THE EFFECT OF GLUTEN-FREE LABELS ON CUSTOMER'S PERCEPTION OF HEALTHINESS, EXPECTED PRICE, AND WILLINGNESS TO PURCHASE

by

Cori Jo Navarro

Submitted in partial fulfillment of the

Requirements for Departmental Honors in

The Department of Marketing

Texas Christian University

Fort Worth, Texas

May 2, 2016

THE EFFECT OF GLUTEN-FREE LABELS ON CUSTOMER'S PERCEPTION OF HEALTHINESS, EXPECTED PRICE, AND WILLINGNESS TO PURCHASE

Project Approved:

Supervising Professor: Eric Yorkston,

Department of Marketing

Dr. Anne VanBeber,

Department of Nutritional Sciences

ABSTRACT

The purpose of this study is to identify gluten-free label's effect on customer's perceived healthiness, expected price point, and willingness to purchase. The hypothesis is that gluten-free labels will have a significant effect on customer's perceptions, price points, and willingness to purchase. Through a survey, this research will examine eight different products and the difference between the results for products that are normally gluten containing and those that are naturally gluten-free. These results will allow for companies to discover the benefit a gluten-free label may have on their products. In addition, these results may demonstrate the effect that customer perceptions can be effected even if a gluten-free label is used on a naturally gluten-free product.

.

TABLE OF CONTENTS

LITERATURE REVIEW

Gluten-Free

Gluten-free has taken the health world by storm. What is gluten and why is it being avoided? Gluten is a general name for proteins found in wheat, rye, barley, and triticale (Celiac Disease Foundation, 2015). The protein acts as glue that holds food together and gives bread its texture (CDF, 2015). This protein helps with starch storage in the plant in order for the plant to grow. It would seem that a protein that aids in growth wouldn't cause problems. However, gluten has severe implications for those suffering with celiac disease. Celiac disease, affecting three million people in the Unites States (Topper, 2014), is an autoimmune disease caused by eating gluten that damages the lining of the small intestine preventing the proper absorption of nutrients (National Foundation for Celiac Awareness, 2015). Those suffering from celiac disease have digestive systems that are unable to process the protein gluten. Therefore, consumption of this protein can cause vomiting and other serious digestive issues (National Foundation for Celiac Awareness, 2015). The only way to fight celiac disease, is with a gluten-free diet.

However, people practicing a gluten-free diet without celiac disease have also claimed health benefits such as weight loss and boosted energy levels (UWH, 2015). Nearly one third of Americans are gluten-free for various reasons (Shute, 2013). Some of these consumers have claimed to have gluten sensitivity, which is not related to celiac disease and is referred to as non-celiac gluten sensitivity. The amount of gluten-free foods in the market has dramatically increased by 63% in the last two years (Mintel, 2014). Nearly 77% of participants, who in a study claimed to be eating gluten-free, did not have celiac disease (Topper, 2015). This focus on eating "gluten-free" has brought about the use of "gluten-free" labels. Many consumers are relying on the words "gluten-free" to make healthy choices, lose weight or improve overall

health (UW Health, 2014). Labels are used to inform consumers about the product. In the case of products such as gravy and soup, gluten is used as a thickener (CDF, 2015). Since the products are not directly sourced from wheat, rye, or barely consumers may be unaware that these products contain gluten. A gluten-free label helps customers quickly identify if a product does not contain gluten. However, the absence of a gluten-free label does not automatically equate to a gluten-containing product.

Unexpected gluten in foods can create skepticism and increased reliance on gluten-free labels (Verrill, 2013). An increased dependence on labels, has led to the rise of naturally gluten-free foods bearing gluten-free labels. While these products never contained gluten, if they are not labeled gluten-free, consumers may not take time to examine the products ingredients. For example, manufacturers of products such as fruit juice are using gluten-free labels (Culhane, 2015). Fruit juice consists of fruit, which naturally contains no wheat, rye, or barley. However due to the increase awareness of gluten intolerance as well as hidden gluten in products, gluten-free labels are becoming a necessity.

With more and more products emphasizing gluten-free, it is no surprise the gluten-free market increased 136% from 2013 to 2015. Currently gluten-free food sales total $11.6 billion with a 6.5% share of the overall food market. Even beyond foods in grocery stores, food vendors such as restaurants are increasing the gluten-free labeling on menus (Topper, 2015). While there is currently no data on gluten-free sales for food vendors, it can be assumed the sales of gluten-free foods have increased in this sector as well. Even the popular cereal brand Cherrios created a gluten-free version of its cereal. Oats naturally do not contain gluten. In the past, Cherrios used a mix of grains that, in addition to oats, include wheat and barley. While cereal pieces are mostly made of oats, the presence of wheat and rye make Cherrios dangerous for celiacs (Cherrios,

2015). Such a well-known brand attempting to make their product gluten-free speaks to the strength of the trend.

With exponential growth, gluten-free labels warrant regulation from the FDA. Up until 2013, no regulations guided the labeling process. Gluten-free foods may be labeled in 4 ways. The labels that companies can use include; "gluten-free", "free of gluten", no gluten", and "without gluten". If any food is labeled with one of the four options, the FDA requires it to have less than 20 parts per million of gluten. Scientifically, most celiacs can consume a small amount of gluten without any side effects. Since some foods naturally do not contain gluten, they meet FDA requirements of less than 20 parts per million. The FDA allows for foods naturally gluten-free and those manufactured to be gluten-free both to be labeled with no addition distinction. Since the FDA does not heavily regulate labeling in restaurants, it has strongly encouraged these establishments to follow the same rules (FDA, 2015).

There are clear guidelines for use of gluten-free labels. Even so labels can still be confusing for those trying to maintain a gluten-free diet (Verrill, Zhang, Kane, 2013). This confusion stems from the prevalent use of gluten in processed foods. Even products like medicine or dietary supplements can contain gluten (Verrill, 2013). Adding to existing confusion is the fact that the Food Allergen Labeling and Consumer Protection Act does not consider all gluten containing grains as food allergens. For example, rye and barley can be hidden under terms like malt (Verrill, 2013). Based on the study conducted by Verrill (2013), consumers who have gluten sensitivity rely more heavily on gluten-free labeled products. On the other hand, those diagnosed with celiac disease heavily rely on reading the ingredients and are more aware of hidden gluten. In addition, those with gluten sensitivity find it harder to maintain a gluten-free diet than those with celiac disease (Verrill, 2013).

