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HEALTH AND NUTRITIONAL FOOD ADVERTISING CLAIMS INFLUENCE ON ADVERTISING COMMUNICATION EFFECTIVENESS: A STUDY OF HISPANIC AND NON-HISPANIC WHITE POPULATIONS IN THE UNITED STATES

By
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August 2012

Chair: Robyn Goodman
Major: Mass Communication

Media have been considered important sources of information about health and nutrition (Goldberg, 1992; Harris, Bargh, & Brownell, 2009). Therefore, this study looked at how health information provided in media, more specifically advertising, influenced communication effectiveness (attitude toward the ad, attitude toward the brand, and purchase intentions). More specifically, this study sought to discover which of the most widely used health and nutrition claims produced the most effective communication among two of the largest population segments in the United States: Hispanic and non-Hispanic whites. The study evaluated whether there were any differences in attitudes and purchase intentions between Hispanics and non-Hispanic whites. An experiment was conducted to answer these research questions. No major differences in attitudes and purchase intentions resulted from exposure to a structure/function claim, a specific nutrient content claim, a general health claim or a taste claim. However, main effects of ethnicity on communication effectiveness were seen. The possible factors that could have influenced these results are discussed.
CHAPTER 1
INTRODUCTION

Nowadays, it is difficult to escape exposure to prepackaged foods, given that most of the aisles in the supermarket are filled with them and that they are constantly advertised (Harris, Bargh, & Brownell, 2009; Hazards Of Your Top 10 Most Popular Foods, n.d.). Health advocates state that the high frequency of food advertising for primarily calorie-dense low-nutrient foods like most prepackaged foods (Harris, Bargh, & Brownell, 2009, p.404) is a major contributor to obesity. Studies have shown that food advertising triggers food consumption (Abbatangelo-Gray, Byrd-Bredbenner, & Austin, 2008; Harris J. L., 2008; Harris, Bargh, and Brownell, 2009) as well as increasing awareness and desire for the advertised food (Harris J. L., 2008). The following sections will provide insight as to the negative (such as obesity) and positive impacts (such as creating an interest in health) that food advertising can have on consumers. In addition, the purpose of this study and the importance of conducting it will be described.

**Negative Impact: Obesity in the United States**

One of the biggest health issues the United States is currently facing is its battle against obesity1 2 (Obesity and Overweight, 2011; Obesity and Hispanic Americans, 2011). Obesity rates in the United States have more than doubled during the past 20 years (Obesity and Overweight, 2011; U.S. Obesity Trends, 2011). Thirty percent of men and 33.2% of women over the age of 20 are considered obese (Obesity and

---

1 Obesity is defined by the Center for Disease Control and Prevention as having a body mass index of 30 or greater (Obesity and Overweight, 2011). Nonetheless, literature shows that using BMI as a measure of obesity is flawed. BMI does not distinguish fat from mass that is fat free, such as bones and muscles (Burkhauser & Cawley, 2008).

2 Some of the risk factors associated with obesity include: cardiovascular disease, diabetes, musculoskeletal disorders, and some cancers (Obesity and Overweight, 2011).
Overweight, 2011). Obesity rates among women are higher than those of men, as women are more prone to retain fat due to the presence of estrogen. Other reasons women are more likely to be obese include their increased consumption of sweets and fried foods because of cravings experienced during the menstrual cycle and their tendency to use food as a stress reliever (Are Obesity Rates Higher Among Women?, 2007-2012)

According to the most recent data on obesity trends in the United States, 33 states have obesity rates of at least 25% (U.S. Obesity Trends, 2011). The highest obesity rates are found in the southeastern United States (Szalavitz, 2011), where people tend to consume foods, such as fried foods, that are high in fats and calories (United States Southern Region, 2011). In addition to food preferences, Southerners tend to have lower levels of education and higher poverty rates, both of which have been linked to higher levels of obesity (Szalavitz, 2011).

A different panorama can be seen in northern and western states. Northerners and Westerners have higher education levels than Southerners (Laberge, 2004-2011). People with higher education have been associated with higher levels of nutrition knowledge (Laberge, 2004-2011). In addition, people living in northern and western states tend to have the economic means to acquire foods that are more nutritious (McKeon, 2009). They also have more outdoor and recreational space, which allows people to be more physically active (Szalavitz, 2011).

More specifically, Mississippi has had the highest obesity rates (33.8%) for the past six years, followed by Alabama (31.6%), Tennessee (31.6%), West Virginia (31.3%), and Louisiana (31.2%). Conversely, Colorado (19.1%), Connecticut (21.4%),
Washington D.C. (21.5%), Massachusetts (21.7%), and Hawaii (22.6%) have the lowest obesity rates in the country (Szalavitz, 2011).

In addition to gender, socioeconomic, and geographic factors, obesity rates vary according to people’s eating habits. Eating habits can be influenced by a person’s level of health consciousness/health concern (Steptoe, Pollard, & Wardle, 1995) -- or how much importance a person assigns to maintaining his/her health (Gould, 1988). People who have a higher level of health concern tend to be more aware and involved with nutrition, physical fitness (Kraft & Goodell, 1993) and weight control (Steptoe, Pollard, & Wardle, 1995) because they are more concerned with their well-being and more inclined to obtain or conserve good health and prevent illnesses (Gould, 1988; Kraft & Goodell, 1993; Plank & Gould, 1990). Therefore, they tend to select foods that will be high in nutritional value and contain natural ingredients; they also will pay more attention to the packaging of food products when making purchase decisions (Steptoe, Pollard, & Wardle, 1995).

There are additional factors that influence eating habits. These include individual preferences (Blades, 2001; Rodriguez, 2011), psychological factors, health factors, (Blades, 2001), social factors (Asp, 1999; Blades, 2001; Dray, 2010; Rodriguez, 2011), cultural factors, political factors (Rodriguez, 2011), and economic influences (McKeon, 2009; Rodriguez, 2011).

Preferences and psychological factors are similar in that they refer to the likes and dislikes of the individual (Blades, 2001; Rodriguez, 2011). However, they differ in how they are developed. Individual preferences are developed by factors such as advertising

---

3 Some foods are more accessible in some locations given where they are in the country. For example, seafood is more accessible in coastal states than in the central states. (Rodriguez, 2011)
and family influence (Rodriguez, 2011). Advertising influences eating habits by stimulating appetite after the person is exposed to its messages, claims, or images on billboards and television (Alipour, 2009). If they like what they see or read, they may be more inclined to eat those products (Alipour, 2009; Hoyer & MacInnis, 2007; Ogden, 2003). One of the ways in which families can affect individual preferences is by exposing children to particular types of food and ways of eating (e.g., in front of the television, large portions). Because people get accustomed to eating in certain ways throughout childhood, they tend to continue those eating patterns into adulthood, which is likely why children of overweight and obese parents also tend to be overweight or obese (Dray, 2010).

Whereas individual preferences are influenced by outside factors, psychological factors correlate to the sensory experience each individual has with food. Whether an individual likes the appearance, taste, smell, and texture of a particular food is one of the strongest determinants of either liking or rejecting that particular food (Asp, 1999; Blades, 2001). Unfortunately, the top 10 most liked foods in the United States (i.e. hamburgers, hot dogs, french fries, pizza, soft drinks, etc.) are high in fats, carbohydrates, sugars, and calories (Hazards Of Your Top 10 Most Popular Foods, n.d.).

Another factor that influences eating habits and relates to the individual person are the medical conditions the person suffers from. Medical conditions can limit the types and amounts of food a person consumes. For example, a person with diabetes has to control the amount of sugar he or she consumes, while a person with heart problems needs to be cautious of the amount of sodium consumed. (Alipour, 2009)
Whereas individual preferences, psychological factors, and medical conditions relate to internal and individual factors that affect eating habits, social influences involve group factors that affect eating habits. Members of a social group generally share behaviors and values because their conformance to the groups' beliefs and behaviors give the individual a sense of identity and belonging to that group\(^4\) (Rodriguez, 2011). Since people seek a sense of belonging and the approval of their peers, they follow the group's eating patterns. Indeed, people tend to eat more when they are with their social groups than when they are alone, often leading to an overconsumption of calories and eventually weight gain (cited in Children’s Social Circle Influences Eating Habits, Risk of Overweight, 2011).

Cultural factors also influence eating habits. These involve external groups specifying which foods are culturally acceptable (e.g., horse meat is acceptable in some countries but not in others), what eating patterns should be followed (e.g., what time of the day to eat and how many times a day to eat), and how foods may be combined (Asp, 1999; Rodriguez, 2011). These patterns can affect eating habits and manifest into health issues. For example, Muslims report weight gain during Ramadan, a holy time in which Muslims do not eat until after 6:00 p.m. and reduce physical activity, leading to lower metabolism and increased fat storage (Beware the Ramadan Diet, and Heavier Wives Mean Less-Happy Husbands, 2011).

Other external influences that affect eating habits include political factors such as the agreements that regulate the availability and pricing of food products (Rodriguez, 2011). Food labeling laws dictate what information is passed on to consumers about the

\(^4\) Even though small groups exist within a culture, they are nevertheless considered part of the larger subcategory. (Rodriguez, 2011)
foods they eat (Rodriguez, 2011). Food product manufacturers in the U.S. are not required to present all nutritional information on the front of a package or in an advertisement, but any nutritional information provided on the front of a food product needs to be scientifically accurate. For example, a hot dog may claim to be pure beef or 100% turkey, solely based on the fact that it is made from cattle or turkey. However, the claim is not required to state that the product also contains MSG and other ingredients that can cause obesity and other health issues (Hazards Of Your Top 10 Most Popular Foods, n.d.).

The last external factor to influence eating habits is economic. In general, economic factors are negatively correlated with obesity; the higher the income of a person, the lower the chances that that person is obese (McKeon, 2009). This inverse relationship exists because people with lower incomes tend to have less access to healthy foods such as fruits and vegetables due to proximity and higher cost but have more access to unhealthy prepackaged foods, fast foods, and other high calorie and high fat foods (Alipour, 2009; Dray, 2010). In fact, fast food restaurants tend to be located in low-income areas (Dray, 2010).

Even though all these factors influence eating habits and therefore contribute to weight problems, the causes for the mounting obesity rates can be attributed to factors besides eating habits. Researchers have found that these additional factors range from increased sedentary lifestyles and overconsumption of calories and fats, to the influence of the media. Advertising in particular plays a role in priming audiences to consume

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5 Advertising for food products is one of the most prevalent types of advertising in the market, with more than $6 billion spent in 2009 and again in 2010, making it the sixth most advertised product (Daddi, 2011).
more food than they need (Chandra, Paul III, & Emmett, 2005; Harris, Bargh, & Brownell, 2009; Obesity and Overweight, 2011; Powell, Szczypka, & Chaloupka, 2007).

Regarding sedentary lifestyles that promote weight gain, these lifestyles have been partially attributed to technology. Technology promotes weight gain through inactivity and innovations in the production of food (McKeon, 2009). Inactivity can be seen in the fact that people today exert less physical effort when doing daily tasks, thanks to the many forms of technology that have made those activities less strenuous to perform (McKeon, 2009). This decrease in physical activity leads to an increase in fat. Moreover, innovations in the production of food products (McKeon, 2009) have led to more foods being sold in prepackaged containers. These products are less healthy because of the preservatives used to increase their shelf life. These preservatives contribute to clogged arteries and weight gain (Hazards Of Your Top 10 Most Popular Foods, n.d.). Because of people’s busy lifestyles, they rely on these prepackaged foods since they are convenient and require less time to prepare.

Positive Impact: Interest in Health

Nevertheless, the impact of prepackaged food advertising has not been only negative. For example, advertising can negate the negative impact of a major food scare such as the case of tainted beef and mad cow diseases (Foster, 2008, ¶4).

Research demonstrated that consumers who viewed a video about the dangers of

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6 Priming refers to the process by which activated thoughts or constructs can effect how a person evaluates an idea or concept (Domke, Shah, & Wackman, 1998). Media priming has been found to affect people’s behaviors, thoughts, beliefs, and judgments (Roskos-Ewoldsen, Klinger, & Roskos-Ewoldsen, 2007). Priming has been studied regarding numerous issues, from media violence to political news content (Roskos-Ewoldsen, Klinger, & Roskos-Ewoldsen, 2007) to advertising (Yi, 1990). Lately, priming effects have also been applied to studies regarding food advertising (Harris, Bargh, & Brownell, 2009). Harris et al. (2009) found that children who are exposed to food advertising consume 45% more food than children not exposed to food advertising; therefore providing a possible cause for the U.S.’ obesity problem. They also found that adults consumed more of any type of food no matter what kind of food products were promoted in the stimuli they were exposed to.
eating tainted beef had a tendency to avoid beef, while consumers who viewed the same video in addition to an advertisement for the National Cattlemen’s Beef Association with the slogan “Beef, It’s What’s for Dinner” responded by saying that they would eat beef (Foster, 2008).

Another positive manner in which advertising has impacted society is by helping to create an interest in health issues among the public (Chandra, Paul III, & Emmett, 2005) and making the pursuit of healthful habits a fundamental value among Americans (Schiffman & Kanuk, 2004). Historically, media in general, and more specifically television, have been considered important sources of information about health and nutrition (Goldberg, 1992; Harris, Bargh, & Brownell, 2009). To illustrate, Kellogg’s All Bran campaign in the 1980s helped people learn about the link between a low fat, high fiber diet and the reduced chance of developing cancer (Freimuth, Hammond, & Stein, 1988; Mathios & Ippolito, 1998).

The Kellogg’s All Bran campaign is one of the first examples of how media helped consumers learn about health and nutrition information. Today, people continue to rely on media information about health and nutrition when making food purchase and consumption decisions (Harris, Bargh, & Brownell, 2009). This health information can be disseminated through descriptive texts, images, the use of expert sources (Hoyer & MacInnis, 2007), labeling (Chan, Patch, & Williams, 2005; Garretson & Burton, 2000; Kemp, Burton, Creyer, & Suter, 2001; Mitka, 2011), and claims (Abbatangelo-Gray, Byrd-Bredbenner, & Austin, 2008; Andrews, Burton, & Netemeyer, 2000; Andrews, Netemeyer, & Burton, 1998; Bone & France, 2009; Chan, Patch, & Williams, 2005; Cheong & Kim, 2011; Fay, 2003; Hickman, Gates, & Dowdy, 1993; Hooker &
Another way media, more specifically food advertising, has also helped consumers is by making them aware of the existence of products beneficial to their health and helping them recognize those products at the point of purchase (Jones, Andrews, Tapsell, Williams, & McVie, 2008). Health claims\(^7\) can positively impact consumers’ attitudes toward the product, brand (Adams & Geuens, 2007) and food choices (Chan, Patch, & Williams, 2005) because the claims can function as a heuristic (Leathwood, Richardson, Strater, Todd, & C. M. van Trijp, 2007), a short cut used to make judgments and decisions (Kenrick, Neuberg, & Cialdini, 2007). Because people have limited time, knowledge, and information processing skills, they use shortcuts (heuristics) to help guide their decision-making (Leathwood, Richardson, Strater, Todd, & C. M. van Trijp, 2007).

Besides using packaging information as a heuristic, research has also shown that consumers tend to truncate their information search. When it comes to food packaging, consumers’ information search is limited to the claims presented on the front label of the package (Roe, Levy, & Derby, 1999). Indeed, the presence of health and nutrient content claims has been associated with higher probabilities that an information search will be limited to those claims (Hooker & Teratanavat, 2008; Roe, Levy, & Derby, 1999). Thus, consumers consider foods that have a health or nutrition claim as healthier food

\(^7\) It is important to note that the health claims referred to here were on product packages. However, Mazis and Raymond (1997) found that claims on product packages have the same effects as claims in advertisements.
products, producing a halo effect⁸. This halo effect is what discourages consumers from continuing to seek nutrition information (Williams, 2005). In addition, Brucks, Mitchell, and Staelin (1984) found that consumers use health and nutrition information in the first stages of information processing⁹. However, they do not engage in much more information processing, limiting their search to the information to which they are first exposed. Therefore, it is important to provide factual and useful information that guides consumers to better food choices.

**Nutrition Knowledge**

Even though there has been an increase in the dissemination and use of health information, and the FDA requires all food products contain nutritional information, there is still a lack of nutrition knowledge or nutrition literacy among Americans (Dickson-Spillmann, Siegrist, & Keller, 2011; Andrews, Netemeyer, & Burton, 2009; White, 2007). Nutrition knowledge/literacy refers to the ability a person has to understand the importance of maintaining good nutrition. People with higher levels of nutrition knowledge/literacy can make better decisions that will benefit their health (Laberge, 2004-2011).

The lack of nutrition knowledge among different U.S. population segments has been studied (Rash, Malinauskas, Duffrin, Barber-Heidal, & Overton, 2008). For example, Rash et al. (2008) found that there is a lack of knowledge about the role that

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⁸ A halo effect is a psychological phenomenon where the "global evaluation" (Nisbett & DeCamp Wilson, 1977, p.250) given to a person or object is also applied to specific attributes of the person or object (Nisbett & DeCamp Wilson, 1977).

⁹ Information processing consists of three steps: 1) attention and comprehension of information 2) encoding and inference processes and 3) information integration. The problem the individual has will determine what aspects of an advertisement receive attention and get processed. (Brucks, Mitchell, & Staelin, 1984)
proteins, vitamins, nutrients, and antioxidants play among college track athletes. Therefore, they lack the ability to recognize when it is necessary to take supplements. Shah, Adams-Huet, Elston, Hunnard, and Carson (2010) found that African Americans overestimated serving sizes of food products such as cereals, butter, drinks, and fruits because of their lack of nutrition knowledge. White (2007) found that 70% of Americans were seeking to cut down on saturated fat, an unhealthful type of fat, but 42% stated they were trying to decrease the amount of polyunsaturated fat and 38% monosaturated fat, the two good fats.

This lack of knowledge is caused by the minimal effort consumers apply when processing nutritional information, demographic factors (Parmenter, Waller, & Wardle, 2000), and the constant change in dietary recommendations (Dickson-Spillmann, Siegrist, & Keller, 2011). In terms of demographic factors, gender, socio-economic status, and education all correlate with nutrition knowledge. Specifically, males, lower income, and lower education are associated with lower nutritional knowledge (Parmenter, Waller, & Wardle, 2000). Part of this association is due to nutrition sources being written above the average American’s 8th grade reading level (Laberge, 2004-2011; Parmenter, Waller, & Wardle, 2000). With 20% of the Americans reading at or below a fifth grade level, millions of Americans cannot understand health and nutrition information (Laberge, 2004-2011).

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10 Governmental sources of nutrition, such as the “My Pyramid” a guide, are difficult to understand for the average consumer (Reporter, 2011). The “My Pyramid” is a guide as to how much of each type of food a person should consume per day (Reporter, 2011). Because of the difficulty understanding this guide (which was a modification of the original food guide pyramid), nutritional experts and advocates of health issues, such as Michelle Obama, have released a newer and more easily understood guide (Reporter, 2011). The new “My Plate” is supposed to be a simpler version of the “My Pyramid” (Reporter, 2011); however, there is still no evidence that supports this.
Finally, because Congress mandates that the United States Department of Agriculture and the Department of Health and Human Services update nutritional guidelines for Americans every five years (Nestle, 2010), it becomes problematic for people to keep up with the latest recommendations (Dickson-Spillmann, Siegrist, & Keller, 2011). With each revision, guidelines get more specific and require the public to keep track of more details in their diets. For example, from 1980 to 1995, dietary guidelines for Americans were seven simple and vague instructions, such as “eat foods with adequate starch and fiber.” (Previous Guidelines & Reports, 2011). However, in 2000, guidelines were expanded to 10, divided into three clusters (aim for fitness, build a healthy base, and choose sensibly), and provided more details such as “choose a variety of grains daily, especially whole grains.” (Previous Guidelines & Reports, 2011)

Nutritional guidelines get more specific and are revised every five years because the experts in charge of setting these guidelines are addressing major health issues affecting the country. For example, the 2010 Dietary Guidelines for Americans (which is the seventh revision made) addressed the issues of obesity, by focusing more on balancing calories and physical activity and encouraging people to eat more vegetables, fruits, whole grains, fat-free and low-fat dairy products, and seafood. It also stressed that people should reduce their consumption of sodium, saturated and trans fats, added and refined sugars. The 2010 edition also contained 23 key recommendations (the most important messages within the Dietary Guidelines for improving public health) for the general population and six additional key recommendations for specific groups (Dietary Guidelines for Americans, 2010, 2011).
To address the general lack of nutritional knowledge, manufacturers and marketers have begun to provide specific health and nutritional claims on their product packages and in advertising. Moreover, consumers see these health and nutrition claims as useful in their food selection process when the claims are concise and are government-approved (Williams, 2005). Because consumers find health and nutrition claims useful in their decision making process (Leathwood, Richardson, Stra’ter, Todd, & C. M. van Trijp, 2007; Mathios & Ippolito, 1998), researchers have sought to identify which health and nutritional claims are most effective. Although multiple studies have considered the impact of different types of health and nutritional claims on communication effectiveness (e.g., Adams & Geuens, 2007; Bone & France, 2009; Fay, 2003; Kim, Cheong, & Zheng, 2009), researchers have not reached an agreement about which claims work best among different demographic populations. For example, Burton, et al. (2000) studied the impacts of specific and general health claims on communication effectiveness. Specific health claims pinpoint a specific nutrient or health benefit, while general health claims do not. The researchers found main effects of advertising claim types (specific versus general health claims) on communication effectiveness. On the other hand, Garretson and Burton (2000) did not find that varying the types of specific nutrient claims affected product evaluations or purchase intentions. Roe, Levy, and Derby (1999) found the presence of a health or nutrient content claim influenced purchase intentions, but these effects did not differ between claim types.

11 There are different types of health and nutrition claims, including but not limited, to structure/function claims, specific and general health and nutrient claims, and diet-disease claims, all of which will be further explained (Adams & Geuens, 2007; Bone & France, 2009; Fay, 2003; Kim, Cheong, & Zheng, 2009).
Hispanics in the United States

Although there has been some previous research conducted on food advertising claims in the United States, these studies have almost exclusively looked at non-Hispanic whites -- people who registered in the Census as non-Hispanic and white. Yet Hispanics are the fastest-growing, second largest population group in the United States, and no study to date has looked at food advertising claims with this population. According to a 2009 U.S. Department of Health and Human Services report, moreover, Hispanic Americans were 1.2 times more likely to be obese when compared to non-Hispanic whites (Obesity and Hispanic Americans, 2011). Data collected between 2006 and 2008 by the Behavioral Risk Factor Surveillance System demonstrated that Hispanics had a 21% greater chance of being obese than non-Hispanic whites (Differences in Prevalence of Obesity Among Black, White, and Hispanic Adults—United States, 2006--2008, 2009).

Despite the lack of advertising food claims research on Hispanic populations, researchers have studied what factors contribute to the high incidence of obesity among

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12 According to the 2010 Census, “‘Hispanic or Latino’ refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race” (Humes, Jones, & Ramirez, 2011, p. 2). This Census definition will be applied for the term Hispanics in the current study. However, this study will evaluate Hispanic white populations. The U.S. Census Bureau states that there is a difference between race and Hispanic origin. A person can consider himself or herself of Hispanic origin, yet identify with the Asian or black race. (U.S. Census Bureau Guidance on the Presentation and Comparison of Race and Hispanic Origin Data, 2003)

13 More than 50% of the population growth in the U.S. “between 2000 and 2010 was due to the increase in the Hispanic population” (Humes, Jones, & Ramirez, 2011, p.3). The 2010 Census revealed that the non-Hispanic population in the United States grew about 5% in 10 years, while the Hispanic population in the country grew by 43% (by 15.2 million), representing 16% of the total population (50.5 million Hispanics) (Humes, Jones, & Ramirez, 2011).

14 “The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of health surveys that collects information on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. For many states, the BRFSS is the only available source of timely, accurate data on health-related behaviors.” (About the BRFSS, 2008)
Hispanics in the U.S. Overall, environmental and lifestyle factors such as poor diet, lack of physical activity, and lack of preventative health care and treatment have been associated with the higher incidence of obesity among Hispanics. Most of these environmental and lifestyle factors emerge as a result of economic constraints (Faña, 2010). One out of four Hispanics live below the poverty line, while only 9.4% of non-Hispanic whites live below the poverty line (Quarter of U.S. Hispanics Live in Poverty, Census Says, 2011). Hispanics also tend to live in low-income areas where there is a saturation of fast food restaurants and a lack of access to physicians, clinics, hospitals, and health foods stores (Faña, 2010).

Nonetheless, dietary acculturation, “the process whereby immigrants adopt the food habits and food consumption patterns of the larger society that they find themselves” (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005, p.106), is one of the main factors that contribute to obesity in Hispanics living in the U.S. Hispanics or Latinos moving to the U.S. adopt eating habits that tend to be “high in fat and low in fresh fruit and vegetables” (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005, p.106). Their adoption of these eating habits has become a public health concern because of their increasing incidences of diet-related diseases, such as cardiovascular disease (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005) and diabetes (Obesity and Overweight, 2011).

**Purpose of the Study**

Therefore, this study seeks to discover which of the most widely used health and nutrition claims produce the most effective communication (positive attitudes toward the ad and brand and increase purchase intentions) among Hispanic and non-Hispanic whites. Also, this study seeks to assess if there are any differences in attitudes and
purchase intentions between Hispanics and non-Hispanic whites. An experiment will be conducted to answer these research questions.

**Importance of the Study**

There are several reasons why it is essential to find a way to positively influence consumers’ health. First, obesity is a preventable problem (Obesity and Overweight, 2011), yet it has become a major public health concern (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005). Because there is a high incidence of obesity in the United States and significant differences exist among different populations (Differences in Prevalence of Obesity Among Black, White, and Hispanic Adults—United States, 2006–2008, 2009), it is important to study message strategies that could help promote healthier lifestyles, particularly between the two largest populations in the United States, Hispanics and non-Hispanic whites.

Furthermore, obesity is related to many chronic conditions such as diabetes, heart disease, and hypertension. A reduction in obesity would mean a reduction in these medical conditions, which in turn would contribute to higher productivity in the workplace, lower health insurance costs, lower health care costs, fewer incidences of worker compensation claims, and a reduced economic burden for local governments and taxpayers (Faña, 2010), who are ultimately responsible for “financing obesity and overweight-related medical costs” (Faña, 2010, p.21).

In addition to health reasons, there are advertising-related motives to conduct this study. Food advertising makes up a large proportion of all the advertising that is presented in the media (Chandra, Paul III, & Emmett, 2005; Kim, Cheong, & Zheng, 2009; 100 leading national advertisers, 2007). Moreover, the use of health and nutrition claims has increased (Bone & France, 2009; Hickman, Gates, & Dowdy, 1993; Kim,
Cheong, & Zheng, 2009), and people rely on these claims to form attitudes and base their purchase decisions (Adams & Geuens, 2007; Chan, Patch, & Williams, 2005). Given that studies have shown that many consumers truncate their information search to the claims at the front of a product (Roe, Levy, & Derby, 1999) or those presented in advertisements, marketers should be aware of what specific health and nutrition messages bring about better attitudes and higher purchase intentions because it affects not only the sales of their products (Hoyer & MacInnis, 2007), but it also helps address the issue of obesity. Helping society with its problems helps build a better name and reputation for a brand (Pivato, Misani, & Tencati, 2008).

