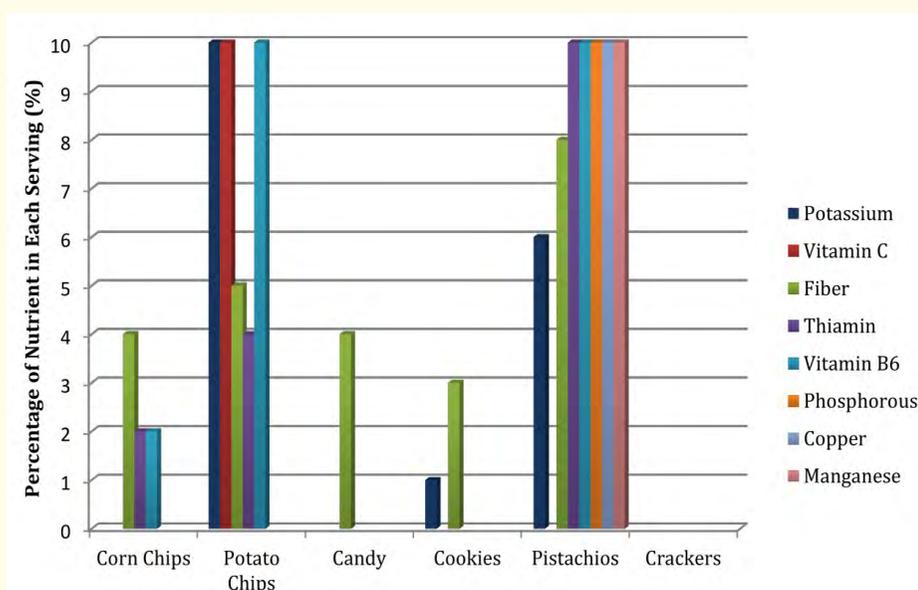


Figure 1: The percentage of each nutrient in a serving of the given snack food as displayed on the label.

The significant decrease in willingness to share as seen post-intervention for corn chips and candy may also be partially explained by the nutrient content as shown on the label. Candy only listed 4% fiber on the label and corn chips 4% fiber and 2% for thiamin and vitamin B6, Figure 1. Nuts list 7 nutrients on the label, 5 of which were 10 %which may partially explain their low guilt rating (1.48) and high willingness to share rating (3.31) seen post intervention. If the nutrients listed on the label are associated with feelings of guilt and willingness to share, this may be an important finding as Ohlhorst., *et al.* reported that between 45% and 80% of US adults report reading food labels [18]. More research is needed to confirm this association.

The length of the ingredient list may also contribute to the change in ratings of guilt and willingness to share seen post-intervention. Eighty percent of consumers think a short, simple ingredient list is important [19]. The significant decrease in willingness to share seen post-intervention for candy and corn chips may be partly explained by the relatively large number of ingredients listed on the label 16 and 26 respectively, Figure 2.

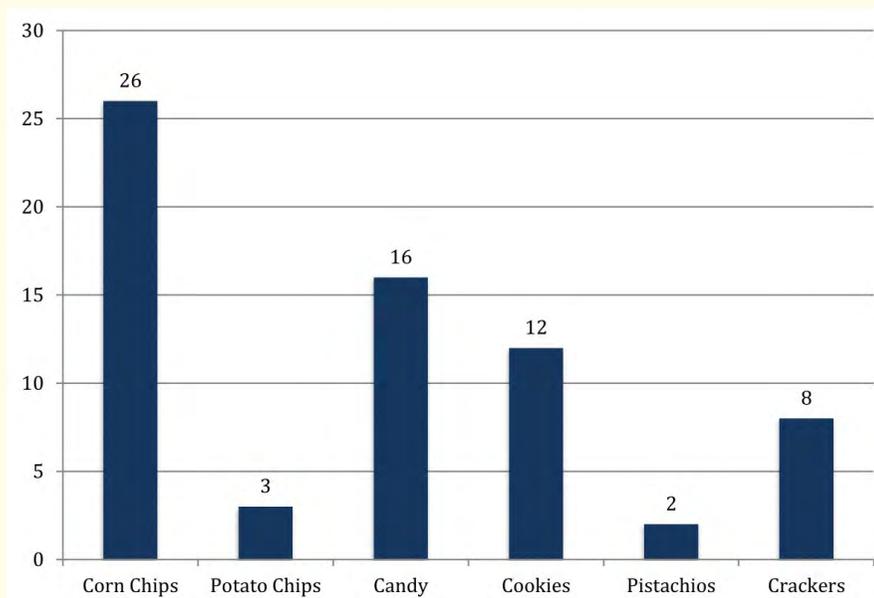


Figure 2: Number of ingredients shown on each snack food label.

The increase in guilt score seen with crackers may also be to a lesser extent explained by the relatively larger number of ingredients, eight. And since one in five consumers check the length of the ingredient list, and more than 70% of consumers are willing to pay more for foods that have clean labels [20], and consumers are willing to pay up to 20% more for food products and brands marketed as healthy [21,22], this may be an important factor when conducting nutrition education in the classroom and community.

The increase in guilt scores seen for crackers was accompanied by the large 131% increase in negative comments from pre to post-intervention. The comments mentioned not only the length of the ingredient list but also specific ingredients that the consumers thought to be unhealthy such as high fructose corn syrup.

Conclusion and Limitations

Consumers changed their feeling of guilt and willingness to share as a function of snack type after viewing the nutrition facts panel and ingredient list and tasting each snack.

Since these changes in perceptions were accompanied by differences in the actual amount of nutrients and up to 30% of daily calorie consumption comes from snacking, it seems prudent that Family and Consumer Professionals consider these factors when conducting nutrition research and providing nutrition education. The Family and Consumer Science body of knowledge and integrative nature of the discipline that includes nutrition, consumer sciences and family studies may provide an ideal framework to study the complex interactions of social behavior, family interactions and snacking.

This study only assessed the relationship of snacks with a convenience sample of students and staff and it is not known if these findings are generalizable to a larger and more diverse population. Guilt and willingness to share are a result of a complex array of emotional, biological, environmental factors and personal interactions. This study only looked at nutrient content and ingredient lists to explain the relationship. There are other factors that could also explain the variation between snacks. Future studies can more adequately test the relationship of snacks to guilt and willingness to share by measuring and taking into account the consumers' attitudes, preferences, and habitual consumption of these snacks. These variables could be treated as covariates in the analyses. Information about these variables could also shed light on the relationship between guilt and willingness to share and snack type.

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Conflict of Interest

The authors declare no conflict of interest.

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