Health & Nutrition Claims Background and Effects

Health claims "state, suggest, or imply that a relationship exists between the food and health" and a nutrition claim "states, suggest, or implies that a food has particular beneficial nutritional properties due to the energy or nutrients that it provides, provides at a reduced rate or does not provide" (Lalor and Wall 2013 pg. 322). From advertisements on TV to small labels on food packages, nutrition claims are widely used in the market. While there is a technical difference between nutrition and health claims, most research up to this point has considered them equal and lumped them together under "NH claims", and this study will hold them equal. (Trijb, Lans, 2006).

Research has shown that consumers prefer products with health claims (Khurshid, Ahmad, Saeed, 2013). This in itself is reason enough to place a health claim on a firm's products. However, consumers do have concerns and prefer government approval of health claims. An important aspect of health claim research is that customers prefer simple health claims to complex ones (Khurshid, 2013). Consumers use these claims to make decisions, and health claims share the common goal of relating food with a desired result. Even though health claims share this common goal, there are three categories that health claims can be divided into. These categories include nutrient, enhanced function, and reduction claims. Nutrient claims focus on a certain nutrient in a product and its requirement for human development or growth. An enhanced function claim points out a nutrient and its ability to improve human function. Finally, a reduction claim identifies that the product or product ingredients may reduce the chances of a certain disease (Kurshid, 2013).

To examine how these different health claims affect consumers, we can turn to a study done with advertising for a female magazine. From 2007-2009 food advertisements in various

women's magazines were analyzed. The goal of this analysis was to discover the difference in consumer responses to benefit-seeking (enhanced function) and risk-avoidance (reduction) claims. Researchers found there were a greater number of risk-avoidance ads at 59.4% than benefit-seeking ads at 27.7% (Choi, 2013). One reason behind this disproportion was the food being advertised. Risk-avoidance appeals were most often associated with sugary products such as cookies, sweets, and candy. Since these products would normally be considered less healthy, marketers are trying to reduce the perceived level of risk. Regardless of the marketer's intentions, consumers preferred risk-avoidance health claims. Risk-avoidance claims cover items such as "reduced risk of heart disease", "fat-free", "reduced-fat" (Choi, 2013). In addition, studies in the UK and US support that finding with conclusions that consumers prefer prevention of disease rather than health protection (Khurshid, 2013). The review of past literature on health claims explains how gluten-free labels rose to such prominence. Gluten-free is a health claim that is simple and focuses on risk-avoidance rather than direct promotion of health, which is in line with previous studies.

While some studies show that consumers have opinions about health claims, other studies show that health claims do not increase the customer's perception of overall healthiness (Trijb, Lans, 2006). In a study conducted across 4 countries, (Italy, Germany, US, & UK) results varied by country when asked about the understanding of health claims (Trijb, 2006). However, they did not differ statistically in regards to if certain health claims affected overall perceptions. Across all the respondents, the type of claim made did not increase overall perceived healthiness (Trijb, 2006). Thus, this research points out that different countries view health claims differently. For these countries different health claims were not distinguishable in their effect on customers.

Some research has shown consumers prefer health claims, but debate how effective they are in regards to encouraging purchasing the product. A health claim can be likened to any other attribute such as price or quality. Each attribute has the singular goal of selling a product (Tillotson, 2003). However, health claims must be chosen wisely. Tillotson (2003) developed the STEP Analysis that identifies a strong health claim. A potential health claim can become a high potential health claim, once several factors are considered. For example, the scientific, regulatory, market, and consumer analysis would all contribute either positively or negatively to the health claim's potential. In addition factors such as the technical, political, economic, and social environments need to be considered when creating a health claim (Tillotson, 2003). Overall, evidence has shown that health claims do affect customers. However, they must be chosen carefully because not every heath claim will benefit every product.

Persuasion through Perceptions

Previous research has discussed the effect that a health label can have on consumer perceptions. The purpose is to create a more favorable attitude towards the product including an increase in purchase decisions (Andrews, Netemeyer, and Burton 1998). With any labeling, advertising, or promotion the desired result is action, i.e. buying the product rather than a competitor's product. Thus, in order to understand how consumer choices are influenced we must examine the process of consumer choice.

The action theory of persuasion acknowledges that before every action there must be a choice to act (Funkhouser, 1999). The theory centers on the belief that there is one persuader. The persuader has one purpose - to persuade the actor. In a marketing world, the persuader is the company's marketing and advertising team while the actor is the consumer. The company wants to promote an action from the consumer. However, research suggests promoting action is hard to

accomplish (Funkhouser, 1999). The reason behind the suggestion is two fold. First, persuasion to do something is more easily detected than persuasion not to do something. Secondly, consumers naturally resist making decisions to take any sort of action (Funkhouser, 1999).

Since persuading action is difficult, Funkhouser (1999) argues that persuasion happens through information management in the pre-action decision process. Evidence of this can be seen in the expectant value form theory which states a choice to act (purchasing a product) is simply a result of the perceptions the consumer holds about a product's attributes. In addition, the weight placed on a single attribute can alter overall perceptions of a product. These perceptions are constantly in flux and therefore can be manipulated. If the firm understands what goes behind the consumer purchasing behavior, it can easily influence that behavior (Danciu, 2014). Focusing on a single attribute can influence consumer behavior because of basic hedonistic intentions of maximizing pleasure and minimizing pain. If the perceptions of a product are positive, a consumer will naturally choose the product that results in the largest amount of pleasure (Funkhouser, 1999).

In order to maximize pleasure in regards to healthiness, a consumer must place high value on health. A well-known example of this at work is when a health attribute shown through a health claim on a product leads to an over-generalization known as the halo effect (Sundar and Kardes, 2015). Presented with one statement such as "Low Cholesterol" consumer's overgeneralize and assume an increase in overall healthiness, whether that is the case or not. These over assumptions span across all knowledge levels that indicates labels are powerful marketing tools (Andrews, 1998). This generalization is not just due to consumer's inability to process information. Companies often only disclose certain information that can be misleading. For example, consumers may believe a product discloses a sufficient amount of information

about the health of the product because other claims are present. In reality, the high levels of fat contained in the product are not disclosed (Andrews, 1998).