In addition to understanding the effects of various claims on attitudes and behaviors, it is also important to carry out the current study because Hispanics have not been studied in terms of food advertising claims. Given that this group is projected to become the majority population in the United States by 2050 (Buchanan, 2004; Minorities expected to be majority in 2050, 2008; Passel & Cohn, 2008), it is vital to understand how to reach them. Can Hispanic and non-Hispanic whites be reached using the same food advertising health and nutrition claims?

Furthermore, this study will contribute to the ongoing debate among researchers about the effectiveness of food advertising claims (Kim, Cheong, & Zheng, 2009). Kim, Cheong, and Zheng (2009) concluded that food advertising research -- especially research based on claims -- is dated, limited to a certain number of claims, and inconsistent. The current study will provide an updated look at the impact of food claims on attitudes and purchase intentions.
To explore advertising nutrition and health claims and population differences, this dissertation begins by reviewing the relevant literature on food advertising claims. The different types of food advertising claims are discussed, followed by how they are used in advertising and product packaging. Then, the theoretical approaches applied in this study -- dual-mediation hypothesis, independent influence hypothesis, and economics of information theory -- are detailed. Based on these theories and relevant studies on food advertising claims, several hypotheses on the effects of nutrition and health advertising claims on ad and brand attitudes, and purchase intentions are posited. Given the lack of research on Hispanic populations, research questions on the effects of nutrition and health advertising claims are also postulated. An experiment is proposed and conducted to test these hypotheses and research questions. The results of the study are analyzed and discussed. Finally, limitations and future research suggestions are discussed.
CHAPTER 2
LITERATURE REVIEW

Literature on food advertising is vast, although mostly centered on identifying the types of food advertising claims being used during a specified time period and studying the impacts of food advertising on children. The following review of literature presents studies that have been conducted in terms of food advertising claims, ranging from the different typologies that have been created, to studies that seek to find correlations between food advertising claims and communication effectiveness (conceptualized in this study as attitude toward the ad, attitude toward the brand, and purchase intentions) among adults. More specifically, the following review of literature will highlight health and nutritional claims. Health and nutritional claims are “statements connecting a food, food component or a nutrient to a state of desired health” (Hawkes, 2004, p.1). Health and nutritional claims will be explained because they can contribute to the improvement of public health by helping consumers choose food products that are “associated with good nutrition and health” (Hawkes, 2004, p.1).

Food Advertising Claims

One of the ways advertisers seek to differentiate their products is through the use of claims (Hawkes, 2004). Advertising claims function as ways of highlighting certain aspects of the product. This section details the literature on food advertising claims.

Divisions and Definitions of Various Food Advertising Claims

There is no consensus on how to classify food advertising claims. Literature reveals that claims can be divided into two different groups: 1) product information claims (Kim, Cheong, & Zheng, 2009) and 2) health and nutrition claims (Andrews, Netemeyer, and Burton, 1998; Bone and France, 2009; Ippolito and Pappalardo, 2002;
Kim, Cheong, and Zheng, 2009). Claims that do not focus on health or nutritional aspects of the product can be easily classified under various subdivisions of the “product information” umbrella. However, claims that deal with health and nutritional aspects of the product cannot be classified as easily under the “health and nutrition” umbrella. Researchers provide different subdivisions of health and nutrition claims, which tend to overlap. This section seeks to group together the different typologies researchers have offered in terms of food advertising claims.

Typologies

Researchers have identified three major typologies (Ippolito & Pappalardo, 2002; Kim, Cheong, & Zheng, 2009; Parker, 2003), with further details provided by other researchers (e.g. Andrews, Netemeyer, & Burton, 1998; Bone & France, 2009; Fay, 2003). The first typology described in this section was detailed by Kim, Cheong, and Zheng (2009). Given the similarities between Kim’s, Cheong’s, and Zheng’s (2009) and Ippolito’s and Pappalardo’s (2002) typologies, Ippolito's and Pappalardo's (2002) typology will be described simultaneously.

Kim, Cheong, and Zheng (2009) divided food advertising claims into two major groups: “product information claims” and “nutrition/health claims” (Figure 2-1). These seem to be the two major subdivisions of food advertising (and product packaging) claims followed by most researchers.

Product information claims

Product information claims include claims that address taste or flavor; promotion, price or discount opportunities; convenience of use; and other descriptive claims that highlight aspects of the product such as it being novel/new, having great quality and/or
providing satisfaction from the use of the product (Fay, 2003; Hickman, Gates, & Dowdy, 1993; Kim, Cheong, & Zheng, 2009)

**Taste and flavor.** Taste claims refer to attributes of the product that appeal to the sensory experiences of smell, taste, and aftertaste (Cheong & Kim, 2011). Examples of taste claims include “tasty, yummy, delicious, great flavour, irresistible flavour/taste, scrumptious, appetising” (Fay, 2003, p.86). Even though the usage of a taste claims is a “direct and logical way to convey a message of good quality for a food… product” (Buchanan & Smithies, 1991, p.19), taste claims are not the easiest type of claim to present given that it is hard to describe a sensory experience to others (Buchanan & Smithies, 1991). To achieve this task, advertisers have used comparative advertising in order to position themselves against other brands as tasting better, staying fresh longer, etc. (Buchanan & Smithies, 1991).

**Promotion, price or discount opportunities.** Discount opportunity claims refer to claims that reference the price of the product. They usually compare previous prices to current prices (e.g. "Was $29.95, Now Only $19.95," "40 percent Off, Now Only $39.95") (Lichtenstein, Burton, & O'Hara, 1989, p.163). These claims can be divided into precise claims (e.g. 60% off) and non-specific claims (e.g. 50-70% off) (Dhar, González-Vallejo, & Soman, 1999). Discount opportunity claims are used frequently by stores to lure customers in (Dhar, González-Vallejo, & Soman, 1999). Discount opportunities are also related to price claims. Price claims include: “Low cost or price, the suggested retail price, or special sales. Includes limited time price offers, reference to ‘best buy’, value for money, economical buy, cheap, inexpensive” (Fay, 2003, p.86).
**Convenience claims.** Convenience claims refer to claims that are usually found in manufactured food products/ packaged food products (Fay, 2003) and even fast food restaurants (U.S. Department of Agriculture, n.d.). They emphasize attributes of the product that appeal to facilitating the lives of the consumers. Some examples of convenience claims include: “time-saving, easy, quick, handy, ready-to-eat” (Fay, 2003, p.86). According to Fay (2003), convenience claims tend to be associated with ideas such as lacking good nutrition, laziness, and what people turn to when there is no time to prepare a “real” meal.

**Nutrition/health claims**

On the other hand, “nutrition/health claims” make reference to any type of nutritional or health benefit that can be obtained from the product (Kim, Cheong, & Zheng, 2009). For example, consuming a product may help you reduce cholesterol or consuming a particular product may be better than a competitive product because it contains less fat or more fiber. Kellogg’s Special K® products are well known for its weight management advertising claims stating that a regimen based on Special K® products can help you reduce your jean size in two weeks (Kelloggs, 2011).

Nutrition and health claims are not as simple to categorize as product information claims. There are different manners of classifying such claims. A common way of dividing them is by using the terms “general” and “specific”: general health, specific health, general nutrition and specific nutrition claims (Andrews, Netemeyer, & Burton, 1998; Kim, Cheong, & Zheng, 2009). General health claims mention a general health benefit (e.g., “good for your health”) but make no attempt to focus on a specific health

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15 The terms “nutrition” and “nutrient” claims are used interchangeably.
problem. General health claims are further broken down into “general wellness” (e.g., good for you) and structure/functional claims (e.g., good for your bones). Specific health claims mention how the product addresses a particular condition (e.g. ‘a diet low in sodium reduces the risk of high blood pressure’). General nutrition claims refer to a nutrient or several nutrients in the product, without specifying their names (e.g. ‘all the nutrition your body needs’), while specific nutrition claims do mention the name of the nutrient. Specific nutrition claims can be further broken down into two more categories based on how the information is presented: containing a specific nutrient (e.g. ‘calcium-enriched’) or minimizing/eliminating a component (e.g. ‘reduced fat’). (Kim, Cheong, & Zheng, 2009, pp. 536-537)

Even though Kim, Cheong, and Zheng (2009) used “general” and “specific” to categorize all health and nutrition claims, they have also described another manner in which health and nutrition claims can be categorized. They subdivided health and nutrition food advertising claims into two different categories: those claims that refer to health and those claims that refer to nutrition or nutrient content. It should be noted that there is still a lack of consensus among researchers as to which type of claims pertain to health claims and which ones pertain to nutrient content (nutritional) claims. For example, structure/function claims (described below) are classified as health claims by Kim, Cheong, and Zheng (2009) and nutrient claims by Bone and France (2009).

Health. Health promotion claims talk about general good health and/or meeting nutrient requirements (Jones, Andrews, Tapsell, Williams, & McVie, 2008). Health claims can be further subdivided into:

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16 It should be noted that there is still a lack of consensus among researchers as to which type of claims pertain to health claims and which ones pertain to nutrient content (nutritional) claims. For example, structure/function claims (described below) are classified as health claims by Kim, Cheong, and Zheng (2009) and nutrient claims by Bone and France (2009).
Performance enhancement. Performance enhancement claims talk about how consuming the product can help with physical or mental health (Jones, Andrews, Tapsell, Williams, & McVie, 2008).

Diet-disease. Diet-disease claims mention the way in which consuming the advertised product can help prevent a disease (Jones, Andrews, Tapsell, Williams, & McVie, 2008).

Qualified. Qualified health claims look to make sure that food advertisers are making accurate claims that are based on scientific evidence about the health benefits the product offers (Enforcement Policy Statement on Food Advertising, 1994). This evidence does not have to be at the highest level of scientific agreement (Bone & France, 2009). Because of this, additional disclaimers must be made about the evidence that supports the claim (Hooker & Teratanavat, 2008). An example of a qualified health claim for a product containing Omega-3 would be “Supportive, but not conclusive, research shows that consumption of two omega-3 fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), may reduce the risk of coronary heart disease” (Bone & France, 2009, p.254).

Unqualified. Unqualified health claims link the product to a disease or health issue. They must meet strict standards set by the FDA (Bone & France, 2009). “Unqualified health claims in advertising… are likely to be deceptive when the risk-increasing nutrient is closely related to the subject health claim… The failure to disclose the presence and significance of risk-increasing nutrients that are closely related to the health claim for such foods is likely to constitute an omission of a material fact and render the health claim deceptive” (Enforcement Policy Statement on Food Advertising,
An example of an unqualified health claim for a product with calcium would be: “May reduce the risk of osteoporosis” (Bone & France, 2009, p.254).

Like Kim, Cheong, and Zheng (2009), Ippolito and Pappalardo (2002) divided health and nutrition claims into two categories: 1) health claims and 2) nutrition or nutrient content claims. However, they provided a different typology for each claim (Figure 2-3). In terms of health claims, they defined these as those statements that had specific health effects based on the nutrients in the product. There were three subcategories within their health claims: disease claims (which refer to a specified disease), affiliated claims (which refer to conditions that could be related to a disease such as serum cholesterol levels, high blood pressure, etc.), and nondisease health claims (which includes health claims that do not fit into other categories).

**Nutrient content claims (nutritional claims)**¹⁷

Nutrient content claims highlight the nutrients there are in the food product advertised. An example of a nutrient content claim for a product with Omega-3 would be: “Natural source of Omega-3” (Bone & France, 2009, p.253). There are different types of nutrient content claims.

**Structured-function.** “Structure–function claims link the nutrient to a particular body function” (Bone & France, 2009, p.253). Examples of a structure/function claims

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¹⁷ Through a review of literature conducted by Andrews, Netemeyer, and Burton (1998), the researchers identified a different range of labels for nutrient content or nutritional claims: “general versus specific, subjective versus objective, evaluative versus factual, abstract versus concrete” (p.63). Even with all these numerous labels, what is important to remember is that what distinguishes one claim type from another is the degree to which it is verifiable (Darley & Smith, 1993). Specific nutrient content claims can be verified more easily than general nutrient content claims.

**Absolute nutrient content.** Absolute nutrient claims explain the amount of a nutrient there is in a serving of the product using words such as “low,” “high,” and “lean” (Enforcement Policy Statement on Food Advertising, 1994).

**Comparative nutrient content.** Comparative nutrient claims explain the amount of a nutrient there is in a serving of the product by comparing it to another product using terms such as “less,” “reduced,” and “more” (Enforcement Policy Statement on Food Advertising, 1994).

As with health claims, Ippolito and Pappalardo (2002) have provided a different division for nutritional claims. In fact, they divided nutrient content and nutritional claims into two separate categories. Nutrient content claims are statements specific to a particular nutrient. For example, fat claims (referring to an unspecified type of fat), saturated fat and cholesterol claims, and calorie and dieting claims are classified as nutrient content claims. On the other hand, nutrition claims refer to statements that are not specific to a particular nutrient but indicate health or nutrient benefits from consuming the product. This grouping described by Ippolito and Pappalardo (2002) are similar or even comparable to the general/specific subdivisions described by Kim, Cheong, and Zheng (2009).

Parker (2003) postulated a third and relatively distinct typology (Figure 2-4). Parker divides health and nutrition claim into three major subdivisions: nutrient content claims, health claims, and structure/function claims.
Nutrient content claims communicate information on a particular nutrient found in the food product, mostly using absolute or comparative terms. Like other researchers, Parker (2003) exemplifies nutrient content claims with claims such as: “fat free” and “excellent source of calcium.” However, the researcher incorporates what she calls “a special type of nutrient content claim” (p.48) that other researchers have included as a health claim: the healthy claim. The healthy claim is widely used in advertising and it does precisely that, claim that the product is “healthy.” However, for a product to carry the healthy claim, it must meet several standards set by the FDA, such as having low total fat, low levels of saturated fat, and low levels of cholesterol. Parker (2003), like Kim, Cheong, and Zheng (2009), also includes “general nutrition claims” into the nutrient content subdivision of health and nutrition claims. General nutrition claims use non-specific terms that give an implication that the product is good for the consumer. These include examples such as “wholesome” and “nutritious” (p.49).

Health claims, on the other hand, have to be “based on the presence or absence of a nutrient that is linked to a disease or health-related condition” (p.49, referencing the FDA). These are what Kim, Cheong, and Zheng (2009) refer to as diet-disease claims. Health claims have to be authorized by the FDA and must have scientific evidence to back-up the claims made (Parker, 2003).

In contrast to other typologies, structure/function claims were not placed under the health or nutrition subdivision but rather in its own category. “Structure/function claims describe how a product affects the structure or function of the body, but do not mention or imply a relationship to a disease” (Parker, 2003, p.49). These claims do not require
FDA preauthorization like health claims do. On the contrary, the food product manufacturer rather than the FDA is responsible for making accurate claims.

**Claims Applied in the Current Study**

This study will focus on the three claims that are most commonly used in food advertising. The most recent content analysis conducted by Kim, Cheong, and Zheng (2009) and another content analysis performed by Parker (2003) revealed that the top health and nutrition claims used are (1) Specific nutrient content claims, (2) Structure/function claims and (3) General health claims. The next two sections pinpoint the results of these studies and provide justification for the selection of (1) Specific nutrient content claims, (2) Structure/function claims and (3) General health claims.

**Studies Examined**

To decide which claims were going to be analyzed in this study, different studies were examined. The claims used in each study and the frequency of each of the claims were noted. The first was Kim, Cheong, and Zheng’s (2009) work, which content analyzed 222 print advertisements with nutritional or health claims from three women’s magazines (Better Homes & Gardens, Good Housekeeping and the Ladies’ Home Journal) in 2006. The majority of the health and nutrition claims (n = 145) were specific nutrition claims -- 91 of these claims specified that they minimized a particular substance and 54 of these claims specified that the product contained a particular nutrient. Specific nutrition claims were followed by general health claims (n = 36), 20 of which were general wellness claims, and 16 of which were structure/function claims.

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18 The authors specified that the claims could not be mutually exclusively classified into one claim type; therefore the summation of the frequency of ads per claim equals more than 222 since one ad could be classified into more than one category.
General nutrition claims ($n = 10$) and specific health claims ($n = 6$) were used the least in food advertisements. The authors further subdivided claim frequency between those that were for hedonic products ($n = 84$) and those that were for functional products ($n = 138$). Hedonic product advertisements made less use of nutrition/health claims than function product advertisements. Nonetheless, the use of each claim followed the same order of frequency as all the products combined. The majority of the advertising claims ($n = 93$) were specific nutrition claims -- 51 of these claims specified that they minimized a particular substance and 42 of these claims specified that the product contained a particular nutrient. Specific nutrition claims were followed by general health claims ($n = 30$), 16 of which were general wellness claims, and 14 of which were structure/function claims. General nutrition claims ($n = 10$) and specific health claims ($n = 5$) were used the least in food advertisements.

In another study, Parker (2003) content analyzed 108 issues from Good Housekeeping, Prevention, and Better Homes and Gardens between 1998 and 2000. Parker (2003) found that out of a total of 1,320 ads, 674 had health and nutrition claims. Nutrient content claims were the most prevalent claims, present in 65.9% ads. These claims were followed by what she defined as structure/function claims (13.1%), healthy claims (8%), general nutrition claims (7.7%), and health claims (4.5%). The frequency of

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19 The effectiveness of food advertising claims depends on the type of food product and the food product category being advertised (Johar & Sirgy, 1991; Sirgy et al., 1991; Kim, Cheong, & Zheng, 2009). There are two types of food products: hedonic products and functional products (Batra & Ahtola, 1990). Products are considered hedonic when they are consumed for sensory pleasure (e.g. potato chips, cookies, cake, candy, ice cream and full-calorie soft drinks) and functional when they are consumed to solve a consumption-related problem -- e.g. granola, main meals, cereals and sports drinks -- (Batra & Ahtola, 1990). Functional food products have various definitions. Kroll and Kroll (2001) defined it as "one that serves a function beyond ordinary nutrition, where a modification, added ingredient or an intrinsic ingredient may impart the functionality" (¶6) and as a product where “functionality is promoted as a primary reason for ingesting the product” (¶7).
each claim was also evaluated by food category -- bread/cereal, combination foods, fats/sweets, fruit/juice, meat/protein, dairy foods, vegetables, and other foods. In the bread/cereal category\(^{20}\) (\(n = 277\)), 170 ads had health and nutrition claims. Nutrient content claims were again the most prevalent claims (\(n = 92\)) followed by structure/function claims (\(n = 30\)), general nutrition claims (\(n = 21\)), health claims (\(n = 14\)), and healthy claims (\(n = 13\)).

**Justification**

Given that Kim, Cheong, and Zheng (2009) found that specific nutrition claims were the most frequently found claims in food advertising; these claims were included in the present study. In addition, Parker (2003) found that nutrient content claims were by far the most widely used claims in food advertising. Kim, Cheong, and Zheng (2009) noted that these claims could be subdivided into minimizing a particular substance and containing a particular nutrient.

The second most frequently used health/nutrition claims in food advertising are general health claims (Kim, Cheong, & Zheng, 2009). As previously mentioned, the authors subdivided general health claims into general wellness claims and structure/function claims. This study will apply what Kim, Cheong, and Zheng referred to as general wellness claims, as general health claims. The reason general wellness claims were selected over structure/function claims is because more advertisements contained general wellness claims when compared to structure/function claims\(^{21}\) (Kim, Cheong, & Zheng, 2009). Furthermore, Parker (2003) found that healthy claims (which

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\(^{20}\) The “bread/cereal product category” will be used in the current study.

\(^{21}\) Nonetheless, structure/function claims will also be evaluated in this study. This will be explained further on.
are comparable to Kim, Cheong, and Zheng’s definition of general health claims --
general wellness) were among the top three health and nutrition claims used in food
advertising.

Finally, structure/function claims were the last claim type selected for the current
study. Bone and France (2009) found that structure/function claims were used a lot
more in product packaging -- which is comparable to advertising (Mazis & Raymond,
found that structure/function claims that talked about general health were among their
top advertising claims, the structure/function claims used in this study follow the
definition provided by Parker (2003), where the claim makes a reference about how a
particular nutrient affects a body function instead of how the product in general affects a
body function. This nutrient-oriented structure/function claim ranked second among
Parker’s (2003) most commonly used health and nutrition food advertising claims22.

**History of Food Advertising Claims and Regulations**

In addition to delineating claim types, studies examining food advertising in the
past have demonstrated how the use of food claims has evolved over the past 50 years.
The noted changes came, in part, as a result of modifications in regulatory practices of
food advertising (Ippolito & Pappalardo, 2002; Mathios & Ippolito, 1998). Therefore,
before going into detail on the studies conducted on food advertising, it is essential to
explain the changes in regulatory practices that have occurred in the past that have led
to the evolution of food advertising claims.

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22 Parker (2003) also highlighted that companies have reduced the use of health claims and increased
the use of structure/function claims because of a simpler approval process.
Regulations

The Federal Trade Commission (FTC) regulates health and nutritional claims and the Federal Drug Administration (FDA) regulates food labeling. During the 1970s and 1980s, both regulatory agencies started making numerous changes to the policies that affected food marketing (Ippolito & Pappalardo, 2002). On November 11, 1974, the FTC Food Rulemaking effort was proposed, which regulated food claims used in advertising by establishing industry-wide rules. Among its components was a ban on diet-disease claims and regulations on general nutrition claims, specific nutrient content claims, and “empathic” nutrient content claims. After numerous hearings, in 1982 the FTC finally voted to close the Food Rulemaking effort and replace it with case-by-case enforcement of the claims made in food marketing. This change meant that health claims, general nutrition claims, and nutrient content claims in advertising were facing less enforcement. (Ippolito & Pappalardo, 2002)

Health claim restrictions on labels and advertising loosened up even more in the mid-1980s when Kellogg’s introduced a new campaign in June 1984 for its All-Bran cereal that used messages from the National Cancer Institute on the benefits of consuming fiber for cancer prevention (Mathios & Ippolito, 1998). The campaign included print and broadcasting messages on how the NCI “recommends a high-fiber/low-fat diet because it ‘may reduce the risk of some types of cancer’” (Freimuth, Hammond, & Stein, 1988, p.557). Since the FDA did not challenge Kellogg’s campaign, brands such as Promise margarine and Fleischmann’s margarine began to promote the

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23 Examples of “empathic” nutrient content claims include “loaded with” and “high in” (Ippolito & Pappalardo, 2002).
relationship between saturated fat and cholesterol with heart disease in their marketing efforts (Freimuth, Hammond, & Stein, 1988; Mathios & Ippolito, 1998).

Nonetheless, some organizations pressured the FDA to set guidelines for issuing health claims in food products (Freimuth, Hammond, & Stein, 1988). In 1987, new, less restrictive guidelines were proposed by the FDA for food manufacturers to follow when writing non-deceptive health claims (Ippolito & Pappalardo, 2002). These and other policy changes that occurred during the 1980s allowed manufacturers to make diet-disease claims, which seemed to have improved consumers' knowledge of food choices (Freimuth, Hammond, & Stein, 1988; Mathios & Ippolito, 1998).

The regulatory environment changed again in 1990. The 1987 guidelines were withdrawn, and new regulations were set in place. These new regulations required that all food products have nutrition labeling. In addition, the regulations standardized nutrient content and general nutrition claims, set a more strict approval system for health claims, and prohibited unauthorized usage of nutrition or health claims. In 1990, the Nutrition Labeling and Education Act (NLEA) was also passed, which included a list of approved terms for labeling and claims, explicit requirements for nutrient content claims, etc. (Ippolito & Pappalardo, 2002) The NLEA also limited the number of approved health claims and the food products that could make use of those claims, in order to avoid deceptive claims (Ippolito & Mathios, 1993; Ippolito & Pappalardo, 2002).

**Evolution of Claims**

Before these regulations were produced, health and nutrition claims were not among the top food advertising claims used. However, as the years progressed their appearance started becoming more common (Klassen, Wauer, & Cassel, 1990-1991).
According to Klassen, Wauer, and Cassel (1990-1991), between the 1960s and 1980s, there was an increase in the use of price, health, and weight loss claims. Klassen et al. (1990-1991) content analyzed three different women’s magazines (Good Housekeeping, Better Homes and Gardens, and McCall’s) dating back to the 1960s. The researchers collected a sample of 1,294 ads and 2,269 claims from 1960 to 1987, and they identified seven different types of claims: price, taste, consumer satisfaction, quality, health and nutrition, weight loss, and status and emotional appeal (Klassen, Wauer, & Cassel, 1990-1991, p.35). Their results detailed significant increases in the amount of price, health, and weight loss claims used from the 1960s to the 1980s. Price claims increased significantly in each of the three decades examined (from 4.9% in 1960 to 8.8% in 1970 to 17.4% in 1980), while the increase in the use of weight loss (from 6% in 1960 to 4.3% in 1970 to 11.9% in 1980) and health claims (from 14.6% in 1960 to 16.8% in 1970 to 18.9% in 1980) were seen mostly in the 1980s. Nonetheless, taste claims still dominated as the most used claim throughout the three decades.

Howbeit, the highest usage of health and weight loss claims was seen in the 1980s. This finding could have been attributed to an increase in consumers’ health-consciousness (Mintel, 2009) and can also be linked to the changing regulatory environment (Ippolito & Pappalardo, 2002). Women in particular were looking for foods that were lower in calories and higher in nutrition value (Klassen et al., 1990-1991), which raised the demand for products higher in ingredients such as wholegrain, fiber, low sugar, low fat, etc. (Mintel, 2009). Because of the increase in health and weight loss claims, a decrease was noted in the use of taste and consumer satisfaction claims from
1960 to 1980. Quality and status claims also decreased significantly across all three decades (Klassen et al., 1990-1991).

More studies have focused on the changes that occurred in food advertising since the 1980s. Since the new regulations have been in place, a more prominent shift toward health and nutrition claims has been observed. Even though in the early to mid-1980s taste claims dominated food advertising and labeling, the number of taste claims began to decrease by the end of the decade (Ippolito & Pappalardo, 2002; Klassen, Wauer, & Cassel, 1990-1991). Although health claims had begun to increase, they still did not dominate food advertising labeling and claims. For example, Lord, Eastlack, and Stanton’s (1987) content analysis showed that in 21 different magazines in 1985, 55% of food advertising claims were taste claims compared to 10% health or nutrition claims. It was not until 1988 that a higher number of nutrition claims were seen (Ippolito & Pappalardo, 2002), possibly due to heavy regulations on food claims that were in place until the mid-1980s (Mathios & Ippolito, 1998).