In conjunction with the halo effect, consumers rarely evaluate products on a complete set of information. With a lack of time to analyze large amounts of information, consumers make nutritional inferences that affect actual consumption (Sundar and Kardes, 2015). However, recent studies have shown consumers are becoming increasingly aware of advertising techniques (Danciu, 2014). Due to this increase in awareness, consumers are demanding transparency. Honest and clear labels are necessary if companies want to build a long-term relationship with customers (Danciu, 2014). Even so, advertisers are continuing to use health labels and other avenues to influence consumer's perception.

In several studies done by Sundar and Kardes (2015), consumers actually have less favorable opinions about a product if there are missing attributes. The missing attribute causes a negative effect when it is considered highly variable (Sundar 2015). The highly variable attribute could be considered anything the consumer is unfamiliar with or thinks normally varies across brands (Sundar 2015). Missing attributes negatively affect consumer perception, but the health halo mentioned earlier has an opposite effect on consumption. In one experiment, when the halo effect occurred, the actual level of consumption was higher (Sundar 2015). After given some information, participants were asked to identify important attributes. The participants ranked the item, which was chocolate, on perceived taste and then were asked to taste test and record how many pieces they ate (Sundar 2015). The chocolate that the participant perceived higher on taste was the one in which they ate the most pieces. This result shows that the halo effect (a form of perception) can increase product consumption. The research overall shows that customer's perceptions have a powerful connection to actual consumption. In regards to health labels,

research demonstrated that these labels of information can influence perception and in turn persuade the consumer to purchase a product.

Irrelevant Attributes

It is clear that health claims can be persuasive. But can meaningless health claims and insignificant attributes create value for a product? According to the literature available, the answer is yes. For example, Folger's instant coffee is advertised as "flaked coffee crystals" produced by a "unique patented process". Although this information sounds like it would make the coffee better, the truth is that instant coffee flavor and quality is not dependent on the shape of the crystals. Technically since the flakes dissolve, the shape has no effect on the taste of the coffee (Carpenter, 1994).

Irrelevant information like this can lead to the dilution effect (Meyvis and Janiszeski, 2002). When a consumer is presented with irrelevant information, it can lead to weaker judgment. Consumers can average information or use representative heuristics when making weaker judgments. Averaging occurs when arbitrary information actually lessens the value of relevant information. There is some debate between whether this information evaluation happens simultaneously or individually for each piece of information. However, there is agreement on the fact that the irrelevant information lowers the overall average of the information. For example, a jury is less likely to convict a man in murder if irrelevant information such as his height and weight are included (Meyvis, 2002).

In the example above, the likelihood that the man murdered someone was lessened in the jury's minds simply because of extra information. Another way irrelevant information is said to affect perceptions is through representative heuristics. This theory states that consumers will use the relationship between two sets of information in order to make their decision. Adding

irrelevant information can lower the probability normally associated with a product (Meyvis, 2002). For example, if a packet of jellybeans is presented with a fat-free label, consumers may lower their perceived risk. If the consumer thought the jellybeans were unhealthy, adding in the irrelevant attribute of them being fat-free makes lowers the probability that they are unhealthy (Meyvis, 2002).

Even if the consumer valued the fat-free label in one scenario, research shows that the valuation of irrelevant attributes varies depending on the situation. For example, consumers value the information differently if the price varies (Meyvis, 2002). When the price for a product is higher than a similar product, consumers value irrelevant attributes more. However, there is a threshold for the power of irrelevant attributes. At a lower price, the attribute holds no weight. When a high price is combined with an irrelevant attribute, the perceived value of the brand as a whole is increased (Meyvis, 2002). The expectant value form theory (Funkhouser, 1999) which states a choice to act (purchasing a product) is simply a result of the perceptions the consumer holds about a product's attributes, an irrelevant attribute added to the mix of perceptions can still affect a consumer's choice even *after* they realize the attribute to be irrelevant (Carpenter, 1994). The theory of the trivial attribute effect confirms this statement. Even after consumers recognize the attribute is trivial, there is still strong brand differentiation (Dalaman, Min 2014).

The trivial attribute effect is heavily referenced in research when discussing irrelevant attributes. Brown and Carpenter (2000) reasoned the theory by using past literature. They tested the theory and concluded that consumers value every attribute whether relevant or not. Consumers do this because they want to make decisions, and even a trivial attribute can help solve the problem of having to choose (Brown 2000). The trivial attribute effect also distinguishes between negative and positive attributes. If a consumer is presented with two

options of brands, they will focus on positive attributes. However, if three or more brands are presented, consumers tend to focus on negative attributes to help them make decisions (Brown 2000).

In line with irrelevant and trivial attribute research, Hoch and Ha's (1986) research showed ambiguous information has a stronger effect on consumer perception than unambiguous information. If a consumer was presented with information that has zero effect on a product's benefits, consumers use that knowledge and think more highly of the product. The effect of these irrelevant statements goes beyond just perception. Consumers are actually more willing to pay for a product with ambiguous attributes in comparison to products without (Dalaman 2014).

An interesting find in Carpenter's study was the fact that when only presented with irrelevant information, consumers determine, that while it is irrelevant, it is distinguishable. The distinguishability serves products in more than one way. First consumers are more likely to choose a product that showed some sort of differentiation. Secondly, consumers are willing to pay a higher price for the difference (Carpenter, 1994).

This has implications for all companies wishing to separate their product from other products in the market place. Products could have just one or two meaningless attributes, but if it stands out from the other products, consumers will notice. As mentioned above, even after consumers are aware the attribute is meaningless, they still value a product with differentiation. All of this information supports the rampant rise of gluten-free labels in foods that naturally do not contain gluten. The goal is for the products to stand out whether the attribute is relevant or not.

Summary & Gaps

Gluten-free products are everywhere in the market place. As discussed, now manufacturers of products that are naturally gluten-free have begun labeling them as gluten-free. Gluten-free is a health claim that is simple to read, but may prove difficult to understand. Since knowledge about gluten is not as widely spread as gluten-free labels, there is heavy dependence on products to distinguish themselves as gluten-free. The research shows that health claims such as gluten-free can increase customer's perception or positive opinion about products. In addition, positive perceptions are linked to increased consumption, which is the end goal for a product. The goal of a gluten-free label might be to increase nutritional awareness, but also to persuade consumers to purchase the product.

In addition, research demonstrates that irrelevant attributes can increase customer perception of a product. While all of these concepts, health claims, perceptions, and irrelevant attributes, have been studied separately, the goal of this research is to examine several areas moving forward. Up to this point, irrelevant health claims on consumer perception and choice has not been examined. By combining the studied areas into one experiment, I will explore the effectiveness of these tactics currently being used by firms. I will test the influence that a gluten-free label has as an irrelevant health claim in three areas. 1) Consumers perceived healthiness of the product 2) Consumers price point and 3) Consumer's willingness to purchase. The experiment will be conducted through a survey. The survey will also test consumer's knowledge of gluten with a gluten-quiz and collect demographic information.

The goal of this research is to identify the breadth of gluten-free labels. Are gluten-free labels over-used in order to effect customer's perceptions? If they are present in the marketplace, can they be linked with improving a product's overall perceived healthiness? Even if a product is

naturally gluten-free, could a label on the packaging convince consumers to purchase it over a competitor? If gluten-free labels have a larger effect on consumers, it is possible all products that are gluten-free will need to clearly state so in order to stay competitive. Consumers have the right to not be tricked by labeling, since its primary purpose is to assist in making good decisions. The results of this study may have large implications for the world of health labeling, especially when dealing with irrelevant attributes.

METHODOLOGY

Preliminary Data Collection

For the validity of this study, I performed preliminary research. Data was gathered regarding the number of SKUs with gluten-free labels. A distinction was made between products that normally contain gluten, such as bread and pasta, and products that do not contain gluten, such as fruit juice or eggs. The purpose of this data is to demonstrate that gluten-free labels are being used as irrelevant health attributes in the marketplace today. The data was collected at a Kroger grocery store on South University Drive from September 24-28, 2015. The results are as follows.

An average grocery store contains about 5,000 stock-keeping units or SKUs. At Kroger, these SKUs are identified with a barcode and images of the product. Recently, Kroger added a gluten-free label to these barcodes in order to assist customers with identification of gluten-free items. Based on research, products were grouped together into sections such as gluten containing, non-gluten containing, and sometimes gluten containing. The purpose of the data collection was to see how many SKUs were labeled gluten-free and compare it to how many of the products normally contain gluten. For example, cookies normally contain gluten because they

are made from flour. A packet of cookies that were labeled gluten-free were placed in the gluten containing section of the data. Products like white wine vinegar that were labeled gluten-free were placed in the non-gluten containing section of the data.

After collecting data from all food products in the store, the numbers were entered into a spreadsheet in order to calculate the percentages of gluten-free labels in the store as well as percentages of gluten-free labels on products that naturally do not contain gluten.

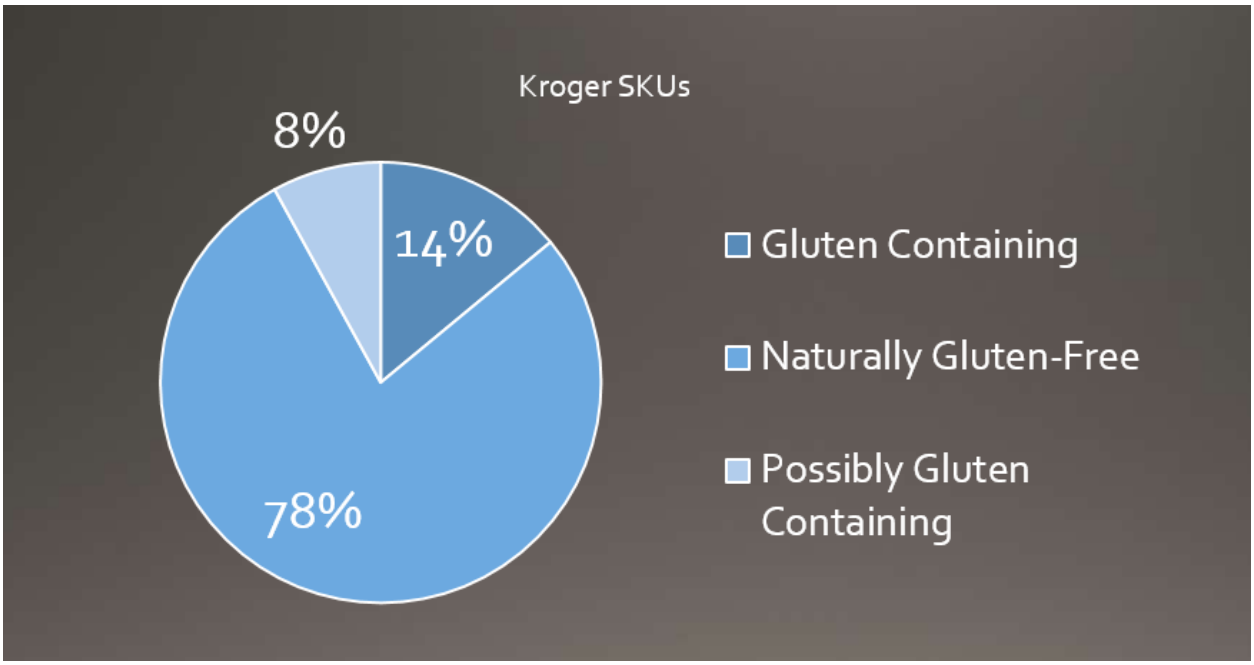

Figure 1 - The percentage of Kroger SKU with a gluten-free label that are naturally gluten-free

Out of the 1,994 products labeled gluten-free, 78% of them are naturally gluten-free. This data supports the reason for this study and the prevalence of the gluten-free movement.