Ippolito and Pappalardo (2002) also content analyzed magazines looking for trends. The researchers examined trends in food advertising claims, with a focus on nutrient content claims, from 1977 to 1997. They analyzed 11,647 food advertisements in five leading women’s magazines (Better Homes and Gardens, Good Housekeeping, Ladies Home Journal, McCall’s, and Women’s Day) and three popular general readership magazines (Reader’s Digest, Newsweek, and Times). Their study found that claims based on taste, aroma, texture, and convenience (all product information claims based on Kim’s, Cheong’s, & Zheng’s (2009) typology) decreased during those years, but new/improved claims increased. Taste, aroma, and texture claims showed the
largest decrease. They composed about 85% of all claims until the mid-1980s. However, by 1997 they composed about 67% of all food ads. On the other hand, new/improved claims, which could be related to the development of nutritionally improved food products, went from composing about 15% of food ads in 1977 to more than 25% between 1984 and 1997. General nutrition claims, which the authors state were more common than specific nutrient claims or health claims, were in half of all the ads in 1977 and in almost 70% of all ads in 1983. By 1997, however, they had fallen to 56% of all ads. Specific nutrition claims, on the other hand, increased between 1977 and 1997 from 28.5% to 62.2%. The authors concluded that nutrition-related claims had become a tool for competition among advertisers; given its increasing usage and that most of the nutrition-related claims were focused on fat claims.

In another study, Parker (2003) continued Ippolito and Pappalardo’s (2002) study by content analyzing 108 issues from three popular magazines (Good Housekeeping, Prevention, and Better Homes and Gardens) published from 1998 to 2000. Parker sought to examine: 1) the types of food products and categories that were advertised using nutrient content, health, and/or structure/function claims, 2) the claims that were being used by food manufacturers, and 3) the frequency of each claim type by food type and product category. Parker found that 41% of the ads contained some type of health or nutrition claim. In general, results demonstrated that food advertisements used more nutrient content claims but limited its use of health claims, while structure/function claims were used more than health claims. Nutrient content claims were the most common type of health or nutrition claim used. In addition, she found that specific nutrient content claims were used more frequently than general nutrition claims. Finally,
the researcher found that most of the food products advertised were for sweets and products high in fats, followed by the cereals and bread category. Overall, healthy products were advertised less than unhealthy products.

A more current content analysis was performed by Kim, Cheong, and Zheng (2009) who analyzed three women’s magazines, *Better Homes & Gardens, Good Housekeeping* and the *Ladies’ Home Journal*, (analyzing 222 advertisements and 531 claims) and conducted a quasi-experiment to obtain an updated review of the practices in food advertising in 2006, to examine the relationship between advertising claims and food product category, and to determine the effectiveness of using nutrition/health claims instead of taste claims. They found that taste and specific nutrition claims were each used in more than 65% of the ads in that year. Previous research had shown a dominance of taste claims, although nutrition claims were growing at a slower rate. Current advertising practices show nutrition claims are being used almost as frequently as taste claims. Therefore, they concluded that there has been a change in the landscape of food advertising.

Kim, Cheong, and Zheng (2009) also looked at specific versus general health and nutrition claims. They found that more general health claims were used (found in 16.21% of the ads) than specific health claims (found in 2.70% of the ads), and that more specific nutrition claims (found in 65.32% of ads) were used than general nutrition claims (found in 4.50% of ads). One of the reasons why general health claims were likely favored was because advertisers had to comply with more FDA regulations if they used specific health claims (Kim, Cheong, & Zheng, 2009). On the other hand, specific nutrition claims were more prevalent because people need “less ambiguous
information” (p.545) when evaluating nutrient contents to make purchase decisions. Specific nutrient content claims provide the information needed without having to look at alternative sources of information.

Kim, Cheong, and Zheng’s (2009) content analysis also found that health claims and nutritional claims were used more for functional food products; taste claims were used mostly for hedonic products. However, their quasi-experiment revealed opposite results, showing that health and nutritional claims were more effective (i.e., higher favorability and purchase intentions) on hedonic foods, while taste claims were more effective when promoting functional foods.

**Experimental Studies**

In addition to Kim, Cheong, and Zheng’s (2009) experimental study, other experiments have been conducted. These studies have looked at interpretations of claims (Andrews, Netemeyer, & Burton, 1998), and advertising claim type effects on ad and brand attitudes as well as purchase intentions (Burton, Andrews, & Netemeyer, 2000; Garretson & Burton, 2000; Keller, Landry, Olson, Velliquette, Burton, & Andrews, 1997; Roe, Levy, & Derby, 1999).

A study by Andrews, Netemeyer, and Burton (1998) looked at how consumers interpret nutrient content claims in advertising. They interviewed 365 shoppers in malls throughout the United States and conducted an experiment in which they found that consumers overgeneralize general claims (such as “healthy”) and specific nutrient content claims (such as "no cholesterol") to "non featured nutrient content (e.g. fat content and overall healthiness) and did not extend to evaluations of specific disease risks (e.g. cancer and heart disease)” (Andrews, Netemeyer, & Burton, 1998, p.70). The
authors concluded that this goes in accordance to the spreading activation theory\textsuperscript{24} given that “consumers are more likely to access other, related nutrient concepts first when they are exposed to the favorable nutrient content claims, rather than more peripheral, and endless accessible, disease-related concepts” (Andrews, Netemeyer, & Burton, 1998, p. 71).

Furthermore, some experimental studies have examined advertising and product packaging claim type effects on ad and brand attitudes and purchase intentions (Burton, Andrews, & Netemeyer, 2000; Garretson & Burton, 2000; Keller, Landry, Olson, Velliquette, Burton, & Andrews, 1997; Roe, Levy, & Derby, 1999). Product package claims have the same classifications/typologies as advertising claims. There are no significant differences in consumer beliefs about food products when they are exposed to advertising claims on product packages or in advertising (Mazis & Raymond, 1997).

Burton, Andrews, and Netemeyer (2000) conducted a between subjects experiment using mall shoppers randomly assigned to different ad claim types (specific versus general) and disclosure information\textsuperscript{25}, including a no disclosure control condition. Using seven point scales, participants rated ad and brand attitudes and purchase intentions of the product based on the ad claim type to which they were exposed. They measured two additional potential covariates: motivation to process nutrition information and brand familiarity. Main effects of ad claim types were found on all three dependent

\textsuperscript{24} The spreading activation theory describes how people process information. It is a method for searching for associative networks. A person labels concepts in a semantic network with weights and then passes that weight or activation to related nodes. (Andrews, Netemeyer, & Burton, 1998; Cameron, 1993; Collins & Loftus, 1975)

\textsuperscript{25} Disclosure information refers to additional information provided as a footnote to clarify a claim or avoid misleading claims in advertisements due to information that is not presented in the ad. The researchers pretested three different disclosure statements: absolute, relative, and evaluative. An example of each disclosure statement type was used in the study but no description of the effect of each was described in the results or discussion of the data obtained (Burton, Andrews, & Netemeyer, 2000).
variables (i.e. ad and brand evaluations, and purchase intentions). When the disclosure information was present, specific claims obtained better attitudes and purchase intentions than when general claims were presented. The researchers also found that health perceptions of the product mediated the effects of ad disclosures. The interaction between ad claim type and ad disclosures was not mediated by product health perceptions.

Keller, Landry, Olson, Velliquette, Burton, and Andrews (1997) conducted a laboratory controlled between-subjects experiments using members of a statewide household research panel. They evaluated the effect of four product packages’ nutrition claim types (e.g. “99% fat free,” “low in fat,” “low in calories,” and a no claim condition) on motivation to process nutrition information and product nutrition value levels. The researchers found that nutrition claims interacted with product nutrition value in affecting manufacturer’s credibility. When claims that were not consistent with the nutrition facts information were presented, the “99% fat free” claim obtained the lowest credibility perceptions. More general claims, such as “low in calories” and “low in fat” were more vague and harder to assess from the consumer’s point of view. It was also found that when additional information on nutrition and health (such as a nutrition panel on a product) was available, consumers were less likely to rely on nutrition and health claims to make judgments about the product.

In another study, Garretson and Burton (2000) used 382 participants from a mail household research panel to experimentally test how differences in fat and fiber information in nutrition facts panels and different health and nutrient content claims affected product evaluations and purchase intentions. Their study demonstrated that fat
information affected participant’s perceptions of disease risk, while fiber information did not. Nutrition claims did not affect product evaluations nor purchase intentions.

Finally, Roe, Levy, and Derby (1999) had 1,403 mall shoppers examine health claims and nutrient content claims on product packages and rate how important the product was in maintaining a healthy diet and how likely they were to purchase the product, using four point rating scales. Shoppers were shown three different products with one of 10 treatment conditions (eight were health claims, one was a nutrient content claim, and one had no claim). Results demonstrated that participants tended to truncate their information search to the front of a product when a health claim or a nutrient content claim was present. They were also more likely to view the product as healthier and purchase a product when health or nutrient content claims were present independent of whether the participant had done any information search prior to looking at the health or nutrient content claim on the front of the package. Also, participants who saw a product with a health or nutrient content claim were more likely to remember it.

Theoretical Background

As noted in the previous section, a broad field of research exists studying nutrition and health claims influence on consumers’ evaluations of the ad and brand, as well as purchase intentions. However, there is a gap in literature examining the effects of particular claims on communication effectiveness -- how positively or negatively consumers attitudes toward the advertisement and brand is and how likely they are to purchase the advertised product. Therefore, the current study sought to address that gap.
Food advertising claims function as heuristics in the decision making process because when people are not sufficiently motivated or do not possess the ability to process information systematically, they process information superficially with heuristic cues or available short cuts (Todorov, Chaiken, & Henderson, 2002). Consumers use cues to distinguish between food products, given that food is considered a parity product26. Advertising claims highlighting the health and/or nutritional attributes of a product are helpful tools for consumers in selecting products, especially now that they are more health conscious and are looking for healthier alternatives (Mintel, 2009). Also, since consumers do not seem to have the adequate nutrition knowledge to interpret more complex nutrional information (White, 2007), consumers rely on the simple and direct claims made in advertising and on the front panels of product packages. Moreover, research on adult populations shows that heuristics or external cues significantly influence consumers’ behaviors (Harris, Bargh, and Brownell, 2009).

Because of the attributes food products possess (i.e., parity products, low-involvement, satisfying physiological needs), three frameworks are used to create research questions and hypotheses. The dual-mediation and independent influence hypotheses is used to evaluate the relationship between advertisement exposure and attitude toward the ad and brand, as well as purchase intentions. Finally, the economics of information theory is used to help determine which of the claims presented in advertisements will bring about better communication effectiveness.

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26 Parity products - “Product categories where the several brands within that category possess functionally equivalent attributes, making one brand a satisfactory substitute for most other brands in that category” (Lake, 2011).
Dual-Mediation Hypothesis and the Independent Influences Hypothesis

There are frameworks that have sought to describe the relationship between attitudes and intent to act or purchase intentions. These frameworks look at cognitive influences and explain the cognitive process from an advertisement to a consumer’s mind (Belch & Belch, 2004).

Exposure to an advertisement can lead people to form evaluative responses of the product or message being shown, the source of the communications, and/or the advertisement execution. These evaluations (or attitudes) have the capability of influencing whether or not the person purchases the product advertised (Belch & Belch, 2004). Research on this process has established a mediating relationship of attitude towards the ad, between initial advertisement exposure and attitudes towards the brand and purchase intentions (MacKenzie, Lutz, & Belch, 1986).

Four frameworks (i.e. the affect transfer hypothesis, dual-mediation hypothesis, reciprocal mediation hypothesis and the independent influences hypothesis) were developed that explain the influence of an advertisement on attitudes and purchase intentions and where cognition precedes affect, both of which precede conation (MacKenzie, Lutz, & Belch, 1986).

However, this study does not incorporate all four frameworks; only the dual-mediation hypothesis (the most supported hypothesis) and the independent influence hypothesis (which provides direct paths from stimuli exposure to purchase intentions) are applied.

The dual-mediation hypothesis is an extension of the affect transfer hypothesis (Figure 2-5), which only “posits a direct one-way flow” (p. 131) between attitude toward the ad and attitude toward the brand. The affect transfer hypothesis states that
cognitions influence attitude toward the ad \( (A_{ad}) \), which in turn influence attitudes toward the brand \( (A_B) \), and these influence purchase intentions \( (I_P) \). It is also possible for cognitions to influence attitude toward the brand, and this further influence purchase intentions. (Hoyer & MacInnis, 2007)

However, the dual-mediation hypothesis (Figure 2-6) posits an additional indirect route where attitude toward the ad influences attitude toward the brand through positive, cognitive brand reactions (MacKenzie, Lutz, & Belch, 1986). This means that consumers’ affective reactions toward an ad directly affect the probability that the brand’s claims will be accepted. Therefore, the more positive consumers’ feel about an ad, the more receptive they are going to be toward the content of the ad (MacKenzie, Lutz, & Belch, 1986).

The direct influence of attitude toward the ad on attitude toward the brand is the strongest relationship MacKenzie et al. (1986) observed because consumers affective reactions to an ad influence the consumer’s acceptance of the claims that have been made in the ad. MacKenzie et al. (1986) found that for print advertisements, which will be used in this study, the dual-mediation hypothesis was the best model of the four they tested. Consumers can have a positive attitude toward an ad because they find the ad’s claims believable or because they like it (Hoyer & MacInnis, 2007).

This study also applies the independent influences hypothesis (Figure 2-7). This hypothesis differs from previous hypotheses by MacKenzie et al. (1986) in that it posits two independent paths. It posits a direct path between attitudes toward the ad and purchase intentions that previous hypotheses do not describe (MacKenzie, Lutz, & Belch, 1986); thus, attitude toward the ad and attitude toward the brand each influence
purchase intentions independently (Homer, 1990). Therefore, the more a consumer likes an ad, the more likely they are to form positive attitudes towards the ad that would lead to higher purchase intentions. Also, the more the consumer likes the brand, the more likely they are to form positive attitudes towards the brand, leading to higher purchase intentions.

Based on the dual-mediation hypothesis and the independent influence hypothesis, this study predicted that advertisements that contained health or nutrition claims would induce favorable ad and brand cognitions, which in turn influence more positive ad and brand attitudes, until finally producing higher purchase intentions. This is due to the fact that food products advertised as “healthy” may lead consumers to perceive the product to be healthier, develop more positive attitudes toward the product, and increase their intent to purchase the product (Adam & Geuens, 2007; Andrews, Burton, & Netemeyer, 2000; Andrews, Netemeyer, & Burton, 1998; Roe, Levy, & Derby, 1999). On the other hand, advertisements that do not contain health or nutrition claims will not be influenced as positively in terms of attitudes and purchase intentions. However, in order to distinguish which claims would produce more favorable evaluations (effects), another theory -- the economics of information theory -- was applied.

**Economics of Information Theory**

The next framework to be incorporated into this study is the economics of information theory. Although this theory does not look at the relationships between attitudes and intent to act as the previous frameworks did, this theory helps distinguish which food advertising claims will have a stronger influence than others on
communication effectiveness (attitude toward the ad, attitude toward the brand and purchase intentions).

The economics of information theory comes from the field of economics. Nelson (1970) stated that consumers have two manners through which they acquire information: by searching and/or by experiencing (Nelson, 1970; Darby and Karni, 1973). Darby and Karni later added a third way to acquire information -- credence, which refers to characteristics or benefits of a product that cannot be readily distinguished by the person even after the product has been consumed. It further states that consumers seek to increase the effectiveness of their purchase decisions by looking for information until the perceived marginal cost of looking for information exceeds the marginal value (Nelson, 1974). In marketing terms this translates into reducing the level of uncertainty the consumer has after being presented with information about the product (as cited in Sichtmann, 2006).

In terms of the theory's application to the present study, consumers are more uncertain of general and subjective claims than of more objective claims that can be verified (Andrews, Netemeyer, & Burton, 1998; Ford, Smith, and Swasy, 1990). Ford, Smith, and Swasy (1990) found that consumers are "less skeptical of objective than of subjective claims" (p. 437) and that consumers are more responsive to claims that contain attributes that consumers can evaluate prior to purchase instead of claims that require consumers to purchase and try the product first. Therefore, this study hypothesized that more detailed claims, like structure/function claims, will bring about better attitudes and purchase intentions, followed by less detailed claims such as specific nutrient content claims, and health claims.
Hypotheses and Research Questions

The literature review has demonstrated that consumers’ perceptions of a product may be influenced by the way in which the product is advertised. Using the theoretical frameworks previously described, as well as information gathered from previous studies, several hypotheses and research questions were developed. This section will explain the rationalization for each hypothesis and research question, as well a detail each one of them.

The dual-mediation hypothesis posits that attitude toward the ad can affect attitude toward the brand by mediating the effects of the stimuli (MacKenzie, Lutz, & Belch, 1986). Positive attitudes toward the brand can, in turn, positively affect purchase intentions (Hoyer & MacInnis, 2007). The independent influences hypothesis pinpoints an additional direct relationship between attitude toward the ad and purchase intentions, as well as an independent relationship from attitude toward the brand (MacKenzie, Lutz, & Belch, 1986), meaning that an advertisement can affect both attitude toward the ad and toward the brand independently, which in turn affect purchase intentions independently.

Research has shown that advertisements/products containing health or nutrition claims produce more favorable evaluations and purchase intentions than advertisements and products that do not (Adam & Geuens, 2007; Andrews, Burton, & Netemeyer, 2000; Andrews, Netemeyer, & Burton, 1998; Roe, Levy, & Derby, 1999). Thus, the presence of a nutrition or health claim will produce more positive effects (attitude toward the ad, attitude toward the brand, and purchase intentions) compared to the control condition with an alternate (taste) claim.
Given that no research has been conducted evaluating the attitude toward the ad and toward the brand, and the purchase intentions produced by the three claims on which this study focuses (i.e., specific nutrient content, structure/function, general health claims), this study seeks to investigate which of the three health and nutrient content claims will produce more favorable attitudes and purchase intentions. The application of the assumptions posited by the economics of information theory was used in order to rank health and nutrition claims (based on which was expected to produce more favorable responses). This theory has been used (Ford, Smith, & Swasy, 1990; Nelson, 1974; Smith, 1990) to evaluate the effects of advertising claims. It has been found that consumers are more skeptical of general and subjective claims (such as general health claims) than of more objective claims (such as specific nutrient claims) that can be verified (Ford, Smith, & Swasy, 1990). Consumers exposed to general claims need more information to confirm the ambiguous information presented (Hoch & Ha, 1986).

Although no specific studies can be pinpointed that show differences between structure/function claims and specific nutrient claims, the researcher followed the premises established by the economics of information theory, thereby assuming that structure/function claims would have a more positive influence on attitudes and purchase intentions than specific nutrient claims because structure/function claims provide more details within the claim. Whereas specific nutrient content claims only highlight a particular nutrient within the product, structure/function claims also describe how that nutrient benefits the consumer. In addition, research shows that consumers are skeptical of specific nutrient claims because they believe that they are designed as a promotion to influence their purchase (Keller, Landry, Olson, Velliquette, Burton, &
Andrews, 1997), which is likely to produce less favorable attitudes than more detailed claims. Applying the economics of information theory, the dual-mediation hypothesis and the independent influence hypothesis, it can be hypothesized that exposure to a structure/function claim will produce more positive effects than exposure to a specific nutrient content claim, which in turn will produce more positive effects than exposure to a general health claim. General health claims will produce more positive effects than the no health or nutrition claim condition (Figure 2-9).

**H1:** More detailed/objective health or nutrition claims will produce more positive attitude toward the ad.

Stimuli $\rightarrow$ Attitude toward the ad (dual-mediation and independent influences hypotheses)

**H1a:** Structure/function claims will produce the most positive attitude toward the ad.

**H1b:** Specific nutrient content claims will produce better attitude toward the ad than general health claims.

**H1c:** The condition with no health or nutrition claims will produce the least positive attitude toward the ad.

**H2:** More detailed/objective health or nutrition claims will produce more positive attitude toward the brand.

Stimuli $\rightarrow$ Attitude toward the brand (independent influence hypothesis)

**H2a:** Structure/function claims will produce the most positive attitude toward the brand.
**H2b:** Specific nutrient content claims will produce better attitude toward the brand than general health claims.

**H2c:** The condition with no health or nutrition claims will produce the least positive attitude toward the brand.

**H3:** More detailed/objective health or nutrition claims will produce a stronger relationship between attitude toward the ad and attitude toward the brand.

Stimuli → Attitude toward the ad → Attitude toward the brand (dual-mediation hypothesis)

**H3a:** When a structure/function claim is in effect, the relationship between attitude toward the ad and attitude toward the brand will be stronger than when a specific nutrient content claim, general health claim or control claim is in effect.

**H3b:** When a specific nutrient content claim is in effect, the relationship between attitude toward the ad and attitude toward the brand will be stronger than when a general health claim or control claim is in effect.

**H3c:** When a general health claim is in effect, the relationship between attitude toward the ad and attitude toward the brand will be stronger than when a control claim is in effect.

**H4:** More detailed/objective health or nutrition claims will produce a stronger relationship between attitude toward the ad and purchase intentions.

Stimuli → Attitude toward the ad → Purchase Intentions (independent influence hypothesis)
**H4a:** When a structure/function claim is in effect, the relationship between attitude toward the ad and purchase intention will be stronger than when a specific nutrient content claim, general health claim or control claim is in effect.

**H4b:** When a specific nutrient content claim is in effect, the relationship between attitude toward the ad and purchase intention will be stronger than when a general health claim or control claim is in effect.

**H4c:** When a general health claim is in effect, the relationship between attitude toward the ad and purchase intention will be stronger than when a control claim is in effect.

**H5:** More detailed/objective health or nutrition claims will produce a stronger relationship between attitude toward the brand and purchase intentions.

Stimuli → Attitude toward the brand → Purchase Intentions (independent influence hypothesis)

**H5a:** When a structure/function claim is in effect, the relationship between attitude toward the brand and purchase intention will be stronger than when a specific nutrient content claim, general health claim or control claim is in effect.

**H5b:** When a specific nutrient content claim is in effect, the relationship between attitude toward the brand and purchase intention will be stronger than when a general health claim or control claim is in effect.

**H5c:** When a general health claim is in effect, the relationship between attitude toward the brand and purchase intention will be stronger than when a control claim is in effect.
Given that there are two variables that could mediate the impact of a claim on purchase intentions, the following research question was developed.

**RQ1:** Which mediating variable, attitude toward the ad or attitude toward the brand, produces more strongly correlated purchase intentions?

The last set of research question incorporate Hispanics in the United States. Hispanics are a large segment of the United States population and they are expected to continue growing immensely (Obesity and Hispanic Americans, 2011). Hispanics are at an increased risk of becoming obese (Obesity and Hispanic Americans, 2011). Even with their large size and increased risk of obesity, there is limited research on this population segment within food advertising research. No studies examining relationships similar to the ones postulated in the current study were found. Therefore, this study posits the following research questions:

**RQ2:** What type of advertised health or nutrition claim (i.e., specific nutrient content, structure/function, general health claims) produces more positive attitude toward the ad, attitude toward the brand, and purchase intention among Hispanic whites?

**RQ3:** Are the advertised food claims’ effectiveness (attitudes and purchase intentions) significantly different between Hispanic and non-Hispanic white groups?

The following section describes how this research paper sought to answer these research questions and hypotheses.
Figure 2-1. Overview of Kim's, Cheong’s, and Zheng’s typology of food advertising claims

Figure 2-2. Further categorization of health and nutrition claims by Kim, Cheong, and Zheng (2009)
Figure 2-3. Ippolito’s and Pappalardo’s Health and Nutrition Claims Typology

Figure 2-4. Parker (2003) Typology of Health and Nutrition Claims

Figure 2-5. Affect transfer hypothesis
Figure 2-6. Dual-mediation hypothesis

Figure 2-7. Independent influence hypothesis

Figure 2-8. Model

Figure 2-9. Model for Hypothesis
CHAPTER 3
METHODOLOGY

Experimental Study

The main research questions this study sought to answer were:

1. What health/nutritional food advertising claim (i.e. structure/function claim, specific nutrient content claim, general health claim) produced better communication effectiveness (i.e. attitude toward the ad, attitudes toward the brand, and purchase intentions)?

2. Were there significant differences among the Hispanic white population in the United States and the non-Hispanic white population, in terms of which advertising food claim was more effective?

Given that the purpose of the study was to determine causality, an experiment was conducted to test the hypotheses and research questions posited. An experiment was chosen because experiments “explore the effects of things that can be manipulated” (Shadish, Cook, & Campbell, 2002, p.7). It was also the only method that met the three criteria for determining causation: time order (cause precedes effect), correlation (cause related to effect), and non-spurious relationships (there are no other plausible explanations between the cause and the effect) (Babbie, 2007; Shadish, Cook, & Campbell, 2002). By conducting an experiment, the researcher could manipulate the cause and observe the outcome (Shadish, Cook, & Campbell, 2002). The researcher was also able to observe whether variation in the cause, was related to variation in the effect (Shadish, Cook, & Campbell, 2002). Finally, the researcher was able to reduce plausability of other explanations for an observed relationship, or variation, by using appropriate methods such as an experimental design, random assignment, and/or matching (Shadish, Cook, & Campbell, 2002).
Independent Variables

In order to test the hypotheses and evaluate research questions posited in the previous chapter, it was essential to specify the meaning of each variable (conceptualization), and explain how each of the variables was measured (operationalization) (Babbie, 2007). The current study was based on two independent variables, one that was manipulated by the researcher (type of advertising claim presented) and one that dealt with attributes of the sample (ethnicity/race).

The first independent variable was the type of nutrition or health claim presented. As detailed in the literature review, food advertising claims can be subdivided into two major groups: product information claims, and nutrition and/or health claims (Kim, Cheong, & Zheng, 2009). Nutrition/health claims were the focus of this study. They made reference to any type of nutritional or health benefit that could be obtained from consuming the product (Kim, Cheong, & Zheng, 2009). Even though health and nutrition claims are two different types of food advertising claims, for study purposes, they were both used and grouped into one category, because both types of claims have similar effects on information processing (the amount of information gained and how information is truncated by the consumer), and product evaluation (Roe, Levy, & Derby, 1999). Because significant differences were found between the frequency of usage of the top three claims in food advertising, and other claims that follow in rank, only the top three health and nutritional claims were used. A review of content analyses conducted by Bone and France (2009), Kim, Cheong, and Zheng (2009), and Parker (2003) revealed that the top claims used are:

1. Specific nutrient content claims (Parker, 2003) – “‘Specific nutrition claims’ mention the specific nutrient or substance of products.” (Kim, Cheong, & Zheng, 2009, pp. 536-537)
2. Structure/function claims (Parker, 2003) - “Structure/function claims link the nutrient to a particular bodily function” (Bone & France, 2009, p.253).

3. General health claims – “refer to health benefits without mentioning a specific disease or condition (e.g. ‘good for health’)” (Kim, Cheong, & Zheng, 2009, pp. 536-537). Kim, Cheong, & Zheng (2009) divided general health claims into two additional categories: general health claims and structure/function claims. The third type of claim evaluated (in this study) was the general wellness claim, given that structure/function claims were already evaluated under item number two.

Therefore, the variable “type of nutrition or health claim” had four levels (conditions): specific nutrient content claim, structure/function claim, general health claim, and no health or nutrition claim (a taste claim was used). As previously mentioned, a taste claim refers to attributes of the product that appeal to the sensory experiences of smell, taste, and aftertaste (Cheong & Kim, 2011). A taste claim was chosen as the control claim given that it is one of the most common types of claims used in food advertising (Ippolito & Pappalardo, 2002; (Kim, Cheong, & Zheng, 2009; Klassen, Wauer, & Cassel, 1990-1991; Lord, Eastlack, & Stanton, 1987), and it has been used as a non-nutritional claim in previous studies (e.g. Andrews, Burton and Netemeyer, 2000).