Design, procedures, and study participants

For research design, a survey was conducted in order to test three areas of study. One survey was sent out to a pool of 269 TCU pre-business major students to test their perception of the level of health, price point, and willingness to purchase products with and without gluten-

labels. In addition, the survey contained a check in which students selected products that had a gluten-free label, included a gluten-free knowledge test, and ended with demographic information. The survey was conducted with eight products, four that typically contain gluten, and four that do not contain gluten, alternating between gluten-free labels and no label.

A 2 by 2 test (Gluten product/Non-gluten product) and (Gluten-free label/No label). The products consisted of cake mix, olives, pasta, peanut butter, tortillas, eggs, bread, and orange juice. Each section had a picture of the product and was followed with three questions 1) How healthy do you perceive [product] to be? With the options Extremely Healthy, Unhealthy, Somewhat Unhealthy, Undecided, Somewhat healthy, Healthy, Extremely Healthy. 2) How much would you expect to pay for [product]? With a sliding scale with a midpoint of market price with -2$ and +2$ on each end point. 3) How likely are you to buy [product]? with options being Very Unlikely, Unlikely, Somewhat Unlikely, Undecided, Somewhat Likely, Likely, Very Likely.

After seeing the block of eight products, participants were given a gluten test. This gluten test included 9 true/false questions: 1. Gluten is a protein found in wheat, rye, and barley (True), 2. Gluten can not be found in malt and hydrolyzed vegetable protein (False), 3. Bagels, muffins, croissants, hamburger buns, and pizza crust contain gluten (True), 4. Celiac disease is the result of the inability to breakdown the protein gluten (True), 5. A gluten-free diet is not the only cure for celiac disease (False), 6. Beer does not contain gluten (False), 7. Wine and liquor contain gluten (False), 8. Rice, potatoes, and quinoa do not contain gluten (True). 9. People who do not have celiac disease cannot see benefits from eliminating gluten from their diets (False). Next, participants were given a "check all that apply" option with the prompt: Did any of the products below have a gluten-free label. Select all that apply. The list of eight items were given.

Finally, participants provided demographic information including, gender and grade. The test pool was divided 45.8% male and 54.2% female, 70.7% of the students were third year students, 16.7% were fourth year students, and 12.6% were second year students.

Individual sample t-test analysis was used in order to determine if there was a significant difference between the two conditions (Gluten-free label vs. no label) for each product.

RESULTS

Perceived Healthiness of Products

Hypothesis: Perception of health will be higher for products with gluten-free labels

The results were as follows. In regards to the effect of gluten-free labels on participant's perception of a product's healthiness - six out of the eight products had a significantly ($p<.05$) higher rating of health than their no label counter parts. Cake mix, olives, pasta, bread, tortillas, and peanut butter were all perceived as healthier when given a gluten-free label. Orange juice had no significant difference in ratings. Eggs were the only product with a significantly *lower* price when presented with a gluten-free label.

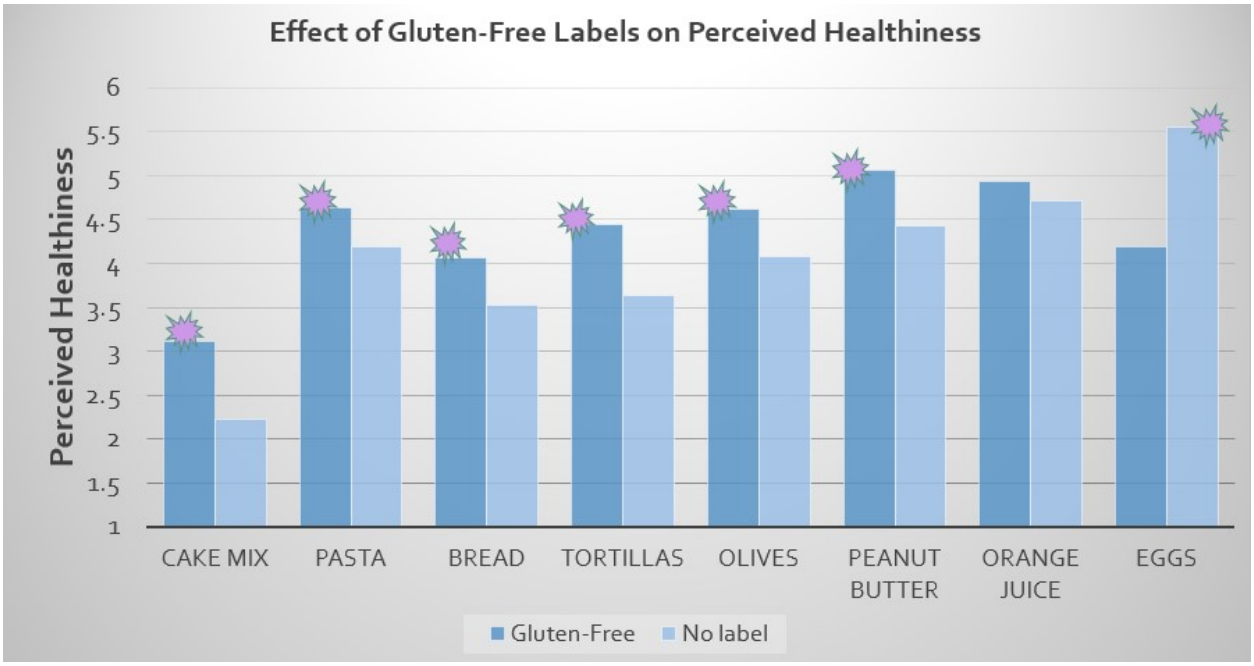

Figure 2 - The effect of a gluten-free label on perceived healthiness.

Price Point

Hypothesis: Prices will be higher for products with gluten-free labels

The results were as follows. Three out of the eight products with gluten-free labels were rated at significantly ($p<.05$) higher price points than the products with no label. Cake mix, bread, and peanut butter all had significantly higher prices when a gluten-free label was present. All other products, olives, pasta, orange juice, eggs, and tortillas showed no significant difference in price.