The second independent variable of the study was “ethnicity/race.” This variable had only two levels (conditions): Hispanic whites and non-Hispanic whites. The U.S. Census defines race as “a self-identification data item in which respondents choose the race or races with which they most closely identify” (Fact Finder: Race, 2011). The racial categories that are presented in the Census go in accordance to the social definition of race and include racial and national origin. Five categories within the race construct are included in the Census: white, black or African American, American Indian and Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander (County
Population Estimates by Demographic Characteristics - Age, Sex, Race, and Hispanic Origin, 2010).

Out of all the categories in the Census for race, only whites -- or people who classified themselves as white in the Census -- were studied in the current research given that they make up the majority (72%) of the United States population (2010 Census Shows America's Diversity, 2011). Whites are defined as “a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicate their race as ‘white’ or report entries such as Irish, German, Italian, Lebanese, Arab, Moroccan, or Caucasian.” (County Population Estimates by Demographic Characteristics - Age, Sex, Race, and Hispanic Origin, 2010)

The second part of this variable was ethnicity. Ethnicity also referred to self-identification data; however ethnicity indicated whether people were of Hispanic or Latino origin. Hispanic or Latino, and Not Hispanic or Latino, were the two minimum categories required in the Census questionnaire. Ethnicity is a more distinct concept from race, given that a Hispanic or Latino may be of any race. (Fact Finder: Ethnic Group, 2011) According to the 2010 Census, “‘Hispanic or Latino’ refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race” (Humes, Jones, & Ramirez, 2011, p. 2).

The researcher studied non-Hispanic white, and Hispanic white, populations within the United States. However, in order to avoid participants knowing the purpose or objectives of the study, the race and ethnicity questions were formulated using the required options based on the U.S. Census: (1) for race -- white, black or African
American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander; and (2) for ethnicity -- Hispanic or Latino and Not Hispanic or Latino.

**Stimuli**

The study manipulated four print cereal advertisements to test the hypotheses and research questions posited. This section justified the selection and manipulation of the stimuli used.

**Selection of Print Media**

Numerous research studies have been conducted studying the effects of food advertising on adults and children; however, most of these studies have focused on television as the advertising medium (e.g. Harris, Bargh, & Brownell, 2009; Powell, Szczypka, & Chaloupka, 2007). Print media were selected as the study medium due to the lack of research on it despite its frequent use as a media platform. Print media have been considered the second most frequently used medium for food advertising (Abbatangelo-Gray, Byrd-Bredbenner, & Austin, 2008) as well as, an important source of nutrition information (Jones, Andrews, Tapsell, Williams, & McVie, 2008). As of March 2011, 26.4% of all advertising budgets were spent on print media, making it the second most utilized media platform (AdSpender, 2011). In addition, this medium was selected because it allowed participants to study the ads carefully, and re-read the ads in the period of time allotted.

**Copy of Food Advertising Claims**

The brand and product were fictitious in order to avoid participants carrying over any previous knowledge or attitudes toward the brand. However, the claims in the ads were created from vocabulary and phrases used in real cereal advertisements, whether it was from advertisements found by the researcher, or from claims found in real ads in
other studies. A professional copywriter oversaw the alterations made to the text of all the claims. The ads referenced by the researcher are available in Appendix F.

All claims focused on the same ingredient (sugar) and nutritional aspects (calories, health and weight loss). Sugar was chosen as the ingredient to focus on after conducting individual interviews with 46 people between the ages of 18 and 54. Volunteers were recruited from the Gainesville, Florida area fitness center and stores between the dates of November 14, and 16, 2011, and January 13 through 14, 2012. Sixteen participants were males, and 30 participants were females. Eighteen participants considered themselves Hispanic, and 28 participants considered themselves non-Hispanics. Out of the 46 participants interviewed, 45 stated that they considered health or nutrition when shopping for groceries, or buying food products. Only one Hispanic stated that he or she was not concerned with health or nutrition when purchasing food. The main health concerns people sought to address were related to sugar content \( (n = 15) \), sodium content \( (n = 10) \), fat content \( (n = 10) \), cholesterol levels \( (n = 8) \), caloric content \( (n = 7) \), avoiding processed foods \( (n = 6) \), consuming enough vegetables \( (n = 5) \) and fruits \( (n = 4) \), and fiber content \( (n = 3) \).

Weight management \( (n = 18) \), and overall health wellness \( (n = 15) \) were the main reasons people were concerned with health. Different health conditions, such as heart

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27 An interview guide, as well as the informed consent can be found in Appendix A and Appendix B. Interviews lasted between 5 to 10 minutes.

28 Interviewees were recruited from the Gainesville Health and Fitness Club, Wal-Mart, and G by Guess. These were the businesses that granted this researcher permission to recruit people on their property.

29 The number of responses does not equal 46 given that most participants provided more than one health concern that they found important.
problems \((n = 14)\), diabetes \((n = 2)\), and arthritis \((n = 1)\) were also mentioned as concerns.

Given that participants stated that the amount of sugar that food products contained was the most frequently sought ingredient (to verify for), and weight management (or control) was one of the most frequently mentioned health concerns, these two aspects were incorporated into the claims. Also, both Hispanics \((n = 9, 50\%)\) and non-Hispanics \((n = 6, 21.4\%)\) mentioned sugar levels as their primary health concern. Aside from sugar content, calories were also included into the claims studied.

Food advertising tends to include calories in the focus of their claim. The researcher noted that sugar and calories were frequently used together in food advertising claims. In addition, calories were also among the health concerns mentioned in the interviews that consumers said they sought to address when purchasing food products. Given that an overconsumption of sugar, and therefore calories, leads to weight gain (Thompson, 2010), it made sense that these two nutritional aspects were related to weight management issues. In fact, Americans tend to consume more sugar than is recommended. American adults consume 22 teaspoons of sugar a day (Cut back, way back, on sugar, says heart group, 2009). It is recommended that women consume no more than six teaspoons of sugar a day (100 calories) and men nine teaspoon of sugar a day (150 calories) (Cut back, way back, on sugar, says heart group, 2009).

Claims were made only in English and not translated to Spanish. Claims were only in English in order to study a particular subgroup of the U.S. population: English-
speaking Hispanics. Thus, comparisons using the same ads, with no variations between non-Hispanic whites and Hispanic, whites were sought.

**Selection of Cereal as Product**

Cereal was selected for several reasons. It is among the top three advertised food products (Jones, Andrews, Tapsell, Williams, & McVie, 2008) and has been used as a “healthy” product in previous research (Adams & Geuens, 2007). A study showed that cereals have “high household penetration as well as high personal consumption rates” (Mintel, 2009, ¶ 1), making it a relatable product for all people. Both Hispanics and non-Hispanics are large consumers of cereal. Although Hispanics tend to consume less cereal than non-Hispanic whites, the percentage of people within each category that do consume cereal is relatively comparable. The USDA reports that 26.2% of Mexican Americans and 23.9% of other Hispanics consume cereal, while 30.3% of non-Hispanic whites consume cereal (Mitchell, 1999). Mintel (2003) reports that 93% of everyone in the United States, and 91% of Hispanics in the United States, consume cereal. MRI+ reports that 86.9% of those who identified themselves as white, or as white-only, consume cereal. Although, MRI+ did not identify people who classified themselves as Hispanics, they do identify people where Spanish is spoken at home. Of those people, 86.3% consume cereal. (MRI Reporter: Fall 2010 Product Household Products - Food products, 2010)

Furthermore, in the pretest interviews conducted, it was found that 40 out of the 46 (87%) participants consumed cereal \( n = 18 \) Hispanics; \( n = 22 \) non-Hispanics). Fourteen (30%) participants stated that they consumed cereal everyday; 12 (26%) consumed

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\(^{30}\) Cereal sales have grown because of the increased consumption by Hispanics (Market Research, 2005)
cereal 2-3 times a week, 5 (11%) consumed cereal once a week, 3 (4%) consumed cereal 2-3 times a month, and 6 (13%) consumed cereal once a month. Consumers bought it, in part, because of its healthy aspects (Mintel, 2009; n=14, 30%), taste (n = 15, 33%), and convenience (n = 15, 33%). Therefore, participants should have found the use of health/nutrition claims in this study’s cereal ads believable (plausible).

**Experimental Stimulus**

Four experimental stimuli were created for this study. A graphic artist with advertising experience created the ads. All four ads were identical in terms of images, colors, fonts, and text size. The only variation among stimuli was the claim itself. This process prevented confounding results due to the ad’s appearance, thereby, ensuring that any differences noted among the four conditions could be attributed to the claims.

To create the experimental stimulus, numerous conversations were carried out between the researcher and the graphic artist. Real advertisements (e.g. Ford® cars cereal-like ad, Special K® ad, Cheerios® ads, Fiber One® ads) and websites (e.g. Honey Bunches of Oats® and Cheerios®) were used as examples of how to create the stimuli for the study. The graphic artist also designed the cereal box presented in the advertisement after looking at various cereal boxes as examples. Appendix G provides illustrations of all stimuli materials used in the study.

**Dependent Variables**

Three dependent variables were evaluated in the study: attitude toward the ad, attitude toward the brand, and purchase intentions. This section conceptualized and operationalized each of the variables.
The first dependent variable measured was attitude toward the ad. Attitude toward the ad is “an important mediator of advertising response” (MacKenzie & Lutz, 1989, p. 48). It refers to a person’s affective reactions -- favorable or unfavorable evaluations (Belch & Belch, 2004) -- toward the advertisement presented (Lutz, MacKenzie, & Belch, 1983; MacKenzie, Lutz, & Belch, 1986). Attitude toward the ad has been evaluated in numerous studies (e.g. Biehal, Stephens, & Curlo, 1992; Coulter & Punj, 1999; MacKenzie, Lutz, & Belch, 1986; MacKenzie and Lutz, 1989). For example, Lutz, MacKenzie, and Belch (1983) averaged the results of two items (favorable/ unfavorable and interesting/ uninteresting) in a seven point semantic differential scale to measure attitude toward the ad (no reliability score was provided). MacKenzie, Lutz, and Belch (1986) also evaluated attitude toward the ad with a similar two-item semantic differential scale, using favorable/ unfavorable and interesting/ boring as their bipolar adjectives. Their scale obtained an alpha of .85. Mackenzie and Lutz (1989) measured attitude toward the ad using three semantic differential scales with the adjectives good/bad, pleasant/unpleasant, and favorable/unfavorable. Their scale obtained an alpha of .88.

However, the researcher implemented the Adams and Geuens’ (2007) scale that yielded a reliability of a = .88 in their study. This scale was selected because it had more items that measured the person’s attitude toward the ad, therefore the scale had the capability of being more reliable, and sensitive, to the concept being measured (Brown & Stayman, 1992). The scale was a five-item, five point semantic differential scale anchored by: not attractive/attractive, not credible/credible, not convincing/convincing, not appealing/appealing, and bad/good. The five items were
averaged into a single index for data analysis, following the example of the researchers (Adam & Geuens, 2007).

The next dependent variable measured was attitude toward the brand. Attitude toward the brand refers to a person’s affective reactions toward the advertised brand (Lutz, MacKenzie, & Belch, 1983). Like attitude toward the ad, this concept has also been measured frequently (e.g. Lutz, MacKenzie, & Belch, 1983; MacKenzie & Lutz, 1989). Lutz et al. (1983) measured attitude toward the brand using scales anchored with good/bad, favorable/unfavorable, and wise/foolish (no reliability scores were provided). MacKenzie and Lutz (1989) used scales anchored with good/bad, pleasant/unpleasant, and favorable/unfavorable (a = .77).

Nevertheless, the study measured attitude toward the brand using Homer’s (1990) scale that yielded an alpha of .85 and .91 in the two experiments she conducted. Homer’s (1990) scale was selected because the reliabilities the researcher obtained, were higher than the reliabilities found in MacKenzie and Lutz’s (1989) study. The scale was a three-item semantic differential scale anchored with: like/dislike, favorable/unfavorable, and good/bad. The items were reverse coded so that the positive items received a higher score than the negative items. The three items were averaged into a single index for data analysis. Although Homer (1990) did not specify that averaging the data into a single index was how she analyzed the data, other studies that have used similar scales (that differ in the adjectives used) specify that averaging into a single index was how they analyzed the data (e.g. MacKenzie & Lutz, 1989).

The last dependent variable measured in the study was purchase intention. Purchase intention refers to a person’s likelihood that s/he will purchase the brand in the
future (Lutz, MacKenzie, & Belch, 1983). Purchase intentions have been frequently studied. For example, MacKenzie, Lutz, and Belch (1986) measured the variable using three scales anchored with: likely/unlikely, probable/improbable, and possible/impossible, yielding alphas of .88 and .90 in their two experiments. Adam and Geuens (2007) measured this variable using four 5-point items: “If I could choose, this product would be considered,” “I would like to try this product once,” “I would not be inclined to buy this product,” and “If I had the chance, I would buy this product” (a = .92). The four items were averaged to obtain a general purchase intention measure.

Nonetheless, a different scale with a higher reliability -- alpha of .94 (Karson & Fisher, 2005) -- was selected for this study. In addition to having a higher reliability, this scale was selected for its measure of estimation. According to Sheppard, Hartwick, and Warshaw (1988) purchase intentions have two manners of being measured: as intentions to perform a behavior, or as an estimate of whether they will actually perform the behavior (p.328). “A measure of estimation will likely provide the better prediction of performance” (Sheppard, Hartwick, & Warshaw, 1988, p. 328), which is the reason for measuring purchase intentions. To measure purchase intentions, participants were asked, “If this product were available today, would you buy it?” Karson and Fisher’s (2005) scale uses MacKenzie et al.’s (1986) anchors -- likely/unlikely, probable/improbable, and possible/impossible -- to answer the purchase intention question. The items were reverse coded so that more positive adjectives were scored higher. Because neither Karson and Fisher (2005) nor MacKenzie et al. (1986) specified how they created the composite score on purchase intentions, the researcher averaged the three items into a single index. This imitated the way other variables in the study
(with similar scales) were analyzed, and how other purchase intentions scales had been analyzed.

**Pretests Conducted**

Three pretests were conducted to select the stimuli used in the main experiment. Each of the pretests built upon the results obtained from the previous one.

**Pretest #1**

**Manipulation checks:** In the first pretest, 304 students between the ages of 18 and 48 from the University of Florida’s College of Journalism and Communications completed the survey. Out of the 304 participants, 109 (36%) were male students and 195 (64%) were female students; 255 (84%) classified their race as white, 23 (8%) as black, 8 (3%) as Asian, 1 (.3%) as Pacific Islander, and 17 (6%) as other; 240 (79%) did not consider themselves to be of Hispanic origin, and 64 (21%) participants considered themselves to be of Hispanic origin. Out of the participants that classified themselves as non-Hispanic, 207 (68%) classified themselves as white, 20 (7%) as black, 8 (3%) as Asian, 1 (.3%) as Pacific Islander, and 4 (1.3%) as other. Out of the participants that classified themselves as Hispanic, 48 (16%) classified themselves as white, 3 (.10%) as black, 8 (3%) as Asian, and 13 (4%) as other.

Each participant viewed one of four ads, to which they were randomly assigned by the survey program used to administer the pretest, Qualtrics\(^31\). The four ads were a specific nutrient content claim \((n = 76, 25\%)\), structure/function claim \((n = 75, 25\%)\),

\(^{31}\) Qualtrics is a program with survey building capabilities. It is used by *BusinessWeek’s* Top 30 Business Schools, business, and PhD students (Qualtrics, 2011). Qualtrics was chosen as the medium to conduct the pretest given that it is a commonly used survey research tool that allows the researcher to incorporate ads, randomize conditions, and collect data quickly and efficiently.
general health claim \((n = 77, 25\%)\), or control (taste) claim \((n = 76, 25\%)\). The following were the claims pretested:

Specific Nutrient Content Claim: Contains only 3 grams of sugar and 60 calories per serving.

Structure/function Claim: Contains only 3 grams of sugar and 60 calories per serving to help manage weight.

General Health Claim: Good for your health.

Control (Taste) Claim: A tasty morning treat.

The claims were composed based on previous studies, actual claims, and searches for typical descriptions of cereal products to increase external validity. Kim, Cheong, and Zheng (2009) used the following claim when testing specific nutrition claims in functional food products; “0g of sugar and 60 calories per serving ...” (p.549). They obtained the claim from advertisements gathered during a content analysis. This claim was used in the study as a model for the structure/function claim, and the specific nutrient content claim. The structure/function claim was an extension of the specific nutrient content claims. The additional portion of the structure/function claim (“to help manage weight”) was obtained from a Multigrain Cheerios® print advertisement (refer to Appendix F). The general health claim was adapted from a claim found in Kim et al.’s (2003) study that read: Good for health. The control (taste) claim was obtained from a Google search of how cereals tended to be described. “A tasty morning treat” was a frequently found phrase. It was also approved by a professional copywriter as a valid cereal claim that could be used in the industry.
A univariate analysis of variance was conducted in order to establish significant differences between the claims in terms of, level of objectivity and level of detail. Significant differences were not observed between all the claims in terms of, level of objectivity and level of detail. Although the univariate analysis of variance between stimuli (the claims) and level of objectivity revealed a between-subjects significant effect \((F(3, 300) = 11.65, p < .001)\), pairwise comparisons demonstrated that the structure/function claim \((M = 4.04, SD = 1.43)\), and the specific nutrient content claim, \((M = 4.17, SD = 1.65)\) were not significantly different from each other \((p = .59)\), and that the general health claim \((M = 3.19, SD = 1.36)\), and the control (taste) claim \((M = 3.01, SD = 1.53)\) were not significantly different from each other \((p = .45)\). Therefore, in terms of level of objectivity, the manipulations were not successful (Table 3-1 for means).

In terms of level of detail (Table 3-2), a similar situation was encountered. Although the univariate analysis of variance between stimuli and level of detail revealed a between-subjects significant effect \((F(3, 300) = 11.20, p < .001)\), pairwise comparisons demonstrated that the structure/function claim \((M = 3.71, SD = 1.78)\), and the specific nutrient content claim, \((M = 3.25, SD = 1.68)\) were marginally significantly different from each other \((p = .08)\), and that the general health claim \((M = 2.36, SD = 1.41)\) and the control (taste) claim \((M = 2.61, SD = 1.47)\), were not significantly different from each other.

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\(^{32}\) Level of objectivity and level of detail were the characteristics used to establish differences between ad claims.

\(^{33}\) In the first pretest, level of objectivity was only measured using one item in a seven-point semantic differential scale: completely subjective/ completely objective.

\(^{34}\) In the first pretest, level of detail was only measured using one item in a seven-point semantic differential scale: not detailed/ very detailed.
from each other (p = .35). Therefore adjustments were made and a second pretest was conducted.

Pretest #2

Claim construction

For the second pretest, more than one example of each type of claim was pretested. This enabled the researcher to select the claims that were the most significantly different in terms of, level of objectivity and level of detail. The following claims were pretested:

**Structure/function claims:** 1) With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet. 2) With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet. 3) With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.

**Specific nutrient content claims:** 4) Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving. 5) Crispy Crunch has 3 grams of sugar and 60 calories per serving. 6) Reduced sugar. Fewer calories.

**General health claims:** 7) A step toward a healthier you. 8) Full of healthy goodness. 9) Good for you. 10) Good for your health.

**Control (taste) claims:** 11) A tasty breakfast treat. 12) So delicious you can’t wait to eat it.

Like in the first pretest, Kim, Cheong, and Zheng’s (2009) claim -- “0g of sugar and 60 calories per serving...” (p.549) -- was used as a model for the structure/function and specific nutrient content claims. To create a more detailed and specific claim, the
serving size was included in one example of the specific nutrient content claim (e.g. Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving), and the structure/function claim (e.g. With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet). The amount of ounces in a serving was determined after examining the nutrition panel of various cereal products, and observing the serving size of each. This enabled the researcher to establish a realistic serving size.

Another specific nutrient content claim option that was pretested, “Reduced Sugar. Fewer calories,” was modeled from a claim presented on a Fruit Loops® box (refer to Appendix F). The Fruit Loops® claim read as “Reduced Sugar.” However, given that this study also evaluated calories, the claim “fewer calories” was added to the specific nutrient content claim option.

The structure/function claims pretested were an extension of the specific nutrient content claims. The additional portion of the structure/function claim “to help manage weight”, was obtained from a Multigrain Cheerios® print advertisement (refer to Appendix F). “As part of a healthy diet” was obtained from a Cheerios® print advertisement (refer to Appendix F).

The general health claims pretested were obtained from the claims found in Kim, Cheong, and Zheng’s (2009) content analysis or from print advertisements found by the researcher. The first general health claim tested ("A step toward a healthier you"), was obtained from vocabulary used in another Cheerios® advertisement (refer to Appendix F). The second general health claim pretested ("Full of healthy goodness"), was adapted from a Quaker advertisement (refer to Appendix F) that read “Full of
“Goodness”. The word “healthy” was added to center the focus of the claim on health, instead of a variety of aspects that the term “goodness” could be referring to (i.e. taste, texture, look, etc.) The last two general health claims, “Good for you” and “Good for your health”, were adapted from a claim found in Kim et al.’s (2003) study that read: “Good for health.”

Finally, two control claims (taste claims) were pretested. The first, “A tasty breakfast treat” was obtained from a Google search of how cereals tend to be described. “A tasty morning treat” was a frequently found phrase. The second control claim, “So delicious you can't wait to eat it”, was modeled after the claim used in an advertisement for Crunchy Nut cereal (Newman, 2011).

Pretest results

In this second pretest, University of Florida, College of Journalism and Communication students between the ages of 18 and 33 completed the survey. After eliminating the students who had taken the first pretest (they were all asked if they had taken a similar survey in previous weeks), a total of 263 completed surveys were obtained. Out of the 263 participants, 92 (35%) were males and 171 (65%) were females; 205 (78%) classified their race as white, 20 (8%) as black, 22 (8%) as Asian, 1 (.3%) as Pacific Islander, and 15 (6%) as other; 210 (80%) did not consider themselves to be Hispanic and 53 (20%) considered themselves to be Hispanic. Out of the participants who classified themselves as non-Hispanic, 162 (62%) classified their race as white, 19 (7%) as black, 21 (8%) as Asian, 1 (.3%) as Pacific Islander, and 7 (3%) as other. Out of the participants who classified themselves as Hispanic, 43 (16%) classified their race as white, 1 (.3%) as black, 1 (.3%) as Asian, and 8 (3%) as other.
Each participant was randomly exposed to only one advertisement. Eighteen to 25 participants viewed each advertisement.

A univariate analysis of variance between the stimuli (claims) and level of objectivity, as well as level of detail, were conducted in order to determine significant differences between the claims. Significant differences were not observed between all the claims. Although some significant differences were identified, there were not enough to appropriately select claims for the main experiment.

Like in the first pretest, the univariate analysis of variance revealed significant effects between subjects, in the claims in terms of level of objectivity, $F(11, 251) = 5.36$, $p < .001$. However, pairwise comparisons did not show enough differences to make a selection. A similar situation was encountered for level of detail, where a univariate analysis of variance between the stimuli and level of detail revealed significant effects between subjects, $F(11, 251) = 6.00$, $p < .001$, but pairwise comparisons did not show enough differences to make a selection for the main experiment. However, several advertisements were identified to be better than others because they each were significantly different from at least one other claim of the four types tested. These ads (claims) are described below. Tables 3-3 and 3-4 show the means of level of objectivity per claim, as well as level of detail.

As demonstrated in Figure 3-1, in terms of level of objectivity, claim number 2 ($M = 4.15$, $SD = 1.23$) -- “With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.” -- was the

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35 For this pretest, level of detail was measured using a seven-point semantic differential scale with seven items: not detailed/ very detailed; general/ specific; brief/ lengthy; vague/ accurate; not self-explanatory/ self-explanatory; uninformative/ informative; concise/ wordy (alpha = .86).
only structure/function claim found to be significantly different from at least one other specific nutrient content claim, general health claim, and control (taste) claim. This claim was significantly different from claim number 4 (p = .05), and claim number 6, (p = .02), in terms of the specific nutrient content claims. It was also significantly different from claim number 9 (p = .04), and claim number 10 (p = .03), in terms of general health claims. Finally, it differed from claim number 12 (p = .045) in terms of the control (taste) claims. Given that claim number 2 was the only structure/function claim to have significant differences from other claim types, it was found to be a better choice than the other structure/function claims tested (in terms of level of objectivity).

Two specific nutrient content claims -- claim number 4 (M = 4.85, SD = 1.35) and claim number 6 (M = 4.95, SD = 1.32) -- were found to be significantly different from at least one structure/function claim, general health claim, and control (taste) claim in terms of level of objectivity. This means that those two claims were perceived, more or less, objectively than at least one structure/function claim, general health claim, and control (taste) claim.

As shown in Figure 3-2, the first specific nutrient content claim -- claim number 4, "Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving." -- was found to be significantly different from claim number 2 (p = .05), in terms of structure/function claims. It was also found to be significantly different from all of the general health claims: claim number 7 (p = .001); claim number 8 (p = .02); claim number 9 (p < .001); and claim number 10 (p < .001). It was also significantly different from both control (taste) claims: claim number 11 (p = .001), and claim number 12 (p < .001).
The second nutrient content claim with significant differences (Figure 3-3), claim number 6 (Reduced sugar. Fewer calories.), was significantly different from structure/function claim number 2 (p = .02). It was also significantly different from all general health claims and control (taste) claims: claim number 7 (p < .001); claim number 8 (p = .005); claim number 9 (p < .001); claim number 10 (p < .001); claim number 11 (p < .001); and claim number 12 (p < .001).

Three general health claims (claims number 7, 9 and 10) -- “A step toward a healthier you” (M = 3.64, SD = .71); “Good for you” (M = 3.42, SD = 1.29); “Good for your health” (M = 3.40, SD = 1.19) -- were found to be significantly different from at least one structure/function claim, and one specific nutrient content claim in terms of level of objectivity. No general health claim was found to be significantly different from the control (taste) claims. This meant that those three general health claims were perceived more or less objectively than at least one structure/function claim and one specific nutrient content claim.

As shown in Figure 3-4, the first general health claim -- claim number 7, “A step toward a healthier you.” -- showed a significant difference from claim number 1 (p = .03) in terms of structure/function claims. It was also significantly different from all specific nutrient content claims: claim number 4 (p = .001); claim number 5 (p = .003); and claim number 6 (p < .001).

As shown in Figure 3-5, the second general health claim -- claim number 9, “Good for you.” -- was found to be significantly different from all structure/function claims: claim number 1 (p = .005); claim number 2 (p = .04); and claim number 3 (p = .01). It was also
shown to be significantly different from all specific nutrient content claims: claim number 4 (p < .001); claim number 5 (p < .001); and claim number 6 (p < .001).

As shown in Figure 3-6, the third general health claim -- claim number 10, “Good for your health.” -- was significantly different from all structure/function claims: claim number 1 (p = .004); claim number 2 (p = .03); and claim number 3 (p = .009). It was also shown to be significantly different from all specific nutrient content claims: claim number 4 (p < .001); claim number 5 (p < .001); and claim number 6 (p < .001).

Finally, both control (taste) claims tested -- claim number 11 (M = 3.56, SD = 1.28); and claim number 12 (M = 3.42, SD = 1.52) -- were found to be significantly different from at least one specific nutrient content claim, and at least one structure/function claim (detailed below). This means that those two claims had been perceived more or less objectively than at least one structure/function claim, and one specific nutrient content claim.

In terms of the structure/function claims (Figure 3-7), “A tasty breakfast treat” -- claim number 11 -- was significantly different from claim number 1 (p = .02), and claim number 3 (p = .009). It was also significantly different from all specific nutrient content claims: claim number 4 (p = .001); claim number 5 (p = .002); and claim number 6 (p < .001).

As shown in Figure 3-8 below, “So delicious you can’t wait to eat it” (claim number 12) was found to be significantly different from all structure/function claims: claim number 1 (p < .007); claim number 2 (p = .045); and claim number 3 (p = .01). It was also found to be significantly different from all specific nutrient content claims: claim number 4 (p < .001); claim number 5 (p < .001); and claim number 6 (p < .001).
In terms of the level of detail, all three structure/function claims -- “With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet” (M = 3.65, SD = .98); “With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet” (M = 3.70, SD = 1.38); and “With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight” (M = 3.81 SD = .85) -- were found to be significantly different from at least one other specific nutrient content claim, general health claim, and control (taste) claim. This means that those three claims were perceived more, or less, detailed than at least one specific nutrient content claim, general health claim, and control (taste) claim.

As shown in Figure 3-9, the first structure/function claim -- “With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet” -- showed a significant difference in the level of detail from claim number 6 (p = .019) in terms of specific nutrient content claims. It was also significantly different from all general health claims: claim number 7 (p = .001); claim number 8 (p = .002); claim number 9 (p < .001); and claim number 10 (p < .001). Finally, it was also established to be significantly different from one control (taste) claim, claim number 12 (p = .03).

As shown in Figure 3-10, a significant difference was found in the level of detail between, the second structure/function claim -- “With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet” -- and claim number 6 (p = .01), in terms of specific nutrient content claims. It also showed significant differences from all general health claims:
claim number 7 (p < .001); claim number 8 (p = .001); claim number 9 (p < .001); and claim number 10 (p < .001). Finally, it was significantly different from one control (taste) claim, claim number 12 (p = .02).

As shown in Figure 3-11, a significant difference was found in the level of detail between, the third structure/function claim -- “With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight” -- and claim number 6 (p = .006) in terms of specific nutrient content claims. There was also a significant difference from all general health claims: claim number 7 (p < .001); claim number 8 (p = .001); claim number 9 (p < .001); and claim number 10 (p < .001). Finally, it was significantly different from both control (taste) claims -- claim number 11 (p = .03); and claim number 12 (p = .01).

However, as seen in Figure 3-12, no specific nutrient content claims (e.g., “Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving”; “Crispy Crunch has 3 grams of sugar and 60 calories per serving”; “Reduced sugar. Fewer calories”) were found to be significantly different from at least one structure/function claim, general health claim, and at least one control (taste) claim. Nonetheless, “Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving” (claim number 4) was found to be significantly different in terms of level of detail from all general health claims -- claim number 7 (p = .001); claim number 8 (p = .003); claim number 9 (p < .001); and claim number 10 (p < .001) -- and one control (taste) claim, claim number 12 (p = .037).

Also, claim number 5 (Figure 3-13), “Crispy Crunch has 3 grams of sugar and 60 calories per serving” was significantly different in terms of the level of detail from all
general health claims -- claim number 7 (p = .002); claim number 8 (p = .004); claim number 9 (p < .001); and claim number 10 (p < .001).

Finally, as seen in Figure 3-14, claim number 6, “Reduced sugar. Fewer calories”, was found to be significantly different from all structure/function claims: claim number 1 (p = .02); claim number 2 (p = .01); and claim number 3 (p = .006). It was also found to be significantly different from two specific nutrient content claims -- claim number 4 (p = .02), and claim number 5 (p = .03). Finally, it was found to be significantly different from one general health claim, claim number 10 (p = .03).

One general health claim -- claim number 10, “Good for your health” (M = 2.22, SD = 1.07) -- was found to be significantly different from at least one other specific nutrient content claim, structure/function claim, and control (taste) claim. This means that “Good for your health” was rated as either more or less detailed than at least one of the specific nutrient content claims tested, at least one structure/function claim tested, and at least one control (taste) claim tested.

As shown in Figure 3-15, in terms of structure/function claims, “Good for your health” was found to be significantly different from all three claims: claim number 1 (p < .001); claim number 2 (p < .001); and claim number 3 (p < .001). In terms of specific nutrient content claims, “Good for your health” showed significant differences to all three: claim number 4 (p < .001); claim number 5 (p < .001); and claim number 6 (p = .03). In terms of control (taste) claims, it was found to be significantly different from both claims: “claim number 11 (p = .02) and claim number 12 (p = .04).

Two other general health claims -- claim number 8, “Full of healthy goodness” (M = 2.65, SD = .97) and claim number 9, “Good for you” (M = 2.41, SD = 1.20) -- were
found to be significantly different from at least one structure/function claim and one specific nutrient content claim, but not from the control (taste) claims. This means that “Full of healthy goodness” and “Good for you” were rated as either more or less detailed than at least one of the specific nutrient content claims tested and at least one structure/function claim tested.

As shown in Figure 3-16, the first general health claim (claim number 8), “Full of healthy goodness”, was shown to be significantly different from all three structure/function claims: claim number 1 ($p = .002$); claim number 2 ($p = .001$); and claim number 3 ($p < .0011$). “Full of healthy goodness” was also found to be significantly different from two specific nutrient content claims: claim number 4 ($p = .003$) and claim number 5 ($p = .004$).

The second general health claim (claim number 9), “Good for you”, was found to be significantly different from all three structure/function claims: claim number 1 ($p < .001$); claim number 2 ($p < .001$); and claim number 3 ($p < .001$). “Good for you” was also shown to be significantly different from two specific nutrient content claims: claim number 4 ($p < .001$) and claim number 5 ($p < .001$). This is illustrated in Figure 3-17.

Finally, only one control (taste) claim -- claim number 12, “So delicious you can’t wait to eat it” ($M = 2.92$, $SD = 1.07$) was found to be significantly different from a specific nutrient content claim, a structure/function claim, and a general health claim. This means that “So delicious you can’t wait to eat it” was rated as either more or less detailed than at least one of the specific nutrient content claims tested, at least one structure/function claim tested, and at least one general health claim tested.
As shown in Figure 3-18, this claim was found to be significantly different from all three structure/function claims: claim number 1 (p = .03); claim number 2 (p = .02); and claim number 3 (p = .01). “So delicious you can’t wait to eat it” was also found to be significantly different from one specific nutrient content claim, claim number 4 (p = .04), and one general health claim -- claim number 10 (p = .04).

Even though the claims pretested demonstrated that they were significantly different from at least one other advertisement in the various claim types, the differences between claims were not found to be constant in terms of level of objectivity and level of detail. In terms of objectivity, this means that if one structure/function claim were significantly different from the other three types of claims, it did not mean that the claim differed in the level of detail. In addition, the means observed for each of the claims still did not follow the order hypothesized for both level of objectivity, and level of detail. Structure/function claims were hypothesized to be rated the highest, followed by specific nutrient content claims, and then general health claims. Therefore, the claims in the advertisements were revised (as explained in the next section) and a third pretest was conducted.

Pretest #3

Overview

The third pretest differed from previous pretests in that the sample used to test the manipulations was not college students. Adam and Geuens (2007) found that younger populations cannot distinguish between health claims and taste claims, and therefore rate them similarly. This could explain why no significant differences were noted between some health/nutrition claims and taste claims. Therefore, for the third pretest, a sample of 174 people from the ages of 19 and 67 (M = 32.01, SD = 9.61) was obtained.
using Facebook as a medium to recruit people. Participants were asked to pass the link of the survey along to other people in order to obtain a larger sample.

Of the 174 participants, 66 (38%) were males and 108 (62%) were females, and 128 (74%) identified their race as white, 5 (3%) as black, 2 (1%) as American Indian or Alaskan native, 19 (11%) as Asian, 1 (.6%) as Pacific Islander, and 19 (11%) as other. Eighty-eight (88, 51%) did not consider themselves to be Hispanic, and 86 (49%) considered themselves to be Hispanic. Of the non-Hispanics recruited, 64 (37%) were white, 4 (2%) were black, 18 (10%) were Asian, and 2 (1%) classified themselves as other. Of the Hispanics recruited, 64 (37%) classified themselves as white, 1 (.6%) as black, 2 (1%) as American Indian or Alaskan Native, 1 (.6%) as Asian, 1 (.6%) as Pacific Islander, and 17 (10%) as other.

As in the previous pretests, participants were each randomly exposed to one advertisement and asked to rate the claim in terms of level of objectivity, and level of detail. In the third pretest, level of objectivity was measured by seven-point semantic differential scales anchored by, complete subjective/completely objective, not based on facts/based on facts, abstract/concrete, contained content not everyone can agree on/contained content everyone can agree on, and impressionistic/factual (pretest alpha = .87). Ford, Smith, and Swasy’s (1990) definitions of objectivity and subjectivity were provided in the questionnaire. Level of detail was measured by seven-point semantic differential scales anchored by, not at all detailed/very detailed, general/specific, vague/accurate, not explanatory/explanatory, and uninformative/informative (pretest alpha = .88). The third pretests conducted also differed in that it added an additional measure.
Following Cheong and Kim’s (2011) example, participants were asked whether they thought the claim presented was health-related or taste-related, and answered using a five-point likert-type scale. Two statements were presented: “The claim was health-related.” and “The claim was taste-related.” Participants responded by stating how strongly they agreed or disagreed to each statement based on the advertisement they were presented on a five-point likert-type scale.

The following seven advertisements with different claims were tested:

**Structure/function claim:** With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.\(^{36}\)

**Specific nutrient content claims:** 1) Reduced sugar. Fewer calories. 2) Grams of Sugar. 60 Calories.\(^{37}\)

**General health claims:** 1) Good for your health. 2) Good for you.

**Control (taste) claims:** 1) So delicious you can’t wait to eat it. 2) A tasty breakfast treat.

For the third pretest, only one or two advertisements (claims) for each claim type were tested. These advertisements were selected based on the results of the second pretest. In terms of level of objectivity and detail, the structure/function claim was the only one that was rated as having a significant difference from at least one other claim of each claim type. An additional claim, “3 Grams of Sugar. 60 Calories”, was also tested after more advertising claims were evaluated, and was identified as an option to

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\(^{36}\) This claim was revised from the previous pretest. Instead of using ounces, the unit of serving size measurement was changed to cups, which follows the industry standard for cereal serving size. This was a mistake that was noticed during pretesting.

\(^{37}\) This claim was obtained from an advertisement for Fiber One® (refer to Appendix F) found after conducting more research.
test. The rest of the claims were selected because they had differed from at least two other claim types in the second pretest.

**Data analysis: level of objectivity**

Each advertisement was viewed by 18 to 29 participants. A univariate analysis of variance with pairwise comparisons was conducted to identify significant differences between the stimuli (claims) in terms of level of objectivity. This analysis demonstrated that there were statistically significant differences between the advertisements \((F(6, 167) = 12.61, p < .001)\) when the stimuli were evaluated in terms of level of objectivity.

Table 3-5 presents the means and standard deviations of each of the claims tested.

Pairwise comparisons demonstrated significant differences among most advertising claims. These will be detailed next.

As shown in Figure 3-19, the structure/function claim, “With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet”, was significantly different from one specific nutrient content claim -- specific nutrient claim number 1 \((p = .04)\). It was also found to be significantly different from both general health claims -- general health claim number 2 \((p < .001)\) and general health claim number 1 \((p < .001)\) -- and both control (taste) claims -- control (taste) claim number 1 \((p < .001)\) and control (taste) claim number 2 \((p < .001)\).

Therefore, this structure/function claim is a valid alternative to be used in the main experiment in terms of objectivity.

As shown in Figure 3-20, the first specific nutrient content claim (number 1), “Reduced sugar. Fewer calories”, was significantly different from the aforementioned structure/function claim, both general health claims -- general health claim number 2 \((p < .0017)\) and general health claim number 1 \((p < .0015)\) -- and both control (taste)
claims -- control (taste) claim number 1 \((p = .001)\) and control (taste) claim number 2 \((p < .001)\). Therefore, this specific nutrient content claim was a valid alternative to be used in the main experiment in terms of objectivity.

However, as shown in Figure 3-21, the second specific nutrient content claim, “3 Grams of Sugar. 60 Calories”, was not significantly different from the structure/function claim \((p = .87)\). However, it was found to be significantly different from both general health claims -- general health claim number 1 \((p < .001)\) and general health claim number 2 \((p < .001)\) -- and both control (taste) claims -- control (taste) claim number 1 \((p < .001)\) and control (taste) claim number 2 \((p < .001)\). Therefore, this specific nutrient content claim was not used in the main experiment.

As shown in Figure 3-22, the first general health claim, “Good for your health”, was found to be significantly different from the structure/function claim \((p < .001)\), and both specific nutrient content claims -- specific nutrient claim number 1 \((p = .007)\) and specific nutrient claim number 2 \((p < .001)\). Yet, it was not found to be significantly different from the control (taste) claims -- control (taste) claim number 1 \((p = .53)\) and control (taste) claim number 2 \((p = .18)\). Given that “Good for your health” was shown to be significantly different in terms of level of objectivity from the structure/function claim, and both specific nutrient content claims, it was a viable alternative for the main experiment. Even though the general health claim was not significant from the control (taste) claim, the claim was considered viable since the hypotheses and research questions were looking at differentiating health/nutrition claims, from non-health/nutrition claims. The fact that the general health claim was considered to be similarly objective to the to the non-nutrition claim (taste claim in this case) was not surprising given that, just as taste
is subjective and focused on individual “personal pleasure” (Kim, Cheong, & Zheng, 2009, p.532), some people might consider “good heath” subjective, and susceptible “to multiple interpretations” (Andrews, Burton, & Netemeyer, 2000, p.30).

As seen in Figure 3-23, the second general health claim, “Good for you”, was found to be significantly different from the structure/function claim \( (p < .001) \), and both specific nutrient content claims -- specific nutrient content claim number 1 \( (p = .005) \) and specific nutrient content claim number 2 \( (p < .001) \). Yet, it did not significantly differ from the control taste claims -- control (taste) claim number 1 \( (p = .62) \), and control (taste) claim number 2 \( (p = .23) \). Given that “Good for you” significantly differed in terms of the level of objectivity from the structure/function claim, and both specific nutrient content claims, it was a viable alternative for the main experiment.

Figure 3-24 shows that the first control (taste) claim, “So delicious you can’t wait to eat it”, significantly differed from the structure/function claim \( (p < .001) \), and both specific nutrient content claims -- specific nutrient content claim number 1 \( (p = .001) \), and specific nutrient content claim number 2 \( (p < .001) \). Yet, it did not significantly differ from the general health claims -- general health claim number 1 \( (p = .53) \), and general health claim number 2 \( (p = .62) \). Given that “So delicious you can’t wait to eat it” was significantly different in terms of the level of objectivity from the structure/function claim, and both specific nutrient content claims, it was a viable alternative for the main experiment.

The second control (taste) claim, “A tasty morning treat”, differed significantly from both the structure/function claim \( (p < .001) \), and the specific nutrient content claims -- specific nutrient content claim number 1 \( (p < .001) \) and specific nutrient content claim
number 2 ($p < .001$). It did not significantly differ from the general health claims --
general health claim number 1 ($p = .18$) and general health claim number 2 ($p = .23$).
Given that “A tasty morning treat” was shown to be significantly different in terms of the
level of objectivity from the structure/function claim, and both specific nutrient content
claims, it was a viable alternative for the main experiment. Figure 3-25 illustrates this.

Given that the structure/function claim had to have a higher objectivity mean than
the specific nutrient content claim, which had to have a higher mean than the general
health claim, six of the seven claims tested were viable alternatives to be used in the
main experiment. Only one specific nutrient content claim -- “3 Grams of Sugar. 60
Calories” -- which was found not to be significantly different from the structure/function
claim, was not a viable alternative. However, a claim was not selected yet given that the
level of detail of the claims had to be evaluated.

The univariate analysis of variance with pairwise comparisons demonstrated that
both general health claims did not significantly differ from both control (taste) claims in
terms of level of objectivity. The selection of these two claims for the main experiment
was based on the fact that their means followed the established order and that
participants were able to differentiate each type of claim as either a health claim or a
taste claim. This study hypothesized that the presence of a nutrition or health claim,
would produce more positive effects (attitude toward the ad, attitude toward the brand,
and purchase intentions), compared to the control condition with an alternate (taste)
claim.\textsuperscript{38}

\textsuperscript{38} Research has shown that advertisements/ products containing health or nutrition claims produce more
favorable evaluations and purchase intentions than advertisements and products that do not (Adam &
Geuens, 2007; Andrews, Burton, & Netemeyer, 2000; Andrews, Netemeyer, & Burton, 1998; Roe, Levy,
& Derby, 1999).
Data analysis: level of detail

A univariate analysis of variance demonstrated that there were statistically significant differences between the advertisements, $F(6, 167) = 12.37, p < .001$, when the stimuli were evaluated in terms of the level of detail. Table 3-6 presents the means and standard deviations of each of the claims tested.

Pairwise comparisons also demonstrated significant differences among most advertising claims. These differences will be detailed below.

As shown in Figure 3-26, in terms of the level of detail, the structure/function claim did significantly differ from one specific nutrient content claim -- specific nutrient content claim number 1 ($p < .001$). It also significantly differed from both general health claims -- general health claim number 2 ($p < .001$) and general health claim number 1 ($p < .001$) - - and both control (taste) claims -- control (taste) claim number 1 ($p < .001$) and control (taste) claim number 2 ($p < .001$). Therefore, this claim was a valid alternative to be used in the main experiment in terms of the level of detail.

As shown in Figure 3-27, the first specific nutrient content claim, “Reduced sugar. Fewer calories”, significantly differed from the structure/function claim ($p < .001$). It also significantly differed from one general health claim -- general health claim number 1 ($p = .03$). Although this specific nutrient content claim was not significantly different from either control (taste) claim at the $p < .05$ level, control (taste) claim number 2 ($p = .08$) was marginally different at the $p < .10$ level$^{39}$; while control (taste) claim number 1 ($p =$

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$^{39}$Although social sciences tend to lean for a significance value of $p < .05$, choosing the level of significance for a study can be done arbitrarily (Fisher, 1925; Stigler, 2008) since it is the level of confidence accepted by the researcher that states that, the relationship observed between the variables in the sample was attributed to sampling error (Babbie, 2007). Colosi (2005) stated that most “researchers say that a $p$-value of .10 or less is statistically significant, which means that we are 90% sure that the result we see (the difference in means for each question) is not due to chance” (p. 6). This study accepted the alpha level of $p < .10$ in the pretest of the study since no relationships (at that point) were
was still not significantly different. Therefore, this claim could be a valid alternative to be used in the main experiment in terms of the level of detail as a specific nutrient content claim. This claim was accepted given that it approached significance.

As shown in Figure 3-28, the second specific nutrient content claim, “3 Grams of Sugar. 60 Calories”, was found to be marginally different from the structure/function claim \( (p = .08) \) at a \( p \leq .10 \) level, but not at a \( p \leq .05 \) level. It also significantly differed from both general health claims -- general health claim number 1 \( (p < .001) \) and general health claim number 2 \( (p < .001) \). This specific nutrient content claim also significantly differed from both control (taste) claims: control (taste) claim number 1 \( (p = .001) \) and control (taste) claim number 2 \( (p < .001) \). Therefore, this claim was a valid alternative to be used in the main experiment in terms of the level of detail as a specific nutrient content claim.

As shown in Figure 3-29, the first general health claim, “Good for your health”, was found to be significantly different from the structure/function claim \( (p < .001) \). It also significantly differed from both specific nutrient content claims -- specific nutrient content claim number 1 \( (p = .03) \) and specific nutrient content claim number 2 -- \( (p < .001) \).

However, “Good for your health” did not significantly differ from either control (taste) claims -- control (taste) claim number 1 \( (p = .16) \), and control (taste) claim number 2 \( (p = .80) \). As previously mentioned in the hypotheses and research questions section, the study sought to evaluate whether health/nutrition claims resulted in better attitudes, and

being tested, and the focus of the study was to simply differentiate between ads. Although some researchers may refer to those results as marginally significant, the author of this study accepted an alpha level of .10 since the sample used to pretest the data was not similar to the sample that would be tested in the main experiment. In addition, numerous reports and studies have used an alpha level of \( p < .10 \) as a measure of statistical significance (e.g. (Brucks, Mitchell, & Staelin, 1984; Butler & Schofield, 2010; Galst, 1980; Homelessness: Programs and the People They Serve, 1999)
purchase intentions than other types of claims – in this case, a taste claim. It was hypothesized that more objective and detailed health/nutrition claims would result in better attitudes and purchase intentions than the control (taste) claim – which was not a nutrition or health claim. Given that general health claims and control (taste) claims were differentiated based on health versus taste perspectives of the participants, this general health claim was a valid alternative for the main experiment.

The second general health claim (Figure 3-30), “Good for you”, significantly differed from the structure/function claim \( (p < .001) \). It also significantly differed from one specific nutrient content claims -- specific nutrient content claim number 2 \( (p < .001) \). However, “Good for you” did not significantly different from either of the control (taste) claims -- control (taste) claim number 1 \( (p = .47) \) and control (taste) claim number 2 \( (p = .71) \). Given that general health claims and control (taste) claims were differentiated based on health versus taste perspectives of the participants, this general health claim was a valid alternative for the main experiment.

As shown in Figure 3-31, the first control (taste) claim, “So delicious you can’t wait to eat it”, only significantly differed from the structure/function claim \( (p < .001) \), and the specific nutrient content claim -- specific nutrient content claim number 2 \( (p = .001) \). Given that general health claims and control (taste) claims were differentiated based on health versus taste perspectives of the participants, this control (taste) claim was a valid alternative for the main experiment.

As shown in Figure 3-32, the second control (taste) claim, ”A tasty breakfast treat”, only significantly differed from the structure/function claim \( (p < .001) \), and specific nutrient content claim number 2 \( (p < .001) \). It also marginally significantly differed from
specific nutrient content claim number 1 \((p = .08)\) at the \(p \leq .10\) level. Given that general health claims and control (taste) claims were differentiated based on health versus taste perspectives of the participants, this control (taste) claim was a valid alternative for the main experiment.

**Selection of claims**

Based on the information provided, specific nutrient content claim number 2 -- “3 Grams of Sugar. 60 Calories.” -- was eliminated as an option given that it did not significantly differ from the structure/function claim in terms of the level of objectivity \((p = .87)\), and did significantly differ in terms of the level of detail, at a \(p \leq .10\) \((p = .08)\). Therefore, the claim, “Reduced sugar. Fewer calories.” was the best alternative as a specific nutrient content claim. It significantly differed from the structure/function claim \((p = .04)\) in the levels of objectivity and detail \((p < .001)\). This claim also had a higher mean than both general health claims tested and the control (taste) claims tested.

The general health claim selected had to have a lower mean than the structure/function claim selected (which had a mean of 5.24) and the specific nutrient content claim selected (which had a mean of 3.52). Both general health claims tested had lower means than the structure/function and specific nutrient content claims selected. However, only “Good for your health” \((M = 2.70, SD = 1.18)\) was significantly different from both claims selected (the structure/function claim in terms of objectivity \((p < .001)\), and the level of detail \((p < .001)\); and the specific nutrient content claim in terms of level of objectivity \((p = .007)\) and level of detail \((p = .03)\)). Thus, it was chosen rather than “Good for you.”

Given that the general health claims and the control (taste) claims were both considered to be subjective \((p = .18)\), and vague \((p = .80)\), with no significant
differences, these two types of claims were differentiated on the bases of being health-related and taste-related.

In terms of the general health claims, 68% of participants agreed that “Good for your health” was a health-related claim, while 58.3% of participants agreed that “Good for you” was a health-related claim. In terms of the control (taste) claims, 87.5% agreed that “So delicious you can't wait to eat it” was a taste claim, and 94.1% of participants agreed that “A tasty breakfast treat” was a taste claim. A univariate analysis of variance with pairwise comparisons between the stimuli (claims), and whether the claim was health-related \( F(6, 166) = 22.80, p < .001 \) or taste-related \( F(6, 166) = 11.33, p < .001 \), demonstrated that both control (taste) claims were differed significantly from the three types of claims tested \( (p < .001) \) in terms of health and taste \( (p < .001) \). Therefore, “Good for your health” and “A tasty breakfast treat” were selected because there was a higher consensus as to what type of claim they represented.

Based on the data gathered in this third pretest, the manipulations to be tested in the main experiment were:

**Specific Nutrient Content Claim:** Reduced sugar. Fewer calories

**Structure/function Claim:** With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.

**General Health Claim:** Good for your health.

**Control (Taste) Claim:** A tasty breakfast treat.

The advertisements selected were found to be believable by participants with a mean of 4.05 \( (SD = 1.72, n = 99) \). Believability was measured by asking participants to
rate the ad in terms of how convincing and believable it was in a seven-point semantic
differential scale (alpha = .86).

**Reading ease of stimuli**

All selected claims were also tested for reading ease using the Flesch Reading
Ease test; a test based on a formula that uses the average number of syllables per word
(a measure of word difficulty), and words per sentence (indicator of syntactic
complexity). The Flesch Reading Ease test classifies scores as follows: 90-100: Very
Easy; 80-89: Easy; 70-79: Fairly Easy; 60-69: Standard; 50-59: Fairly Difficult; 30-49:
Difficult; 0-29: Very Confusing (The Flesch Reading Ease Readability Formula, 2012).
Scores between 60 and 70 are considered acceptable (The Flesch Reading Ease
Readability Formula, 2012). The creator of the test, Rudolf Flesch, “set the minimum
score for plain English at 60” (Stockmeyer, 2009, p.46), while “Microsoft’s
documentation encourages authors of standard documents to aim for a score of 60 to
70” (Stockmeyer, 2009, p.46). Previous studies have used this measure to determine
the reading level of advertisements (Abruzzini, 1967). For example, Trenchard and
Crissy (1952) analyzed advertising and editorial reading ease of *Time* and *Newsweek*,
prewar and post war. They found over the period of time studied, a trend toward more
difficult to read content. More specifically, a shift in advertising content from standard to
fairly difficult.

The reading ease of all the advertising claims was tested. Both the general health
claim -- “Good for your health” -- and the control (taste) claim -- “A tasty morning treat” --
were very easy to understand, and written at an elementary school grade level. The
general health claim received a score of 100.0 in the Flesch Reading Ease, and 0.0 in
the Flesch-Kincaid grade level. The control (taste) claim received a score of 75.8 in the Flesch Reading Ease, and 3.6 in the Flesch-Kincaid grade level.