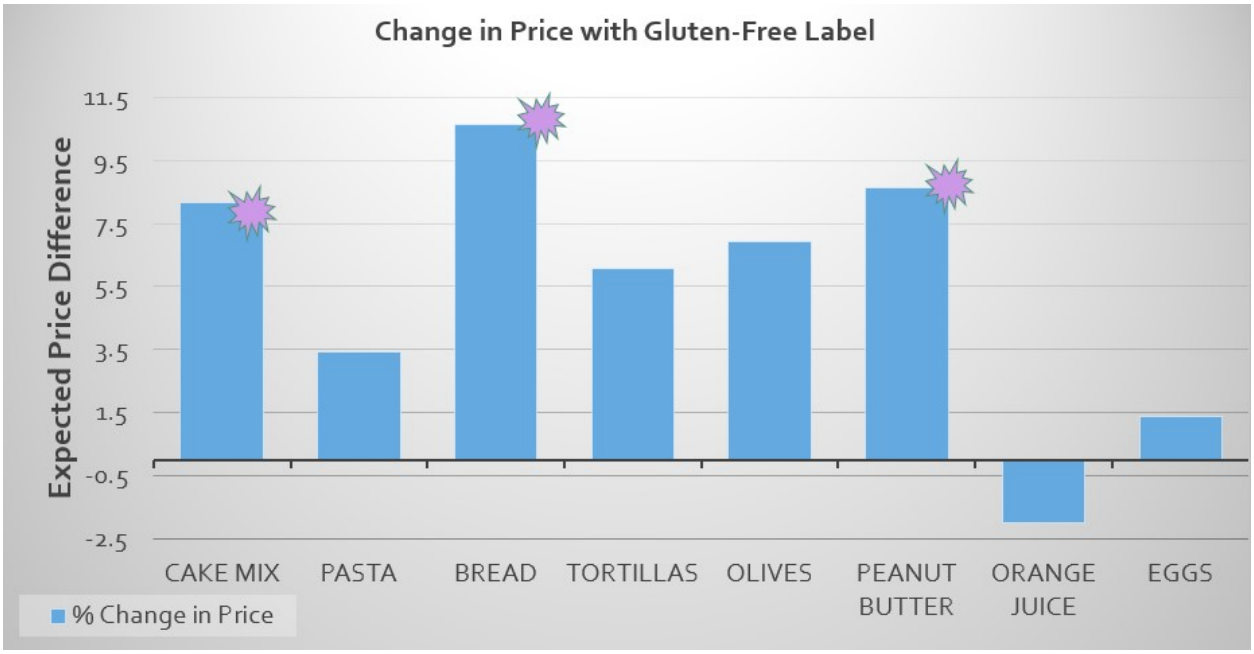

Figure 3 - The percent change in price with a gluten-free label

Willingness to Purchase

Hypothesis: Willingness to purchase will be higher for products with a gluten-free label

The results are as follows. Five out of the eight products had significantly ($p<.05$) higher willingness to purchase when there was no gluten-free label. Cake mix, pasta, orange juice, eggs, and tortillas all were more likely to be purchased when there was no gluten-free label present. Olives, bread and peanut butter showed no significant difference in willingness to purchase regardless of a gluten-free label.

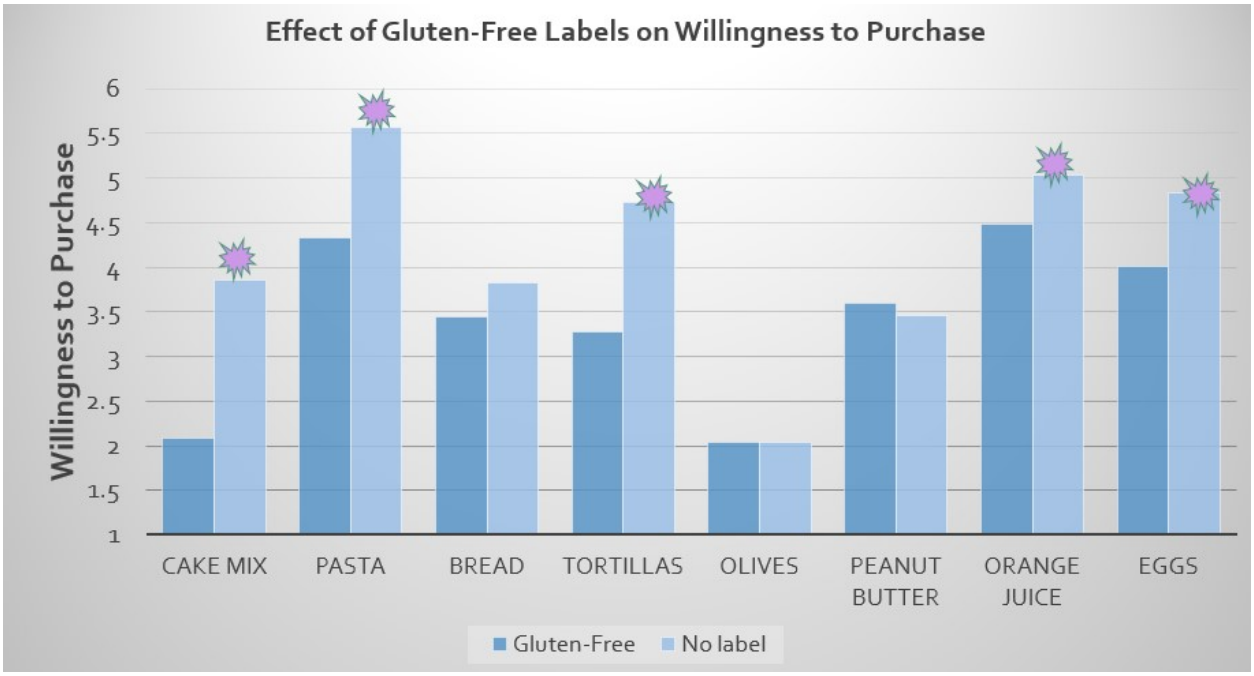

Figure 4 - The effect of a gluten-free label on customer's willingness to purchase.

Check mechanism

For each of the conditions, the participants were given a control check at the end in order to ensure they did in fact notice a gluten-free label on the products. For this check, 80% of participants said they saw a gluten-free label when one was present and 20% said they saw a

gluten-free label when one was not present. This ensured that the data we collected reflects the effects of a gluten-free label.