The specific nutrient content claim, and the structure/function claim, received scores that indicated that both claims were more difficult to read. The specific nutrient content claim -- “Reduced sugar. Fewer calories” -- received a score of 14.4 in the Flesch Reading Ease, and 11.7 in the Flesch-Kincaid grade level. The structure/function claim -- “With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet” -- received a score of 63.4 in the Flesch Reading Ease, and 11.1 in the Flesch-Kincaid grade level. Since 20% of Americans read at or below a fifth grade level (Laberge, 2004-2011) -- using Merriam-Webster’s Word Central English dictionary for students (Merriam-Webster Word Central, 2012), words that were incorporated into the claims were verified to be part of a fifth grader’s vocabulary.

This was verified using The American Heritage Children’s Dictionary (2010). This dictionary was designed for children who are between the third and sixth grade (ages 8 to 11) (The Editors of the American Heritage Dictionaries, 2010), making it a good fit for the study. The words in the dictionary included the vocabulary to which third to sixth graders are exposed to in school, while other children’s dictionaries include the same vocabulary plus additional words learned later on in their academic life. All of the words incorporated into the claims evaluated in this study were found in The American Heritage Children’s Dictionary (2010), meaning that the language used in the claims was not too complex, and that someone who has third to sixth grade English language proficiency should be able to understand the claims presented. As previously stated,
most Americans can understand eighth grade English, and only 20% of the population has a fifth grade English language proficiency (Laberge, 2004-2011). Therefore, participants should be able to understand the claims because they are written in simple English.

In addition, the claims were designed to represent typical ads found in the industry. All vocabulary was obtained from claims in published advertisements that should be easily understood by the general public in the United States.

**Reliability and Validity**

In experimental research, it is important that the measurements -- numerals assigned to the objects of study (Wimmer & Dominick, 2006) -- used to test hypotheses and evaluate research questions are quality measurements (Babbie, 2007). Measurement quality was defined in terms of reliability and validity (Babbie, 2007; Wimmer & Dominick, 2006).

Reliability refered to “the quality of a measurement method that suggests that the same data would have been collected each time in repeated observations of the same phenomenon” (Babbie, 2007, p.143). Therefore, a reliable scale is one that consistently yields the same results (Babbie, 2007; Wimmer & Dominick, 2006). However, achieving reliability does not ensure accuracy because one can repeatedly produce the wrong answers (Babbie, 2007). Thus, there are three components of reliability: stability, internal consistency, and equivalency (Wimmer & Dominick, 2006). “Stability refers to the consistency of a result or of a measure at different points in time” (Wimmer & Dominick, 2006, p.59). Internal consistency is achieved when separate items on a scale are assigned the same values to the concept (Wimmer & Dominick, 2006). Equivalency,
also known as cross-test reliability, “assess the relative correlation between two parallel forms of a test” (Wimmer & Dominick, 2006, p.59).

All of the scales used in the study were acquired from previous research studies so all three aspects of reliability were met. Therefore, reliability was ensured by using established measures and by reporting the Cronbach’s alpha obtained in previous studies (Babbie, 2007) as well as the study at hand. Cronbach’s alpha is a statistical measure of internal consistency of a given measurement or scale (Wimmer & Dominick, 2006, p.60). A previous study found high internal consistency for the attitude toward the ad (a = .88) (Adams & Geuens, 2007), and attitude toward the brand (a = .85 and .91) (Homer, 1990) scales used in this dissertation. Previous studies, using the purchase intention scale used for the study, also achieved strong reliability with alphas of .88, .90 (MacKenzie, Lutz, & Belch, 1986), and .94 (Karson & Fisher, 2005). In addition, all the measures’ reliabilities were tested in both the pretest and main experiment to ensure that they were consistently reliable. All reliabilities obtained were between .78 and .95 (main experiment results). Specific results are detailed in a subsequent section.

In addition to reliability, measures have to be considered valid, meaning that they must have measured what they are supposed to measure (Wimmer & Dominick, 2006). There are four major types of validity: face validity, criterion-related validity, construct validity, and content validity (Babbie, 2007; Wimmer & Dominick, 2006).

Face validity “is achieved by examining the measurement device to see whether, on the face of it, it measures what it appears to measure” (Wimmer & Dominick, 2006, p. 61). All measurement instruments in this study demonstrated face validity. In terms of attitude toward the ad, and attitude toward the brand, these variables made reference to
peoples’ favorable/unfavorable evaluations toward the ad/brand presented (Belch & Belch, 2004; Lutz, MacKenzie, & Belch, 1983; MacKenzie, Lutz, & Belch, 1986). The items used to evaluate ads and brands as either favorable or unfavorable, all provide the needed negative to positive range of expression. The purchase intentions scale also demonstrated face validity. The scale reflected the definition of the variable -- likelihood that the person will purchase the brand in the future (Lutz, MacKenzie, & Belch, 1983). Participants were asked a question about considering and purchasing the product in future situations.

The second type of validity was criterion-related validity. Criterion-related validity was also called predictive validity. It refers to the “degree to which a measure relates to some external criterion” (Babbie, 2007, p.147). It involves “checking a measurement instrument against some future outcomes” (Wimmer & Dominick, 2006, p.61). Research has been conducted extending purchase intentions into actual behavior, and has found predictive validity (high associations) between purchase intentions and actual purchase (Douglas & Wind, 1971; Kalwani & Silk, 1982; Morwitz, Steckel, & Gupta, 2007). In fact, the theory of reasoned action posits that behavior, such as purchasing a product, is determined by the person’s intention to conduct the behavior. Intention is influenced by several factors including attitudes (Ajzen, 1985; Sheppard, Hartwick, & Warshaw, 1988). Attitude toward the ad and attitude toward the brand, have been found to be consistent predictors of intentions to conduct a behavior under the theory of reasoned action. The theory has been found to have strong predictive validity (Sheppard, Hartwick, & Warshaw, 1988).
The third type of validity was content validity. Content validity “refers to how much a measure covers the range of meanings included within the concept” (Babbie, 2007, p.147). All measures in the study possessed content validity. Attitude toward the ad and toward the brand were supposed to measure how favorable and/or unfavorable people felt toward the stimuli. The scales utilized in the study provided anchors that possessed the capability of measuring favorable, and unfavorable, evaluations using different adjectives. Purchase intentions were supposed to measure the likelihood (whether high or low) of the product being purchased. The four statements presented were to measure the likelihood, probability, and possibility of the participant purchasing the product in the future.

Finally, construct validity refers to “the degree to which a measure relates to other variables as expected within a system of theoretical relationships” (Babbie, 2007, p.147). Construct validity was determined after data had been collected. However, based on established research, it was assumed that the relationship between attitudes and purchase intentions would be found (e.g., Adams & Geuens, 2007; Bone & France, 2009; Fay, 2003; Kim, Cheong, & Zheng, 2009; MacKenzie, Lutz, & Belch, 1986). The relationships between these three variables have been frequently studied and confirmed (e.g. Hoch & Ha, 1986; Homer, 1990; Kim, Cheong, & Zheng, 2009; MacKenzie, Lutz, & Belch, 1986; Roininen, L. La¨Hteenma¨KI, & Tuorila, 1999). However, after data was collected, correlation between variables would be verified to ensure construct validity. Given that the correlations expected between the variables (as established by the dual-mediation and the independent influence hypotheses) were achieved, construct validity was achieved.
Threats to Internal Validity

In experimental research, there is a “possibility that the conclusions drawn from experimental results may not accurately reflect what has gone in the experiment itself” (Babbie, 2007, p.230). Internal invalidity occurred whenever the dependent variable was affected by anything other than the experimental stimulus (Babbie, 2007). Sources of internal invalidity included history, maturation, testing, instrumentation, statistical regression, selection bias, experimental mortality, demand characteristics, experimenter bias, evaluation apprehension, causal time order, diffusion or imitation of treatments, compensation, compensatory rivalry, and demoralization (Babbie, 2007; Campbell & Stanley, 1963; Wimmer & Dominick, 2006). This section expands on what each source of internal invalidity is and how it was addressed in the study.

History

Campbell and Stanley (1963) defined history threats as “the specific events occurring between the first and second measurement in addition to the experimental variable” (p.5). These specific events were the external events that occurred during data collection that may have become intervening variables which could have altered and contaminated the study (Babbie, 2007; Wimmer & Dominick, 2006). “The potential to confound a study is compounded as the time increases between a pretest and a posttest” (Wimmer & Dominick, 2006, p.27). Given that the study was based on a post-test, there were no time issues between pretest and post test. However, the events (historical events such as new regulations, food scares, etc.) that occurred during the period of data collection were monitored. Also, all subjects were tested at the same time (during the dates of April 16-28, 2012) and were therefore exposed to the same events.
Maturation

Over time, “subjects’ biological and psychological characteristics change during the course of a study” (Wimmer & Dominick, 2006, p.28). Participants may have become tired, hungry, older, wiser, sleepy, or bored (Babbie, 2007; Campbell & Stanley, 1963; Wimmer & Dominick, 2006). To decrease maturation problems, a short study was conducted. The questionnaire only included short answer questions, and took less than 10 minutes to complete.

Testing

The process of testing, or collecting data, may itself have been a problematic source of internal validity. Testing referred to the “effects of taking a test upon the scores of a second testing” (Campbell & Stanley, 1963, p.5). By pretesting and post-testing, participants may have learned what the study is about and/or learn how to answer questions. Therefore, participants can be sensitized to the materials presented (Babbie, 2007; Wimmer & Dominick, 2006). Since the study was a post-test only, testing issues were largely eliminated. To prevent participants from sensitizing themselves to the materials presented, the questions in the questionnaire were organized in a specific order that decreased the chances of participants knowing what the study was about. Also, the questionnaire incorporated a question that asked the participants to write what they had thought the study was about.

Instrumentation

Instrumentation issues referred to “the deterioration of research instruments or methods over the course of a study” (Wimmer & Dominick, 2006, p.28), whether they were changes in the calibration of an instrument or changes in the observers (Campbell & Stanley, 1963). Examples of instrumentation issues include equipment problems and
the memorization of frequently asked questions (Wimmer & Dominick, 2006). The current study had no question that was asked more than once, therefore avoiding memorization issues. Equipment problems could have arisen given that the questionnaire had been administered online. Therefore, monitoring of the questionnaire program and testing it before sending the questionnaire out to participants was essential.

Statistical regression

“Subjects who achieve either very high or very low scores on a test tend to regress to the sample or population mean during subsequent testing sessions” (Wimmer & Dominick, 2006, p.29). Statistical regression threats to the internal validity of the study was not an issue given that a post-test only design was implemented.

Selection bias

Selection bias results from assigning subjects to the different conditions being compared without using random assignment (Babbie, 2007; Wimmer & Dominick, 2006). Selection bias was avoided in the study by randomly assigning participants to one of the four conditions.

Experimental mortality

Experimental mortality — “differential loss of respondents” (Campbell & Stanley, 1963, p.5) — refers to “the possibility that subjects will drop out” (Wimmer & Dominick, 2006, p.29) of the study for any reason. Experimental mortality was minimized by using a questionnaire that was short, in order to avoid participants getting tired and dropping out. Furthermore, participant’s demographic information was measured to determine if they were statistically different from participants who did not complete the questionnaire.
Demand characteristics

Demand characteristics refer to the participants’ reactions to the experimental conditions (Wimmer & Dominick, 2006). If participants are aware of the purpose of the study, they may want to “help the experimenter” by providing the answers the participant thinks the experimenter is seeking. To ensure this threat to internal validity was not present, the questionnaire included a question at the end that asked the participant to state what they believed the purpose of the study was. The demographic characteristics and responses of participants that guessed the purpose of the study was compared to participants who did not know the true purpose of the study.40

Experimenter bias

Experimenter bias occurs when the researcher influences the results of the study intentionally or unintentionally. This can be done through mistakes in observation, data recording, data analysis, etc. (Wimmer & Dominick, 2006). Experimenter bias was decreased given that the presence of an experimenter in the same room as the respondent was not necessary in this study. Detailed attention was paid in the data collection process to avoid mistakes. This meant that the researcher continually monitored the data files to ensure that all responses were being recorded appropriately.

Evaluation apprehension

Evaluation apprehension is similar to demand characteristics with the exception that, evaluation apprehension “emphasizes that subjects are essentially afraid of being measured or tested” (Wimmer & Dominick, 2006, p.31). This internal validity threat was

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40Fortunately, as elaborated in the data analysis chapter, no participant found out what the true purpose of the study was.
minimized by letting participants know that their responses were important and assuring confidentiality of the information provided.

**Causal time order**

Causal time order is a rare threat to internal validity in social science (Babbie, 2007) and refers to “ambiguity about the time order of the experimental stimulus and the dependent variable” (Babbie, 2007, p. 231). This was not an issue in the study given that it was not possible for the dependent variable to cause changes to the stimulus.

**Diffusion or imitation of treatments**

Diffusion or imitation of treatments occurs when the participants of a control group, and the participants of a treatment group, communicate with each other about the study. Elements of the experimental stimulus may be passed along to other participants, therefore, contaminating the results of the study. (Babbie, 2007) The probability of this threat to internal validity had been minimized by the fact that participants in the study were from different places around the country, and not in the same room.

**Compensation**

Sometimes a researcher might unintentionally treat the control group differently because they are being deprived of the treatment (Wimmer & Dominick, 2006). When this happens, the control group stops being a legitimate control group (Babbie, 2007). Given that this was an online study and participants were randomly assigned to a control condition, or a treatment condition, by the questionnaire program (SocialSCI), no differential treatments were given to the participants.

**Compensatory rivalry**

If participants become aware that they are in a control group, they might try to work harder in order to outperform the experimental group (Wimmer & Dominick, 2006).
The chances of this internal validity threat were diminished since participants in the control group were exposed to an ad and received the same questions as the subjects in the experimental groups.

**Demoralization**

Different from compensatory rivalry, it is when participants become aware that they are in a control group and they may become demoralized or lose interest in the study (Wimmer & Dominick, 2006). As in compensatory rivalry, the chances of this internal validity threat were diminished by the fact that participants in the control group were exposed to an ad, and received the same questions as the subjects in the experimental groups, therefore masking the fact that they were in a control group.

**Threats to External Validity**

Internal invalidity represents only some of the possible problems that may arise in an experimental research (Babbie, 2007). External invalidity also presented potential complications. It refers to “the generalizability of experimental findings to the ‘real’ world” (Babbie, 2007, p.233). A study that is not externally valid cannot be projected to the general population; it can only be applied to the sample studied. (Wimmer & Dominick, 2006) Cook and Campbell (1979) suggested that external invalidity may be controlled by the use of a random sample, the use of “deliberate sampling for heterogeneity” (p. 75), the replication of the study, and the selection of a representative group.

Campbell and Stanley (1963) emphasized that there are different issues of external validity or representativeness: reactive, or interaction of testing, and X (X refers to the experimental variable), interaction effects of selection and X, reactive effects of experimental arrangements, and multiple-treatment interference (p.6). These can also
be called “interaction effects, involving X and some other variable” (p.16). Because of the use of a post-test only design, interaction effects of testing -- effects that occurred when pretesting participants sensitized them to the experimental variable -- were avoided in the current study. With the use of random assignment, interaction effects of selection and X -- effects that could have risen because of the lack of random assignment, where the observed effects of the experimental condition can only be applied to certain populations -- were avoided. Reactive effects of experimental arrangements -- which refer to how the artificiality of the experimental setting influenced the participant -- were minimized by not telling participants that they were part of an experiment. Instead they had been told that different advertisements were being tested to see which one people liked more, and could be published. In addition, the ads used as stimuli were created by a professional copywriter and graphic artist in order to ensure that they looked realistic, and to increase external validity. Finally, multiple-treatment interferences -- which are “likely to occur whenever multiple treatments are applied to the same respondents, because the effects from prior treatments are not usually erasable” (p.6) -- were avoided given that each participant saw only one treatment.

**Questionnaire**

The dependent variables were measured with the use of the questionnaire. An important aspect taken into consideration in the study was the reading level of the questionnaire. The questionnaire was administered to Hispanic and non-Hispanic whites around the United States, and not every population segment has the same reading level. As cited in the Partnership for Clear Health Communication at the National Patient Safety Foundation (2006) website, the average reading level of Americans is of the eighth grade. Nonetheless, 20% of the population reads at the fifth
grade level or below. A large percentage of seniors, African Americans and Hispanics tend to read at a fifth grade level or below. (Partnership for Clear Health Communication at the National Patient Safety Foundation, 2006) Therefore, to ensure all participants were able to comprehend the questions, all questions were written at no higher than an eighth grade reading level (the standard reading level of the majority of the population of the United States). Reading level was assessed using Microsoft’s Word Readability Program (Neuendorf, 2002). The program had two ways to assess readability: the Flesch Reading Ease and the Flesch-Kincaid Grade Level (Stockmeyer, 2009).

The Flesch Reading Ease test is based on a formula that uses the average number of syllables per word (a measure of word difficulty) and words per sentence (indicator of syntactic complexity). The scale ranges from zero to 100. Scores between zero and 40 indicate very difficult readings. Scores of 80 and above indicate easiness. Based on the Flesch Reading Ease test, the questionnaire used in this study was “fairly easy” to read with a score of 64.6. (Stockmeyer, 2009)

On the other hand, the Flesch-Kincaid Grade Level measure uses a formula to compute reading level based on the lowest education level required for a reader to understand it. (Stockmeyer, 2009) The questionnaire used in this study had a 6.9 grade reading level, which is below the standard eighth-grade level.41

In addition to the dependent variables, possible confounding variables, demographic information, and manipulation checks were measured in the questionnaire. The next sections address them.

41 In addition, participants were recruited using a consumer panel that filtered participants. They were able to make sure that all participants read at a seventh grade reading level or better by conducting a qualifier survey beforehand that included a short reading comprehension test.
Control for Possible Confounding Variables

In addition to the independent variables and the dependent variables evaluated in the study, several other variables were measured in order to have the capability of controlling for their effects. The effects of three variables were controlled for in the study: product category involvement, health concern, and acculturation.

Product category involvement was controlled on the basis that, not everyone uses every product in the same manner. Some people may care for a product more than others; therefore, it was important to measure their affiliation with the product in order to assure that the attitudes and intentions observed were a result of the claim, and not how much the person had already liked or disliked the product. Product category involvement was measured using Adam and Geuens' (2007) four–item, five-point Likert-type scale to measure attitude toward the product (α = .91). Participants agreed or disagreed with the following statements: “This product is not for me,” “I rather like this product,” “I think this product is rather useless to me,” and “This product leaves a good impression on me”. “This product” was replaced for the word “cereal.” Participants were informed that the item of reference was cereal. The four items were averaged into a single index, modeling Adam and Geuens' (2007) analysis.

Another possible confounding variable in the study was the level of health concern of the participant. This variable was studied because according to the expectancy-value model, a person’s attitude toward an object is a result of the beliefs a person has, and the evaluative response made toward the objects or issues that are produced (Fishbein, 1965; Palmgreen & Rayburn II, 1982). Therefore, the study conceptualized a person’s beliefs as “health concern”. Health concern (or health consciousness) refers to “the degree to which being concerned and sensitive about health issues is part of a person’s
daily life” (Bruner II, Hensel, & James, 2005, p.232) or the level of importance a person placed on maintaining his/her health (Gould, 1988). Health concern was measured using a scale originally by Kraft and Goodell (1993) but adapted by Jayanti and Burns (1998). Jayanti and Burns’ (1998) version of the scale, which yielded an alpha of .75, was used. The scale is composed of the following six items:

- I worry that there are harmful chemicals in my food.
- I am concerned about my drinking water quality.
- I usually read the ingredients on food labels.
- I read more health-related articles than I did 3 years ago.
- I am interested in information about my health.
- I am concerned about my health all the time.

The items were measured using a five-point Likert-type scale in which participants rated each statement from strongly agree to strongly disagree. For analysis, the six items were averaged into a single index. Given that Jayanti and Burns did not disclose how the data collected from their scale was analyzed, an index was constructed by averaging the scores of the items (such as what was done for attitude scales).

Acculturation was also measured and controlled for given that Hispanics who are more acculturated to the lifestyles in the United States tend to have similar eating patterns to those who have not lived in the United States as long (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005). There are three acculturation scales that are widely used and studied in literature: the ARSMA I and II (The Acculturation Rating Scale for Mexican Americans) and the BAS (Bidimensional Acculturation) (Wallace, Pomery, Latimer, Martinez, & Salovey, 2010). The ARSMA I
and II measures tend to be used as supplemental measures when examining a person’s level of acculturation. On the other hand, the BAS tends to be favored “because of its ability to record contextually rich facts about ethnic culture” and because it offers “(a) brevity, (b) multiple Hispanic subgroups, (c) appropriate reliability and validity, (d) ease of administration in varied settings, (e) English and Spanish versions, and (f) multidimensional domains (e.g., ethnicity, education, and generation)” (Wallace, Pomery, Latimer, Martinez, & Salovey, 2010, p.42).

In the study, acculturation was measured using “a well researched and validated” (Wallace, Pomery, Latimer, Martinez, & Salovey, 2010, p.42) scale (the BAS) created by Marin, Sabogal, Vanoss Marin, Otero-Sabogal, & Perez-Stable (1987). Originally, the scale yielded a reliability coefficient of .92. The scale consisted of twelve items measured on a five-point likert-type scale. Items referred to language preferences when reading, speaking and thinking, as well as socializing, and when using different media sources. However, some of the items were modified for the purpose of this study. This first item was separated into two separate items in order to avoid having “double-barreled” items.

**Additional Variables**

Additional variables were measured in order to make sure that there were no effects on the study. These included demographic information, participant information on BMI, reading proficiency, and manipulation checks. Demographic information such as age, sex, education level, and income were measured in the experimental questionnaire to ensure that the sample selected from the population of interest (in terms of age, race, and ethnicity), actually represented the population for whom conclusions were made (Babbie, 2007). The study sought to evaluate Hispanic and
non-Hispanic whites living in the United States, between the ages of 18 and 54. Regarding the other demographic variables, the researcher tested for sex given that women tend to pay more attention to the foods they eat compared to men (Wilson & Blackhurst, 1999). Education level and income data were also tested because it had been found that people with higher levels of education, and higher income, tend to be more health conscious (Alipour, 2009; Dray, 2010; McKeon, 2009). Finally, Body Mass Index (BMI) information was collected. BMI was assessed given that it is one of the best methods used to assess population health in terms of weight (i.e. whether a person is or is not overweight or obese). Participants were asked to provide their height and weight. The BMI of each participant was calculated using the Equation 3-1.

\[
\text{BMI} = \frac{\text{Weight in pounds}}{(\text{Height in inches}^2)} \times 703 \quad (3-1)
\]

Correlations between BMI (which should reflect whether a person is healthy or not) and health concerns were calculated to test for effects. If any of the variables (sex, education, income, BMI, or the correlation between BMI and health concern) had an effect on the dependent variables, it was included as a covariate in the model.

Reading proficiency was also evaluated in order to ensure an appropriate level of English understanding among participants. Reading proficiency is “difficult to assess accurately” (Assessing Reading Proficiency, 2004), and tends to be measured by having the person read a passage and answer comprehension questions (such as what is done on the SAT, TOEFL and IELTS examinations). The National Capital Language Resource Center in Washington D.C. states that reading proficiency is assessed by having the person read aloud, having the person answer comprehension questions after reading a passage, and/or having the person complete a task after having read a
passage that details how to do so (Assessing Reading Proficiency, 2004). The research was conducted using an online survey panel; therefore, it was not possible to assess a person’s reading proficiency by having the person read aloud, or complete a physical task. Assessing reading proficiency through reading comprehension is a process that is lengthy and complex. Because of this, self-report measures are commonly used in social science to measure English reading proficiency (e.g. Poole (2008-2009); Sheorey and Mokhtari (2001)). For example, Sheorey and Mokhtari (2001) asked participants to rate their reading proficiency skills on a scale from one (poor) to six (excellent). It has been found that self-reports are “reliable indicators of language performance” (Marian, Blumenfeld, & Kaushanskaya, 2007, p.940). Multiple studies have shown that self-reported proficiency scales are highly correlated to objective proficiency measures (Dufour & Kroll, 1995; Kroll, Michael, Tokowitz, & Dufour, 2002; MacIntyre, Noels, & Clement, 1997). Nonetheless, other studies have found that there is no correlation between self-reported reading ability and actual reading proficiency (Hill, 1993; Poole, 2008-2009).

The study incorporated Sheorey and Mokhtari’s (2001) self-reported measure to assess reading proficiency/ability. Participants were asked to rate their reading skills on a scale of one (poor) to six (excellent).

Several manipulation checks were also conducted. First, the perceived credibility (believability) of the advertisement was measured using a three-item seven-point semantic differential scale anchored by: unconvincing/convincing; unbelievable/believable; biased/unbiased (MacKenzie & Lutz, 1989). The three items

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42 However, a mistake was made in the construction of the scale when it was inputted in the online questionnaire. Therefore, the item was measured on a five-point scale.
were averaged into a single index for data analysis. MacKenzie’s and Lutz’s scale originally had an alpha of .71; however, Cheong and Kim (2011) used the same scale and obtained an alpha of .92.

Second, participants were asked to rate the claim that they were exposed to in terms of the levels of objectivity and detail. The definitions of objectivity and subjectivity were provided in the questionnaire. These were obtained directly from Ford, Smith, and Swasy’s (1990) example. Level of objectivity was measured using a seven-point semantic differential scale anchored by five items: completely subjective/completely objective; not based on facts/based on facts; abstract/concrete; contained content everyone can agree on/contained content not everyone can agree on; impressionistic/factual. The scale was composed following an example used by Ford, Smith, and Swasy (1990) where they asked participants to rate a claim from completely subjective to completely objective on a seven-point semantic differential scale. Additional items were added to the scale to test its reliability following suggestions obtained from Darley and Smith (1993) -- who suggested the use of impressionistic/factual to measure objectivity, as well as, end points that define the terms objective and subjective. The five items were averaged into a single index for data analysis. The scale yielded a reliability of $a = .87$ in the pretest.

The level of detail of the claims was tested using a scale also composed by the researcher. Level of detail was measured in a seven-point semantic differential scale anchored by five items: not at all detailed/very detailed; general/specific (Andrews, Netemeyer, & Burton, 1998); vague/accurate; not explanatory/explanatory;
uninformative/informative (Adam & Geuens, 2007). The five items were averaged into a single index for data analysis. The scale yielded a reliability of $a = .88$ (in the pretest).

Third, participants were asked to state whether the claim they were exposed to was health-related or taste-related, as suggested by Cheong and Kim (2011). They were told to state how strongly they agreed or disagreed with the claim being 1) health-related and 2) taste related.

The last manipulation check conducted asked participants what they thought the study was about in order to ensure that the differences noted were due to the manipulations. The answers that demonstrated that the participant was able to distinguish what the study was about was analyzed to determine if they were statistically different from participants who did not know what the questionnaire was about. Nonetheless, no one was able to decipher the true purpose of the study.

**Reliabilities of Measures Used**

**Pretest**

In addition to selecting claims, the first pretest was also used to verify the reliabilities of the scales to be used in the main experiment. The following reliabilities (alphas) were obtained and are shown in Table 3-7.

**Main Experiment**

All of the measures used in the study were tested for reliability in the main experiment as well. All measures except the believability measure were tested for reliability by calculating their Cronbach’s Alphas. Table 3-8 shows the reliability measures for each of the scales as calculated for the non-Hispanic white sample, the Hispanic white sample, and both samples combined. The believability measure contained only two items; therefore, a correlation analysis was conducted. For non-
Hispanic whites and for Hispanic whites, the items in the scale were strongly correlated
\( p < .001 \).

**Experimental Design**

A post-test only experimental design was implemented. In a post-test only design, an experimental stimulus or the control is administered without a pretest (Babbie, 2007). No pretest was needed to measure previous attitudes toward health and nutrient content claims, since differences among attitudes were measured in the post-test and random assignment was used. By using random assignment, all experimental and control groups become comparable on the dependent variables (Babbie, 2007). The only “pretest” conducted was to verify the clarity and effectiveness of the manipulations and the questionnaire.

A factorial and between-subjects design was implemented in the study. A factorial design involves the simultaneous analysis of two or more independent variables (also referred to as factors) (Wimmer & Dominick, 2006). In a between-subject design, each participant is only exposed to one of the manipulations in the experiment. A between subject design was chosen in order to avoid participants knowing the true purpose of the study and avoid possible data contamination.

A 4 (four types of claims including the no claim condition) X 2 (ethnicity: Hispanic or non-Hispanic) between subjects factorial design was implemented. Each participant was randomly assigned a claim/ad to evaluate. The survey program used to administer the questionnaire was by made by SocialSCI, the company from which the panel was recruited from. The survey program had the capability of randomly assigning claims/ads to each participant.
SocialSCI is a panel recruiting company and survey building company that allows its users to create web-based surveys and analyze data. SocialSCI allowed the researcher the ability to reach people quickly all over the country.

Sample

Sample size is determined based on “the purpose of the study, population size, the risk of selecting a ‘bad’ sample, and the allowable sampling error” (Israel, 2009). Those refer to the levels of precision, confidence, and variability desired for the study. Sample size can be determined using equations such as Equations 3-2 and 3-3, both of which are common equations used in social sciences.

\[ n = \frac{(1.96)^2 \pi(1 - \pi)}{\sigma} \quad \text{(Agresti & Finlay, 2009; Israel, 2009)} \]  \hspace{1cm} (3-2)

\[ n = \frac{N}{1 + N(e)^2} \quad \text{(Israel, 2009)} \]  \hspace{1cm} (3-3)

Using Equation 3-2, with a population size of 223,553,265 (26,735713 Hispanics whites + 196,817,552 non-Hispanic whites), a margin of error of 5%, a confidence level of 95%, and a response distribution of 50%, the recommended sample size was 385 participants. Using Equation 3-3, with a population size of 223,553,265 (26,735713 Hispanic whites + 196,817,552 non-Hispanic whites) and a margin of error of 5%, the recommended sample size was of 399 participants. Thus, a non-probability sample of 400 people (about 50 participants per condition/cell) in the 4 X 2 experiment was needed. However, the researcher oversampled by 10% \( (n = 440) \) to take into account those participants who may have figured out about the purpose of the study. Two

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\(^{43}\) Statistical software, such as Raosoft, Inc., suggest that unless you know (have expectations of) what your results will be, “setting the response distribution to 50% is the most conservative assumption” (Raosoft, 2004).
hundred and twenty respondents were Hispanic whites, and 220 respondents were non-Hispanic whites. Both males and females were evaluated. Only people who had the ability to speak and read English fluently were asked to participate. In order to make sure that all participants in the study were proficient in English (therefore controlling for English reading comprehension), Hispanics and non-Hispanics who were fluent in the English language were targeted. SocialSCI (a consumer panel) helped identify these people. SocialSCI screened its panelists and looked for participants who had previously stated that they were fluent in the English language in other surveys. The program also conducted a reading assessment before the questionnaire was administered to make sure that participants were able to read and understand English at a seventh grade reading level.

In addition to language identification, a consumer panel was used, (rather than a sample solely of college students) in order to get a broader demographic of people, screen participants on other variables, and obtain better external validity. Even though it would be convenient to test the hypotheses and research questions using a convenience sample of college students recruited from a university, college students were not used in this study because “the use of a homogeneous student population may result in a bias toward stronger effects than would be found in the general population” (Brown & Stayman, 1992, p.35). Also, college students are not the only age demographic that is influenced by advertising claims in “healthy” products like cereal. Adults between the ages of 18 to 54 are the primary shoppers of breakfast cereals (MRI+, 2009), and could therefore refer to advertising claims made about health and nutrition in order to select a cereal.
To be able to obtain responses from people 18 to 54 that were Hispanic white or non-Hispanic white, participants were recruited through an online market research company that offered panel building and sampling frame expertise called SocialSCI. SocialSCI takes a “three-tiered approach” to build the participant pool (Participants, 2012). First, they “authenticated” the user to ensure that they are human. Second, they tracked participants over time to make sure they are providing honest responses. Third, they enabled researchers to compensate participants through secure online transactions. (Participants, 2012) Participants were compensated in the form of credits with SocialSCI that they could later redeem for products.

Some of the benefits of using SocialSCI in this study included that the program had the capability of identifying and removing fraudulent participants. It eliminated participants who, for example, claimed to be of a certain age for a survey and of a certain age for another survey. The company would notify the researcher and send the survey to another quality participant whenever this occurred.

Different from other panel building services, SocialSCI did not ask participants to provide profile information about themselves, such as age, gender, race, etc. Instead, they focused more on maintaining the anonymity of all participants. They tracked each individual’s responses over time to make sure that they continuously answered questions the same way in different surveys (e.g. always the same race, always the same ethnicity, etc.) in order filter for target participants.

Given how they gathered information on each of the panelists -- which facilitated screening -- and that the company ensured that fraudulence was reduced, SocialSCI was selected as the method of gathering participants. SocialSCI ensured that the
required questionnaires could be completed within a week of sending out the link to access it. Therefore, all the data was collected from participants in a smaller time frame, which reduced the chances of fluctuations in responses due to history threats. Also, it allowed the researcher the opportunity to obtain participants from all over the country that fit the characteristics for the sample sought. This increased the external validity of the study given that the sample was more representative of the population.

Method for Main Experiment

To begin with, participants were asked to complete an online informed consent form (see Appendix D). After having agreed to the terms and conditions of the study, participants were granted access to an online questionnaire. They were first exposed to one of the four ads[^4] to be tested, for a period of 30 seconds. SocialSCI’s survey program randomly assigned the ad to which each participant was exposed. In the “Advanced Options” of SocialSCI’s survey program, the researcher inputted the different alternatives for “page sequence conditions” and the threshold of participants per sequence. This ensured that each participant was randomly exposed to one ad. The survey program was also set to time the exposure of the ad for 30 seconds. This ensured that each participant viewed the ad for the same amount of time.

After the 30 seconds had passed, the screen changed exposing questionnaire questions. Participants were asked to answer questions regarding attitudes toward the ad, attitudes toward the brand, purchase intentions, product category involvement,

[^4]: The survey program randomly assigned the ad that was viewed by each participant. SocialSCI allowed the questionnaire conditions to be distributed in a manner that the same numbers of participants viewed each ad.
health concern, acculturation, and manipulation checks. Demographic information and participant BMI information were collected at the end.

**Statistical Analysis**

This study sought to evaluate two categorical independent variables (type of claim and ethnicity/race), and three continuous dependent variables (attitude toward the ad, attitudes toward the brand, and purchase intentions). To test the hypotheses and research questions, differences of means and differences of correlations were used. For hypotheses one and two, as well as research question two, analysis of variance and analysis of covariance were used to detect significant differences between the claim types of attitudes. For hypotheses three through five and research question two, correlations between the dependent variables were tested per claim type. This was followed by a test of differences of correlation to detect if the correlations were significantly different from one another. Finally, for research question three, various analyses of variance and analyses of covariance were used to detect significant differences between claims and ethnicity.
Table 3-1. Means for level of objectivity per claim (Pretest #1)

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function claim</td>
<td>4.04</td>
<td>1.43</td>
<td>1.00</td>
<td>7.00</td>
<td>75</td>
</tr>
<tr>
<td>Specific nutrient content claim</td>
<td>4.17</td>
<td>1.65</td>
<td>1.00</td>
<td>7.00</td>
<td>76</td>
</tr>
<tr>
<td>General health claim</td>
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<td>1.16</td>
<td>1.00</td>
<td>7.00</td>
<td>77</td>
</tr>
<tr>
<td>Control (taste) claim</td>
<td>3.01</td>
<td>1.53</td>
<td>1.00</td>
<td>7.00</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 3-2. Means for level of detail per claim (Pretest #1)

<table>
<thead>
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<th>Type of Claim</th>
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<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
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<td>1.78</td>
<td>1.00</td>
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<td>75</td>
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<td>76</td>
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<td>7.00</td>
<td>77</td>
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Table 3-3. Means of level of objectivity per claim (Pretest #2)

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<td>4.43</td>
<td>0.97</td>
<td>2.83</td>
<td>6.00</td>
<td>23</td>
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<td>1.83</td>
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<td>6.33</td>
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<td>1.00</td>
<td>5.50</td>
<td>22</td>
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<td>11</td>
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<td>1.28</td>
<td>1.17</td>
<td>5.67</td>
<td>18</td>
</tr>
<tr>
<td>12</td>
<td>3.42</td>
<td>1.52</td>
<td>1.17</td>
<td>6.17</td>
<td>19</td>
</tr>
</tbody>
</table>

1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.
### Table 3-4. Means of level of detail per claim (Pretest #2)

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<td>1.00</td>
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<td>1.07</td>
<td>1.00</td>
<td>4.86</td>
<td>19</td>
</tr>
</tbody>
</table>

1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can’t wait to eat it.
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-1. Significant differences detected in level of objectivity between structure/function claim #2 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-2. Significant differences detected in level of objectivity between specific nutrient content claim #4 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-3. Significant differences detected in level of objectivity between specific nutrient content claim #6 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-4. Significant differences detected in level of detail between general health claim #7 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-5. Significant differences detected in level of objectivity between general health claim #9 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-6. Significant differences detected in level of objectivity between general health claim #10 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-7. Significant differences detected in level of objectivity between control (taste) claim #11 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-8. Significant differences detected in level of objectivity between control (taste) claim #12 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-9. Significant differences detected in level of detail between structure/function claim #1 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-10. Significant differences detected in level of detail between structure/function claim #2 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-11. Significant differences detected in level of detail between structure/function claim #3 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-12. Significant differences detected in level of detail between specific nutrient content claim #4 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-13. Significant differences detected in level of detail between specific nutrient content claim #5 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-14. Significant differences detected in level of detail between specific nutrient content claim #6 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-15. Significant differences detected in level of detail between general health claim #10 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-16. Significant differences detected in level of detail between general health claim #8 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-17. Significant differences detected in level of detail between general health claim #9 and other claims (Pretest #2)
Claim number key:
1- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
2- With only 3 grams of sugar and 60 calories per 8 ounce serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
3- With only 3 grams of sugar and 60 calories per serving, eating Crispy Crunch as part of a healthy diet may help manage weight.
4- Crispy Crunch has 3 grams of sugar and 60 calories per 8 ounce serving.
5- Crispy Crunch has 3 grams of sugar and 60 calories per serving.
6- Reduced sugar. Fewer calories.
7- A step toward a healthier you.
8- Full of healthy goodness.
9- Good for you.
10- Good for your health.
11- A tasty breakfast treat.
12- So delicious you can't wait to eat it.

Figure 3-18. Significant differences detected in level of detail between general health claim #12 and other claims (Pretest #2)

Table 3-5. Means for level of objectivity per claim for Pretest #3

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<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
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</thead>
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<td>With only 3 grams of sugar…</td>
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<td>1.42</td>
<td>1.60</td>
<td>7.00</td>
<td>27</td>
</tr>
<tr>
<td>Reduced sugar. Fewer Calories.</td>
<td>4.19</td>
<td>1.20</td>
<td>1.60</td>
<td>7.00</td>
<td>29</td>
</tr>
<tr>
<td>3 Grams of Sugar. 60 Calories.</td>
<td>4.98</td>
<td>1.43</td>
<td>2.20</td>
<td>7.00</td>
<td>27</td>
</tr>
<tr>
<td>Good for your health.</td>
<td>3.18</td>
<td>1.28</td>
<td>1.20</td>
<td>5.00</td>
<td>25</td>
</tr>
<tr>
<td>Good for you.</td>
<td>3.13</td>
<td>1.44</td>
<td>1.00</td>
<td>5.60</td>
<td>24</td>
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<td>So delicious you can't wait to eat it.</td>
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<td>1.47</td>
<td>1.00</td>
<td>6.80</td>
<td>24</td>
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<td>A tasty breakfast treat.</td>
<td>2.62</td>
<td>1.17</td>
<td>1.00</td>
<td>5.80</td>
<td>18</td>
</tr>
</tbody>
</table>
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-19. Significant differences detected in level of objectivity between the structure function claim and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-20. Significant differences detected in level of objectivity between specific nutrient content claim #1 and other claims (Pretest #3)
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.

Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.

General health claims:
1) Good for your health.
2) Good for you.

Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-21. Significant differences detected in level of objectivity between specific nutrient content claim #2 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-22. Significant differences detected in level of objectivity between general health claim #1 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-23. Significant differences detected in level of objectivity between general health claim #2 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-24. Significant differences detected in level of objectivity between control claim #1 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-25. Significant differences detected in level of objectivity between control claim #2 and other claims (Pretest #3)

Table 3-6. Means of level of detail per claim for Pretest #3

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>With only 3 grams of sugar…</td>
<td>5.24</td>
<td>1.46</td>
<td>1.60</td>
<td>7.00</td>
<td>27</td>
</tr>
<tr>
<td>Reduced sugar. Fewer Calories.</td>
<td>3.52</td>
<td>1.22</td>
<td>1.40</td>
<td>5.60</td>
<td>29</td>
</tr>
<tr>
<td>3 Grams of Sugar. 60 Calories.</td>
<td>4.59</td>
<td>1.41</td>
<td>1.40</td>
<td>6.80</td>
<td>27</td>
</tr>
<tr>
<td>Good for your health.</td>
<td>2.70</td>
<td>1.18</td>
<td>1.00</td>
<td>4.80</td>
<td>25</td>
</tr>
<tr>
<td>Good for you.</td>
<td>2.98</td>
<td>1.59</td>
<td>1.00</td>
<td>5.80</td>
<td>24</td>
</tr>
<tr>
<td>So delicious you can’t wait to eat it.</td>
<td>3.27</td>
<td>1.47</td>
<td>1.00</td>
<td>6.80</td>
<td>24</td>
</tr>
<tr>
<td>A tasty breakfast treat.</td>
<td>2.81</td>
<td>1.32</td>
<td>1.00</td>
<td>6.20</td>
<td>18</td>
</tr>
</tbody>
</table>
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-26. Significant differences detected in level of detail between the structure function claim and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-27. Significant differences detected in level of detail between specific nutrient content claim #1 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-28. Significant differences detected in level of detail between specific nutrient content claim #2 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-29. Significant differences detected in level of detail between general health claim #1 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-30. Significant differences detected in level of detail between general health claim #2 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-31. Significant differences detected in level of detail between control claim #1 and other claims (Pretest #3)
Claim number key:
Structure/function claim:
1) With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.
Specific nutrient content claims:
1) Reduced sugar. Fewer calories.
2) 3 Grams of Sugar. 60 Calories.
General health claims:
1) Good for your health.
2) Good for you.
Control (taste) claims:
1) So delicious you can’t wait to eat it.
2) A tasty breakfast treat.

Figure 3-32. Significant differences detected in level of detail between control claim #2 and other claims (Pretest #3)

Table 3-7. Reliabilities of measures in pretest

<table>
<thead>
<tr>
<th>Measure</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward the ad</td>
<td>0.89</td>
</tr>
<tr>
<td>Attitude toward the brand</td>
<td>0.95</td>
</tr>
<tr>
<td>Purchase intentions</td>
<td>0.92</td>
</tr>
<tr>
<td>Believability</td>
<td>0.82*</td>
</tr>
<tr>
<td>Health concern</td>
<td>0.75</td>
</tr>
<tr>
<td>Product involvement</td>
<td>0.90</td>
</tr>
<tr>
<td>Acculturation</td>
<td>0.95</td>
</tr>
</tbody>
</table>

*With the removal of the third item, the reliability of this scale was 0.82. With the third item included, the reliability of this scale was 0.69.
<table>
<thead>
<tr>
<th></th>
<th>Non-Hispanic whites</th>
<th>Hispanic whites</th>
<th>All participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude toward the ad</td>
<td>0.88</td>
<td>0.92</td>
<td>0.90</td>
</tr>
<tr>
<td>Attitude toward the brand</td>
<td>0.90</td>
<td>0.92</td>
<td>0.91</td>
</tr>
<tr>
<td>Purchase intentions</td>
<td>0.92</td>
<td>0.95</td>
<td>0.94</td>
</tr>
<tr>
<td>Level of objectivity</td>
<td>0.91</td>
<td>0.87</td>
<td>0.89</td>
</tr>
<tr>
<td>Level of detail</td>
<td>0.93</td>
<td>0.92</td>
<td>0.92</td>
</tr>
<tr>
<td>Health concern</td>
<td>0.80</td>
<td>0.84</td>
<td>0.82</td>
</tr>
<tr>
<td>Product involvement</td>
<td>0.92</td>
<td>0.78</td>
<td>0.86</td>
</tr>
<tr>
<td>Acculturation</td>
<td>N/A</td>
<td>0.90</td>
<td>N/A</td>
</tr>
</tbody>
</table>
CHAPTER 4
DATA ANALYSIS

This study evaluated non-Hispanic white and Hispanic white people between the ages of 18 and 54 that currently live in the United States. This chapter will provide an overview of the characteristics of the sample as well as the results of hypotheses testing and research question exploration.

Descriptive Information

All Participants

This study was completed by 464 non-Hispanic and Hispanic whites; 117 (25.2%) viewed the structure/function claim, 109 (23.5%) viewed the specific nutrient content claim, 123 (26.5%) viewed the general health claim, and 115 (24.8%) viewed the control (taste) claim. Participant ages ranged from 18 to 54, with a mean age of 28.45 (SD = 9.52) and a median of 25. Out of the 464 participants, 257 (55.4%) were males, 204 (44%) were females, and 3 (0.6%) considered their sex as “other” (i.e., “queer”). Their highest level of education completed ranged from high school degrees to doctoral degrees. More specifically, 49 (10.6%) participants stated that they had completed a high school degree, 120 (25.9%) had completed some college, 47 (10.1%) had completed an associate’s degree or other 2-year degree, 178 (38.4%) had completed a bachelor’s degree, 56 (12.1%) had completed a master’s degree, and 14 (3%) had completed a doctoral degree. Most participants rated their English reading proficiency as good (n = 70, 15.1%) or excellent (n = 367, 79.1%). Nonetheless, some participants rated their English reading skills as below average (n = 6, 1.3%) and average (n = 21,
4.5%

The income of participants was divided as follows: under $15,000 (n = 88, 19%), between $15,000 and $24,999 (n = 66, 14.2%), between $25,000 and $34,999 (n = 53, 11.4%), between $35,000 and $49,999 (n = 62, 13.4%), between $50,000 and $74,999 (n = 89, 19.2%), between $75,000 and $99,999 (n = 41, 8.8%) and $100,000 or above (n = 65, 14%). Finally, participants stated that they had spent between 1 and 53 years living in the United States (M = 20.78, SD = 10.77).

**Non-Hispanic Whites**

This study was completed by 225 non-Hispanic whites; 58 (25.8%) viewed the structure/function claim, 55 (24.4%) viewed the specific nutrient content claim, 56 (24.9%) viewed the general health claim, and 56 (24.9%) viewed the control (taste) claim. Participant ages ranged from 18 to 48, with a mean age of 25.14 (SD = 5.46) and a median of 24. Out of the 225 participants, 135 (60%) were males, 87 (38.7%) were females, and 3 (1.3%) considered their sex as “other”. Their highest level of education completed ranged from high school degrees to doctoral degrees; 18 (8%) participants stated that they had completed a high school degree, 63 (28%) had completed some college, 13 (5.8%) had completed an associate’s degree or other 2-year degree, 103 (45.8%) had completed a bachelor’s degree, 23 (10.2%) had completed a master’s degree, and 5 (2.2%) had completed a doctoral degree. All participants rated their English reading proficiency as good (n = 6, 2.7%) or excellent (n = 219, 97.3%). The income of participants was divided as follows: under $15,000 (n = 41, 18.2%), between $15,000 and $24,999 (n = 29, 12.9%), between $25,000 and $34,999 (n = 29, 12.9%),

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45 All participants were included in the study given that: (1) SocialSCI filtered out any participant who had a reading level below the seventh grade by administering a comprehension test, (2) the questionnaire was written at a 6.9 reading grade level, (3) eliminating the participants who rated their reading skills as below average or average did not impact the results of the study.
between $35,000 and $49,999 \ (n = 25, 11.1\%), between $50,000 and $74,999 \ (n = 40, 17.8\%), between $75,000 and $99,999 \ (n = 20, 8.9\%) and $100,000 or above \ (n = 41, 18.2\%). Finally, participants stated that they had spent between 1 and 48 years living in the United States \( (M = 24.39, SD = 5.66) \).

**Hispanic Whites**

This study was completed by 239 Hispanic whites; 59 (24.7\%) viewed the structure/function claim, 54 (22.6\%) viewed the specific nutrient content claim, 67 (28\%) viewed the general health claim, and 59 (24.7\%) viewed the control (taste) claim. Participant ages ranged from 18 to 54, with a mean age of 31.58 \( (SD = 11.32) \) and a median of 29. Out of the 239 participants, 122 (51\%) were males, and 117 (49\%) were females. Their highest level of education ranged from high school degrees to doctoral degrees; 31 (13\%) participants stated that they had completed a high school degree, 53 (23.8\%) had completed some college, 34 (14.2\%) had completed an associate’s degree or other 2-year degree, 75 (31.4\%) had completed a bachelor’s degree, 33 (13.8\%) had completed a master’s degree, and 9 (3.8\%) had completed a doctoral degree. The self-rated English reading proficiency level of the sample was high, with a mean of 4.48 \( (SD = 0.76) \) and a mode of 5 on a scale from one to five. The income of participants was divided as follows: under $15,000 \ (n = 47, 19.7\%), between $15,000 and $24,999 \ (n = 37, 15.5\%), between $25,000 and $34,999 \ (n = 24, 10\%), between $35,000 and $49,999 \ (n = 37, 15.5\%), between $50,000 and $74,999 \ (n = 49, 20.5\%), between $75,000 and $99,999 \ (n = 21, 8.8\%) and $100,000 or above \ (n = 24, 10\%). Finally, participants stated that they had spent between 1 and 54 years living in the United States \( (M = 17.37, SD = 13.10) \).
Comparisons of Non-Hispanics and Hispanics Whites

The non-Hispanic white sample and the Hispanic white sample were compared in terms of income, education, reading proficiency, age, sex, number of years spent in the United States, and BMI to verify if there were significant differences between the two samples. Independent sample t-tests were conducted to identify significant differences. Tables 4-1 and 4-2 show the means of each variable and whether or not significant differences were found between each group.

As Table 4-2 demonstrates, non-Hispanic whites were not significantly different from Hispanic whites in terms of income ($p = .13$), education ($p = .50$), sex ($p = .11$), and BMI ($p = .63$). Therefore, both groups were similar on those variables. However, the groups did differ ($p > .05$) in terms of reading proficiency, age, and the number of years spent in the United States. Reading proficiency and the number of years spent in the United States were higher among non-Hispanic whites, while age was higher among Hispanic whites.

Manipulation Checks

Various manipulation checks were conducted in this study. This study required the claims to be significantly different in terms of level of objectivity and level of detail. The structure/function claim was expected to be rated as the most objective and most detailed, followed by the specific nutrient content claim, which would be followed by the general health claim, and finally the control (taste) claim. Although this was previously pretested, the manipulation checks were also conducted in the main experiment.

Level of Objectivity

A univariate analysis of variance with pairwise comparisons was conducted between the claims and the level of objectivity. A test of between subjects effects
demonstrated that the manipulations were significantly different from each other in terms of level of objectivity, \( F(3, 460) = 22.62, p < .001 \). However, pairwise comparisons did not reflect this for all conditions (Table 4-4). All claims were significantly different from each other, except for the general health claim and the control (taste) claim \((p = .38)\). Nonetheless, this was considered acceptable since the major difference from the control claim needed to be in terms of health versus taste. Table 4-3 shows the means of each claim in terms of level of objectivity. All claims followed the established order: structure/function claims was rated as the most objective, followed by the specific nutrient content claim, which in turn was followed by the general health claim, and finally the control (taste) claim.

**Level of Detail**

A univariate analysis of variance with pairwise comparisons was conducted between the claims and the level of detail. The manipulations were significantly different from each other in terms of level of detail, \( F(3, 460) = 30.28, p < .001 \). Table 4-5 shows the means of each claim in terms of level of detail. The means followed the established order. The structure/function claim was more detailed than the specific nutrient content claim. The specific nutrient content claim was more detailed than the general health claim. The general health claim was more detailed than the control (taste) claim. Pairwise comparisons (Table 4-6) demonstrated that all claims differed from the others in terms of level of detail except for the specific nutrient content claim and the control (taste) claim \((p = .67)\).

**Health-related vs Taste-related Claims**

Furthermore, claims that differed in terms of being rated as health-related or taste-related were desired. The structure/function claim, the specific nutrient content claim
and the general health claim were supposed to be viewed as health related by participants of the study. Seventy-four percent of participants who viewed the structure/function claim rated it as health related, 73% of participants who viewed the specific nutrient content claim rated it as health related, and 59% of participants who viewed the general health claim rated it as health related. The control claim was supposed to be rated as taste related; 77% of participants who viewed the control claim rated it as taste related. Nonetheless, participants were asked to rate all claims in a health and taste scale. Tables 4-7 and 4-8 show the results of this analysis.

**Believability**

In addition, all ads were expected to be equally believable (realistic), meaning each ad looked like a typical ad. A univariate analysis of variance between the claims and believability of the ads was conducted. The ads were not statistically significant from each other, $F(3, 460) = 1.58, p = .19$. With means of 4.29 ($SD = 1.57$) for the structure/function claim, 4.00 ($SD = 1.63$) for the specific nutrient content claim, 3.92 ($SD = 1.56$) for the general health claim, and 3.89 ($SD = 1.61$) for the control (taste) claim, most ads were seen as similarly believable (Table 4-9). Pairwise comparisons showed that all ads had p-values larger than 0.05 when compared to one another, except for the structure/function claim ad and the control (taste) claim ad ($p = .05$). Therefore, the structure/function claim ad was seen as more believable than the control (taste) claim ad.

**Purpose of the Study**

Finally, all participants were asked to state what they thought the purpose of the study was. No participant was able to decipher the true purpose of the study.
Participants mentioned that the purpose of the study was: to study race or ethnicity, investigate Latino preferences, obtain opinions on an ad, about marketing/ advertising/ promotion/ publicity, a literacy study, a study on consumerism, a recall study, something to do with Facebook, a study on corporate image, a study on image perceptions, a study in credibility, a study on obesity, a study on biology, a study on word variants in ESL speakers and some did not know.