Gluten-Test

For the gluten test, participants scored an average of 74%, which equates to 6-7 out of the 9 questions being answered correctly. The test scores were divided up by high level of knowledge (6 or more correct) and low level of knowledge (5 or less correct). The test scores were then compared to the results of healthiness, price, and willingness to purchase. The results indicated that participants showed no significant different in their responses based on their knowledge of gluten.

DISCUSSION

These results indicate several interesting findings. In contrast with the hypothesis of perceived healthiness, eggs were seen as less healthy if a gluten-free label was present. A possible reason for this is that eggs are seen as wholesome and unprocessed. Eggs as an animal by product do not contain gluten. Consumers might start to doubt the quality of eggs if they have to be labeled as gluten-free. However, other products, which are naturally gluten-free such as olives and peanut butter, benefitted from a gluten-free label. Consumers may see these as more processed foods and therefore may have some doubt about the ingredients.

Price points for the products were not in line with the original hypothesis. Only cake mix, bread and peanut butter had significantly higher prices with a gluten-free label. This could be due to the fact that participants have more experience in these categories than others. Another option is that customers do not have a strong idea of how much these products cost. Peanut butter is an interesting product because it is naturally gluten-free, but participants thought that gluten-free

peanut butter was more expensive than regular peanut butter. They were actually willing to pay 8 % more for gluten-free peanut butter than normal peanut butter.

Participant's willingness to purchase seemed to have the direct opposite results from the hypothesis. Cake mix, bread, tortillas, are all products that can contain gluten, and participants were more likely to purchase them when there was no gluten-free label. This could indicate that products that do have gluten are preferred to their gluten-free counterparts. Most participants may not have a gluten-intolerance and therefore have no interest in buying a gluten-free version. In addition, the willingness to purchase could have been affected by college-aged participants buying behavior independent of gluten-free labels. Also, having to price the product beforehand may have limited the willingness to purchase. When asking for the participants to set their own perceived price, they might have been less likely to purchase a product which they just priced as higher than they would be willing to pay.

Lastly the knowledge of participants about gluten in comparison to their answers showed no difference. This implies that even when customers are knowledgeable about gluten and its origins, a gluten-free label can still influence them. This is in line with Andrews (1998) that showed that over assumption of products benefits because of labeling could occur across all knowledge levels. For example, the perceived level of health for olives and peanut butter were still higher regardless of the participant's high or low level of knowledge.

The limitations of this project are the order of the questions and the subject pool used. It is possible that asking the participants to price the products and then asking the willingness to purchase may have caused an unwanted effect. This effect is a greater concern because of the college-aged subject pool. College students can be more price sensitive and less health conscious which might have caused them to avoid products they think are more expensive or healthy. In

addition, participants were not asked whether they adhered to a gluten-free diet now or anytime in the past, if they personally knew someone who was gluten-free, or if they themselves had celiac disease.

For areas of further study, testing the label "naturally gluten-free" may provide some insight into how customers perceive gluten in different products. Only eight products were tested in this survey. In the future, more products should be tested across multiple categories in order to see if there is a difference between the types of products that are being labeled. For example, white wine vinegars recently have added gluten-free labels. This type of vinegar comes from grapes, but other type of vinegar such as malt vinegar is derived from barley. Since there are so many nuances and variations of products, different labels could have different effects even within the same general product category. Further research could examine which types of products would benefit from a gluten-free label potentially based on the products positioning. Other studies could research how much processed foods verses natural foods should be labeled.

Implications

This research indicated that there is a threshold for gluten-free labels. While some products may benefit from gluten-free labels, other products may suffer. Any company wanting to decide whether or not to place a gluten-free label on their products may need to know where the product lies perceptually for the consumer. If the product is wholesome, unprocessed, and natural a gluten-free label could negatively affect the brand, as seen in the case of eggs. However, if the product is processed in the consumer's mind, a gluten-free label might mitigate worry or fear about hidden gluten.

The results on price provide an interesting concept about how much a company can charge for adding a gluten-free label. Peanut butter is naturally gluten-free, but participants

thought it would cost more money. Even though they expected to pay more for the product, it did not carry over to willingness to pay. Pricing a product too high may give perceived healthiness, but might deter from actual purchase behavior. When deciding on a pricing strategy, companies may consider the effects of a label on their pricing strategy.

The effect gluten-free labels had on willingness to purchase indicate that companies need to be wary of gluten-free product lines, especially if their products do contain gluten. Cake mix, bread, and tortillas are all products that normally contain gluten. Therefore adding a gluten-free label only appeals to a certain segment. Ultimately, the goal of a company is to sell its products. So even though gluten-free might be a hot trend, it might not be the best move for every product.

Implications from the participant's knowledge factor are that companies can still use a gluten-free label to their advantage. Even with extremely knowledgeable customers, the presence of a gluten-free label could still affect their perceptions. Therefore, gluten-free labels might be a benefit to a company looking to increase the healthy perception of their brand.

Conclusion

The gluten-free market has been growing rapidly over the past several years. With more and more foods donning a gluten-free label, it is important for the effects to be evaluated. The results can benefit both the consumer and companies to make wiser decisions. Previous research pointed to the influence health labels have on consumers and their perceptions of products (Khurshid, 2013). Customers prefer products with health labels to those without (Khurshid, 2013). In addition, the perceptions customers have about a product can translate into purchasing behavior (Andrews, Netemeyer, and Burton 1998).

A prevalent theory demonstrated in this study is the irrelevant attribute theory. The theory holds that irrelevant attributes of products can still play a role in a consumer's decision, even

after they realized the attribute is irrelevant (Carpenter, 1994). This is because consumers look for differentiation between products. Consumers are more likely to choose a product that showed some sort of differentiation. And, consumers are willingly to pay a higher price for the difference (Carpenter, 1994). This higher price can be explained by an over generalization known as the halo effect. A health attribute shown through a health claim on a product can lead to consumers assuming the product is healthier than it actually is. (Sundar and Kardes, 2015). Again, this perception of the product translates into purchases because with a lack of time to analyze a large amount of information, consumers make nutritional inferences that affect actual consumption (Sundar and Kardes, 2015).

The possibility of products using gluten-free labels becomes a requirement for other products in the category. For example, if all olives begin to say "gluten-free" consumers might question why other olives don't say "gluten-free". Thus, gluten-free could become a highly variable attribute in the consumer's mind. The highly variable attribute could be considered anything the consumer is unfamiliar with or think normally varies across brands (Sundar 2015). If a product begins to be seen as missing an attribute, consumers actually have less favorable opinions about that product (Sundar 2015). Unfortunately for companies, even if a product was always gluten-free and adding a label would be an irrelevant attribute, consumers will still value that ambiguous information. It will even have a stronger effect on their perception than unambiguous information (Hoch, Ha 1986)

Based on the research found in this study, companies should be wary of the gluten-free craze, but would be wrong to ignore its potential. The future of food labeling is blurry. There are new regulations and rules about which claims can be stated and which ones cannot. With so many health claims and free of/from statements entering the market, companies and consumers

need to be aware of the influence that these statements can have, both positively and negatively. The results from this survey demonstrate that gluten-free labels can influence perception even when it is an irrelevant attribute such as in olives and peanut butter. Furthermore, the results show that participants were willing to pay more for gluten-free peanut butter than normal peanut butter. However, the results also show that less processed products such as eggs, suffer from the addition of a gluten-free label.

Overall, companies considering the addition of a gluten-free label for a product need to carefully consider the product's position in consumer's minds. Consumers need to be aware of the lack of regulation on food labels in order to ensure they do not fall victim to irrelevant attributes influence. However, the conclusions of this research do not favor customers. Even with high knowledge, the conclusion is that gluten-free labels can influence a customer's perception, even if the product being gluten-free is an irrelevant attribute. However, the limits of this label still have room for experimentation. Undoubtedly, gluten-free is a viable health trend that is making an impact on consumers. The research conducted in this experiment is in congruence with previous research and serves to support the theories discussed. Only time and research will tell if the food industry will continue to use a gluten-free label as a point of differentiation for their products regardless of its irrelevance.

Works Cited

Andrews, J.; Netemeyer, R., and Burton, S. "Consumer Generalization of Nutrient Content Claims in Advertising" *Journal of Marketing*, 62.4 (1998): 62-75. Web. 31 Oct. 2015

Carpenter, G.; Glazer, R.; Nakamoto, K. "Meaningful Brands from Meaningless Differentiation: The Dependence on Irrelevant Attributes". *Journal of Marketing Research.* 31.3 (1994): 339-350. *JSTOR.* Web. 20 Sept. 2015.

Choi, H.; Yoo, K.; Baek, T.; Reid, L.; Macias, W. "Presence and effects of health and nutrition-related claims with benefit seeking and risk avoidance appeals in female-oriented magazine food advertisements" *International Journal of Advertising*. 32.4 (2013): 587-616. *Warc*. Web. 20 Sept. 2015.

Cheerios are Going Gluten Free! (n.d.). Retrieved September 28, 2015, from http://www.cheerios.com/Articles/Gluten Free Cheerios.aspx

Culhane, C. "Everything You Want to Know about Gluten." *Institute of Food Technologies*. N.p., n.d. Web. 20 Sept. 2015.

Dalman, D.; Min, J. "Marketing Strategy for Unusual Brand Differentiation: Trivial Attribute Effect. International Journal of Marketing Studies. 6.5 (2014): 63-72. Web. 20 Sept. 2015.

Danciu, V.. "Manipulative Marketing: Persuasion and Manipulation of the Consumer Through Advertising" *Theoretical and Applied Economics* 21.2 (2014): 19-34. Web. 20 Sept. 2015

U.S. Food and Drug Administration. (2015, June 15). Retrieved November 9, 2015.

Funkhouser, R.. "An Action-Based Theory of Persuasion in Marketing." *Journal of Marketing Theory and Practice* 7.3 (1999): 27-40. *JSTOR.* Web. 20 Sept. 2015.

Hoch, S.; Ha, Y.. "Consumer Learning: Advertising and the Ambiguity of Product Experience" Journal of Consumer Research. 13.2 (1986): 221-233. *JSTOR.* Web. 20 Sept. 2015.

Khurshid, N.; Ahmad, W.; Saeed, R. "Usage of Food Health Claims and Related Consumer Understanding". *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development.* 13.3 (2013): 117-120. Web. 20 Sept. 2015.

Lalor, F.; Wall, P. "Making and Justifying Health Claims" *International Journal of Diary Technology* 66.3 (2013): 321-324. Web. 20 Sept. 2015.

Meyvis, T; Janiszewski, C. Consumers' Beliefs about Product Benefits: The Effect of Obviously Irrelevant Product Information. *Journal of Consumer Research*, 28.4 (2002): 618-635. Web. 20 Sept. 2015

"National Foundation for Celiac Disease Awareness." *Celiac Disease*. N.p., 2015. Web. 24 Sept. 2015.

"The Reality Behind Gluten-Free Diets." *UWHealth.org*. N.p., 2014. Web. 24 Sept. 2015.

Tillotson, J. "Does nutrition sell? Do Health Claims Work? Part 2" *Nutrition Today,* 38.1 (2003): 6-10. Web. 20 Sept. 2015.

Topper, A. (2015 October) Gluten-free Foods - U.S. Retrieved from Mintel Database.

Topper, A. (2014 September) Gluten-free Foods - U.S. Retrieved from Mintel Database.

Trijp, H; Lans, I. "Consumer Perceptions of Nutrition and Health Claims" *Appetite* 48 (2007): 305-324. *Science Direct*. Web. 20 Sept. 2015

Shute, N. "Gluten Goodbye." *NPR*. NPR, 9 Mar. 2013. Web. 24 Sept. 2015.

Sundar, A.; Kardes, F. "The Role of Perceived Variability and the Health Halo Effect in Nutritional Inference and Consumption" *Psychology and Marketing,* 32.5 (2015): 512–521. Web. 20 Sept. 2015.

"What Is Gluten? - Celiac Disease Foundation." *Celiac Disease Foundation*. CD Foundation, n.d. Web. 20 Sept. 2015.