**Verification of Effectiveness of Random Assignment**

Since an experiment was conducted and participants were randomly assigned to a condition (type of claim), a univariate analysis of variance was conducted to test whether each of the characteristics of the respondents differed per claim type. Between-subjects tests demonstrated that neither age, sex, number of years spent in the United States, reading proficiency, education, income, nor BMI varied between participants assigned to different claim types. Therefore, random assignment\(^\text{46}\), a way of “dealing with extraneous influence” (Shadish, Cook, & Campbell, 2002, p.3), was successful and these variables did not have to be tested as covariates. Tables 4-10 through 4-12 demonstrate the results of this analysis.

**Hypothesis Testing**

To test the relationship proposed between the independent variables and the dependent variables in the hypotheses, different analyses were conducted for each

\(^{46}\) “Random assignment is achieved by any procedure that assigns units to conditions based only on chance, in which each unit has a nonzero probability of being assigned to a condition.” (Shadish, Cook, & Campbell, 2002, p.248). Random assignment “facilitates causal inference by making samples randomly similar to each other. Random assignment works because (1) it makes sure that other causes are not confounded with the participants’ treatment condition, (2) it decreases the possibility of threats to validity since they are all distributed randomly over the conditions tested, (3) it makes groups equal on all variables (whether they are measured or not), (4) ”it allows the researcher to know and model the selection process correctly” (p.248), and (5) it allows for the valid computation of an estimate of error variance (Shadish, Cook, & Campbell, 2002).
proposition. First, the relationship between the independent variable and the dependent variable(s) was tested without the inclusion of covariates. Second, the analysis was conducted including product category involvement and health concern as covariates.

**Hypothesis 1**

Hypothesis 1 stated that more detailed/ objective health or nutrition claims would produce more positive attitude toward the ad\(^{47}\). Therefore, this hypothesis tested the main effects of the type of claim on attitude toward the ad. Structure/function claims were expected to produce the most positive attitude toward the ad, followed by specific nutrient content claims, general health claims, and control (taste) claims, respectively.

**ANOVA**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-13 illustrates the means of each of the claims in terms of attitude toward the ad. No main effect of claim type, \( F(3, 460) = 0.85, p = .47 \), was found on attitude toward the ad. Therefore, all of the claims presented had a similar impact on attitude toward the ad. Similarly, neither positive nor negative attitude toward the ad resulted when a structure/function claim \((M = 3.11, SD = 0.92)\) was presented, when a specific nutrient content claim \((M = 3.04, SD = 1.03)\) was presented, when a general health claim \((M = 2.95, SD = 0.97)\) was presented, and when a taste claim \((M = 2.92, SD = 1.08)\) was presented (Table 4-14). Nonetheless, it was noted that the means followed the specified order.

\(^{47}\) Attitude toward the ad was measured in a five-item five-point semantic differential scale.
ANCOVA

Given that literature showed that health concern (Fishbein, 1965; Gould, 1988; Palmgreen & Rayburn II, 1982) and product category involvement (Lutz, MacKenzie, & Belch, 1983) needed to be controlled for, an analysis of covariance was conducted using the two variables as covariates. Table 4-15 shows the means and standard deviations for these two variables. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates (product category involvement and health concern) and the dependent variable (attitude toward the ad) did not differ significantly as a function of the independent variable (type of claim), $F(3, 55, 108) = 1.065, p = .36$. This means that the independent variable and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was conducted.

Table 4-16 shows the results of the ANCOVA analysis. From Levene's test of equality of error variance, it can be seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(3, 460) = 1.52, p = .21$. The ANCOVA showed that both covariates were statistically significant$^{48}$ -- product category involvement ($F(1, 458) = 12.10, p < 0.001$) and health concern ($F(1, 458) = 9.24, p < 0.001$). Type of claim was still not statistically significant, $F(3, 458) = 0.83, p = 0.48$. Therefore, hypothesis 1 was not supported when all participants were evaluated. Even though the means of attitude toward the ad per claim did follow the hypothesized order, the means between the claims were not statistically different from one another.

$^{48}$ This means that there is an effect of the covariates on the dependent variable.
Hypothesis 2

Hypothesis 2 stated that more detailed/ objective health or nutrition claims would produce a more positive attitude toward the brand\(^{49}\). Therefore, this hypothesis tested the main effects of the type of claim on attitude toward the brand. Structure/function claims were expected to produce the most positive attitude toward the brand, followed by specific nutrient content claims, general health claims, and control (taste) claims, respectively.

**ANOVA**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-17 illustrates the means of each of the claims in terms of attitude toward the brand. No main effect of claim type, \( F(3, 460) = 0.137, p = .94 \), was found on attitude toward the brand. Therefore, all of the claims presented had a similar impact on attitude toward the brand. Similarly neither positive nor negative attitude toward the brand resulted when a structure/function claim (\( M = 3.11, SD = 0.91 \)) was presented, when a specific nutrient content claim (\( M = 3.09, SD = 1.03 \)) was presented, when a general health claim (\( M = 3.10, SD = 0.95 \)) was presented, and when a taste claim (\( M = 3.03, SD = 0.97 \)) was presented (Table 4-18).

**ANCOVA**

Given that literature showed that health concern and product category involvement needed to be controlled for, an analysis of covariance was conducted using those two variables as covariates. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the

\(^{49}\) Attitude toward the brand was measured in a three-item five-point semantic differential scale.
homogeneity-of-regression assumption indicated that the relationship between the covariates (product category involvement and health concern) and the dependent variable (attitude toward the brand) did differ significantly as a function of the independent variable (type of claim), $F(4, 459) = 4.00, p = .003$. This means that the independent variable and the covariates did not interact to predict the dependent variables. Because of this, an ANCOVA was not conducted using both covariates and it was concluded that hypothesis 2 was not supported.

**Hypothesis 3**

Hypothesis 3 stated that more detailed/objective health or nutrition claims would produce a stronger relationship between attitude toward the ad and attitude toward the brand. To test this hypothesis a difference of correlation\(^{50}\) was conducted. This was done following a series of steps. First, the correlation between attitude toward the ad and attitude toward the brand was calculated using SPSS software for each type of claim. Second, the differences in correlations were calculated using the SISA software (SISA, n.d.) and the Fisher r-to-z transformation (VassarStats, 2001-2012). The analysis was conducted twice. The first time no covariates were taken into consideration. In the second analysis, the two main interval covariates (product category involvement and health concern) were included in the analysis.

Table 4-19 shows the correlations between attitude toward the ad and attitude toward the brand for each claim evaluated in this study. Given that all claims had an $r$ (correlation) of .68 or higher, it was noted that attitude toward the ad and attitude toward

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\(^{50}\) A difference of correlations test is a strict test of differences between the correlation coefficients of two independent samples. It requires large differences between the two Fisher-z-transformed correlation coefficients in order to obtain large effects size. (Cohen, 1969; Cohen, & Cohen, 1983; Preacher, 2002)
the brand were moderately correlated. Also, because all correlations were positive, increases in attitude toward the ad produced increases in attitude toward the brand. Table 4-20 shows the results of the differences in correlations tests. The only marginally significantly different correlation was found at a $p < .10$ level. This was between the structure/function claim ($r = .68$) and specific nutrient content claim ($r = .79$) ($p = .08$). This means that attitude toward the ad and attitude toward the brand had a stronger association when a specific nutrient content claim was present than when a structure/function claim was present. This relationship was opposite to the order that was originally hypothesized.

Also, it can be noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the specific nutrient content claim had a stronger correlation than the general health claim and the control (taste) claim, as hypothesized.

This analysis was also conducted controlling for two variables: product category involvement and health concern. Table 4-21 demonstrates small differences in the correlations between attitude toward the ad and attitude toward the brand for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases decreased) for all claim types although still statistically insignificant.

Table 4-22 shows the results of the differences in correlations tests. No significantly different correlations were found when product category involvement and health concern were controlled. Therefore, the differences previously noted between the structure/function claim and the specific nutrient content claim were likely due to other
variables and not the claim type. Also, it was noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the specific nutrient content claim had a stronger correlation than the general health claim and the control (taste) claim, as hypothesized.

Hypothesis 3 was not supported given that the type of claim did not affect the correlation between attitude toward the ad and attitude toward the brand as expected.

Hypothesis 4

Hypothesis 4 stated that more detailed/objective health or nutrition claims would produce a stronger relationship between attitude toward the ad and purchase intentions. To test this hypothesis a difference of correlation was conducted. The same procedure as in hypothesis 3 was followed.

Table 4-23 shows the correlations between attitude toward the ad and purchase intentions\(^5\) for each claim evaluated in this study. Given that all claims had a correlation of .67 or higher, it was noted that attitude toward the ad and purchase intentions were moderately correlated. Also, because all correlations were positive, attitude toward the ad and purchase intentions were positively correlated. Therefore, when attitude toward the ad increased, purchase intentions also increased. Table 4-24 shows the results of the differences in correlations tests.

The only marginally significantly different correlation found was at the p < .10 level. This was between the general health claim \((r = .62)\) and the control (taste) claim \((r = .75)\) \((p = .06)\). This means that attitude toward the ad and purchase intentions were

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\(^{51}\) Purchase intention was measured on a three-item five-point semantic differential scale.
more correlated when a control (taste) claim was present than when a general health claim was present. This order was opposite to what was originally hypothesized.

It can also be noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the structure/function claim had a stronger correlation than the general health claim, as hypothesized. Also, the specific nutrient content claim had a stronger correlation than the general health, as hypothesized.

As previously mentioned, this analysis was also conducted while controlling for two variables: product category involvement and health concern. Table 4-25 demonstrates small differences in the correlations between attitude toward the ad and purchase intentions for each type of claim evaluated. The correlations between the variables slightly varied for all claim types although still statistically insignificant.

Table 4-26 shows the results of the differences in correlations tests. The only significantly different correlation (at a p<.05 level) was between the general health claim (r = .60) and the control (taste) claim (r = .75) (p = .03). This means that attitude toward the ad and purchase intentions had a stronger relationship when a control (taste) claim was present than when a general health claim was present. This order is opposite to what was originally hypothesized. However, it was also noted that when the covariates were controlled for, the correlation between attitude toward the ad and purchase intentions for these two claims was stronger. Therefore, there was a larger impact of claim type on the correlation tested.
It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the structure/function claim had a stronger correlation between attitude toward the ad and purchase intentions than the general health claim and the control (taste) claim, as hypothesized. Also, the specific nutrient content claim had a stronger correlation between attitude toward the ad and purchase intentions than the general health, as hypothesized.

Therefore, hypothesis 4 was not supported given that the type of claim did not produce statistically significant different correlations between attitude toward the ad and purchase intention.

**Hypothesis 5**

Hypothesis 5, which stated that more detailed/objective health or nutrition claims would produce a stronger relationship between attitude toward the brand and purchase intentions, was also tested using a difference of correlation tests. The same procedure as in hypotheses 3 and 4 was followed.

Table 4-27 shows the correlations between attitude toward the brand and purchase intentions for each claim evaluated in this study. Given that all claims had a correlation of .67 or higher, it was noted that attitude toward the brand and purchase intentions were moderately correlated. Also, because all correlations were positive, when attitude toward the brand increased, purchase intentions also increased. Table 4-28 shows the results of the differences in correlations tests.

No significantly different correlations were found between any claim types. It was also noted that the hypothesized order of the claims (structure/function claim > specific...
nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the specific nutrient content claim had a stronger correlation than the general health claim.

This analysis was also conducted controlling for two variables: product category involvement and health concern. Table 4-29 demonstrates differences in the correlations between attitude toward the brand and purchase intentions for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases decreased) for all claim types although still statistically insignificant.

Table 4-30 shows the results of the differences in correlations tests. No significantly different correlations were found when product category involvement and health concern were controlled for. It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between the majority of the correlations was negative. Only the specific nutrient content claim had a stronger correlation than the general health claim. However, Hypothesis 5 was not supported.

Research Question 1

Research question 1 evaluated which of the two variables -- attitude toward the ad or attitude toward the brand -- that were expected to mediate the impact of a type of claim on purchase intentions produced more strongly correlated purchase intentions. Given that the expected differences in correlations were not achieved, no conclusion was reached as to which mediator worked better.

Research Question 2

Research question 2 explored which type of advertised health or nutrition claim (i.e., specific nutrient content, structure/function, general health claims) produced more
positive attitudes toward the ad, attitudes toward the brand, and purchase intention among Hispanic whites. A univariate analysis of variance (ANOVA) was used to detect significant differences between means of the dependent variables.

**Attitude toward the ad**

**ANOVA:** A univariate analysis of variance (ANOVA) was used to detect significant differences between means of the claims on attitude toward the ad among Hispanic whites. Table 4-31 illustrates the means of each of the claims in terms of attitude toward the ad. Although the means of each claim followed the established order, no main effect of claim type, $F(3, 235) = 1.33, p = .27$, was found on attitude toward the ad. Therefore, all of the claims presented had a similar impact on attitude toward the ad (Table 4-30). Similar neither positive nor negative attitude toward the ad resulted when a structure/function claim ($M = 3.16, SD = 1.02$) was presented, when a specific nutrient content claim ($M = 3.08, SD = 1.07$) was presented, when a general health claim ($M = 2.88, SD = 1.00$) was presented, and when a taste claim ($M = 2.82, SD = 1.23$) was presented. Nonetheless, the structure/function claim and the control (taste) claim approached statistical significance at the $p < .10$ level (Table 4-32). This means that when Hispanic whites were exposed to a structure/function claim, they had better attitudes toward the ad than when they were exposed to a control (taste) claim.

**ANCOVA:** Given that literature showed that health concern, product category involvement, and acculturation needed to be controlled for, an analysis of covariance was conducted using those three variables as covariates. Table 4-15 shows the means and standard deviations for these two variables. Before the ANCOVA was conducted,

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52 Attitude toward the ad was measured on a five-item, five-point semantic differential scale.
the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates (product category involvement, health concern, and acculturation) and the dependent variable (attitude toward the ad) did differ significantly as a function of the independent variable (type of claim), $F(4, 234) = 3.03, p = .02$. This means that the independent variable and the covariates did not interact to predict the dependent variable. Therefore, an ANCOVA with these three covariates was not conducted. However, the test of homogeneity-of-regression assumption with just acculturation as the covariate, indicated that the relationship between the covariate (acculturation) and the dependent variable (attitude toward the ad) did not differ significantly as a function of the independent variable (type of claim), $F(4, 234) = 1.52, p = .19$. This means that the independent variable and the covariate interacted to predict the dependent variable. Therefore, an ANCOVA was conducted incorporating acculturation.

Table 4-33 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variance, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(3, 235) = 1.86, p = .14$. The results of the ANCOVA shows that the covariate, acculturation ($F(1, 234) = 2.72, p = .10$) approached being statistically significant. With the incorporation of this covariate, it was concluded that among Hispanic whites the type of claim used in the advertisement did not influence attitude toward the ad, $F(3, 233) = 1.25, p = .29$. 
Attitude toward the brand

ANOVA: A univariate analysis of variance (ANOVA) was used to detect significant differences between means of the claims on attitude toward the brand among Hispanic whites. Table 4-34 illustrates the means of each of the claims in terms of attitude toward the brand. Although the means of each claim followed the established order, no main effect of claim type, $F(3, 235) = 0.17$, $p = .92$, was found on attitude toward the brand. Therefore, all of the claims presented had a similar impact on attitude toward the brand. Similar neither positive nor negative attitude toward the ad resulted when a structure/function claim ($M = 3.09$, $SD = 1.00$) was presented, when a specific nutrient content claim ($M = 3.05$, $SD = 1.16$) was presented, when a general health claim ($M = 3.00$, $SD = 1.03$) was presented, and when a taste claim ($M = 2.96$, $SD = 1.07$) was presented (Table 4-35).

ANCOVA: Given that literature showed that health concern, product category involvement, and acculturation needed to be controlled for, an analysis of covariance was conducted using those three variables as covariates. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates (product category involvement, health concern, and acculturation) and the dependent variable (attitude toward the ad) did not differ significantly as a function of the independent variable (type of claim), $F(4, 234) = 2.07$, $p = .09$. This meant that the independent variable and the covariates interacted to predict the dependent variable. Therefore, an ANCOVA was conducted.

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53 Attitude toward the brand was measured on a five-item, five-point semantic differential scale.
Table 4 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variance, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(3, 235) = 0.47, p = .99$. The results of the ANCOVA show that two of the covariates were significant (product category involvement ($F(1, 235) = 5.31, p = .02$) and health concern ($F(1, 235) = 6.30, p = .01$)), while acculturation was not, $F(1, 235) = 1.43, p = .23$). With the incorporation of these covariates, it was concluded that among Hispanic whites the type of claim used in the advertisement did not influence attitude toward the brand, $F(3, 232) = 0.20, p = .90$.

**Attitude toward the ad * attitude toward the brand**

The relationship (correlation) between attitude toward the ad and attitude toward the brand was also tested among Hispanics. To test this relationship a difference of correlation was conducted. This was done following a series of steps. First, the correlation between attitude toward the ad and attitude toward the brand was calculated using SPSS software for each type of claim. Second, the differences in correlations were calculated using the SISA software (SISA, n.d.) and the Fisher r-to-z transformation (VassarStats, 2001-2012). The analysis was conducted twice. The first time no covariates were taken into consideration. In the second analysis, the three main interval covariates (product category involvement, health concern, and acculturation) were included in the analysis.

Table 4 shows the correlations between attitude toward the ad and attitude toward the brand for each claim evaluated in this study. Given that all claims had a correlation of .66 or higher, it was noted that attitude toward the ad and attitude toward the brand were moderately to highly correlated. Also, because all correlations were positive, attitude toward the ad and attitude toward the brand were positively correlated.
Therefore, when attitude toward the ad increased, attitude toward the brand also increased.

Table 4-38 shows the results of the differences in correlations tests. The only different correlations that approached statistical significance at a \( p \leq .10 \) level were between the structure/function claim \((r = .66)\) and the specific nutrient content claim \((r = .81)\) \((p = .10)\) and between the specific nutrient content claim \((r = .81)\) and the general health claim \((r = .66)\) \((p = .09)\). This means that attitude toward the ad and attitude toward the brand were more correlated when a specific nutrient content claim was present than when a structure/function claim was present. The specific nutrient content claim had a higher correlation than the general health claim. This means that attitude toward the ad and attitude toward the brand were more correlated when a specific nutrient content claim was present than when a general health claim was present. It was also noted that the specific nutrient content claim had a stronger correlation than the control (taste) claim.

This analysis was also run controlling for three variables: product category involvement, health concern, and acculturation. Table 4-39 demonstrates that there were differences in the correlations between attitude toward the ad and attitude toward the brand for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases decreased) for all claim types although still statistically insignificant.

Table 4-40 shows the results of the differences in correlations tests. No significantly different correlations were found when product category involvement,
health concern, and acculturation were controlled for. Therefore, the differences previously noted could have been due to other variables and not the claim type.

It was also noted that in addition to the correlation of the specific nutrient content claim being stronger than the correlation of the general health claim and the control (taste) claim, with the inclusion of the covariates, the correlation of the structure/function claim was stronger than the correlation of the general health claim.

**Attitude toward the ad * purchase intentions**

The relationship (correlation) between attitude toward the ad and purchase intentions was also tested among Hispanics. To test this relationship a difference of correlation test was conducted. The aforementioned procedure was followed.

Table 4-41 shows the correlations between attitude toward the ad and purchase intentions for each claim evaluated in this study. Given that all claims had a correlation of .60 or higher, it was noted that attitude toward the ad and purchase intentions were moderately to highly correlated. Also, because all correlations were positive, attitude toward the ad and purchase intentions were positively correlated. Therefore, when attitude toward the ad increased, purchase intentions also increased.

Table 4-42 shows the results of the differences in correlations tests. Two significantly different correlations (at a p <.05 level) were found. The first was between the specific nutrient content claim ($r = .82$) and the general health claim ($r = .60$) ($p = .01$). This means that attitude toward the ad and purchase intentions were more correlated when a specific nutrient content claim was present than when a general health claim was present. The second significantly different correlation found was between the general health claim ($r = .60$) and the control (taste) claim ($r = .80$) ($p = .03$). This means that attitude toward the ad and purchase intentions were more
correlated when a control (taste) claim was present than when a general health claim was present. It was also noted that the specific nutrient content claim had a stronger correlation than the general health claim and the control (taste) claim.

This analysis was also conducted controlling for three variables: product category involvement, health concern, and acculturation. Table 4-43 demonstrates that there were differences in the correlations between attitude toward the ad and purchase intentions for each type of claim evaluated. The correlations between the variables decreased for all claim types although still statistically insignificant.

Table 4-44 shows the results of the differences in correlations tests. When covariates were included, significant differences were found between the correlations of attitude toward the ad and purchase intentions for the specific nutrient content claim ($r = .76$) and the general health claim ($r = .55$) ($p = .04$). This means that attitude toward the ad was more correlated to purchase intentions when a specific nutrient content claim was present than when a general health claim was present. Another significant difference was noted between the correlations of attitude toward the ad and purchase intentions for the general health claim ($r = .55$) and the control (taste) claim ($r = .79$) ($p = .01$). This means that attitude toward the ad was more correlated to purchase intentions when a control (taste) claim was present than when a general health claim was present.

It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was obtained only for the structure/function claim when compared to the general health claim and the control (taste) claim, as well as the specific nutrient content claim and the general health claim.
Attitude toward the brand * purchase intentions

The relationship (correlation) between attitude toward the brand and purchase intentions was also tested among Hispanics. To test this hypothesis a difference of correlation was conducted.

Table 4-45 shows the correlations between attitude toward the brand and purchase intentions for each claim evaluated in this study. Given that all claims had a correlation of .67 or higher, it was noted that attitude toward the brand and purchase intentions were moderately to highly correlated. Also, because all correlations were positive, attitude toward the brand and purchase intentions were positively correlated. Therefore, when attitude toward the brand increased, purchase intentions also increased. Table 4-46 shows the results of the differences in correlations tests.

One significantly different correlation (at a \( p < .05 \) level) was found. This was between the specific nutrient content claim \( (r = .84) \) and the general health claim \( (r = .67) \) \( (p = .03) \). This means that attitude toward the brand and purchase intentions were more highly correlated when a specific nutrient content claim was present than when a general health claim was present.

It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was obtained for most comparisons. The correlation between the dependent variables was stronger for the structure/function claim than the general health claim and the control (taste) claim. The correlation between the dependent variables was also stronger for the specific nutrient content claim than the general health claim and the control (taste) claim.
This analysis was also conducted controlling for three variables: product category involvement, health concern, and acculturation. Table 4-47 demonstrates that there were differences in the correlations between attitude toward the brand and purchase intentions for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases decreased) for all claim types although still statistically insignificant.

Table 4-48 shows the results of the differences in correlations tests. When covariates were included, no significant differences were found between the correlations of any claim types. It was noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was obtained for most comparisons. The correlation between the dependent variables was stronger for the structure/function claim than the specific nutrient content claim, the general health claim and the control (taste) claim. The correlation between the dependent variables was also stronger for the specific nutrient content claim than the general health claim and the control (taste) claim.

**Research Question 3**

The last research question evaluated whether the advertised food claims’ effectiveness (attitudes and purchase intentions) significantly differed between Hispanic whites and non-Hispanic whites. First, the same analysis conducted for all participants and for Hispanic whites was carried out among non-Hispanic whites. Then, since this research question contained two independent variables -- type of claim and ethnicity -- and three dependent variables – attitude toward the ad, attitude toward the brand, and purchase intentions – three ANOVAS were conducted. The analysis was also conducted incorporating several covariates to test for their influence (ANCOVA).
Attitude Toward the Ad: Non-Hispanic Whites

ANOVA

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-49 illustrates the means of each of the claims in terms of attitude toward the ad. No main effect of claim type, $F(3, 221) = 0.046, p = .99$, was found on attitude toward the ad. Therefore, all of the claims presented had a similar impact on attitude toward the ad. Similarly, neither positive nor negative attitude toward the ad resulted when a structure/function claim ($M = 3.01, SD = 0.87$) was presented, when a specific nutrient content claim ($M = 3.04, SD = 0.93$) was presented, when a general health claim ($M = 2.99, SD = 0.98$) was presented, or when a taste claim ($M = 3.05, SD = 0.81$) was presented (Table 4-50).

ANCOVA

Given that literature showed that health concern (Fishbein, 1965; Gould, 1988; Palmgreen & Rayburn II, 1982) and product category involvement (Lutz, MacKenzie, & Belch, 1983) needed to be controlled for, an analysis of covariance was conducted using the two variables as covariates. Table 4-15 shows the means and standard deviations for these two variables. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates (product category involvement and health concern) and the dependent variable (attitude toward the ad) did not differ significantly as a function of the independent variable (type of claim), $F(4, 220) = 0.91, p = .46$. This means that the attitude toward the ad was measured in a five-item five-point semantic differential scale.

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54 Attitude toward the ad was measured in a five-item five-point semantic differential scale.
independent variable and the covariates interacted to predict the dependent variable. Therefore, an ANCOVA was conducted.

Table 4-51 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variance, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(3, 221) = 1.11, p = .35$. The results of the ANCOVA showed that the only significant covariate was product category involvement ($F(1, 219) = 4.68, p = 0.03$). With the incorporation of these covariates, it was concluded that, among non-Hispanic whites, the type of claim used in the advertisement did not influence attitude toward the ad, $F(3, 219) = 0.03, p = .99$.

**Attitude Toward the Brand: Non-Hispanic Whites**

**ANOVA**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-52 illustrates the means of each of the claims in terms of attitude toward the brand. No main effect of claim type, $F(3, 221) = 0.188, p = .90$, was found to impact attitude toward the brand. Therefore, all of the claims presented had a similar impact on attitude toward the brand. Similarly neither positive nor negative attitude toward the brand resulted when a structure/function claim ($M = 3.12, SD = 0.82$) was presented, when a specific nutrient content claim ($M = 3.12, SD = 0.89$) was presented, when a general health claim ($M = 3.21, SD = 0.84$) was presented, and when a taste claim ($M = 3.11, SD = 0.86$) was presented (Table 4-53).

**ANCOVA**

Given that literature showed that health concern and product category involvement needed to be controlled for, an analysis of covariance was conducted using the two variables as covariates. Before the ANCOVA was conducted, the homogeneity-of-variance for the ANCOVA was met, $F(3, 221) = 1.11, p = .35$.
regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that, the relationship between the covariates (product category involvement and health concern) and the dependent variable (attitude toward the ad) did not differ significantly as a function of the independent variable (type of claim), $F(2, 220) = 0.96, p = .43$. This means that the independent variable and the covariates interacted to predict the dependent variable. Therefore, an ANCOVA was conducted.

Table 4-54 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variance, it can be seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(3, 221) = 0.26, p = .85$. The ANCOVA showed that the only significant covariate was product category involvement ($F(1, 219) = 7.53, p = 0.01$). With the incorporation of this covariate, it was concluded that among non-Hispanic whites the type of claim used in the advertisement did not influence attitude toward the brand, $F(3, 221) = 0.15, p = 0.93$.

**Attitude Toward the Ad * Attitude Toward the Brand: Non-Hispanic Whites**

Table 4-55 shows the correlations between attitude toward the ad and attitude toward the brand for each claim evaluated in this study. Given that all claims had a correlation of .71 or higher, it was noted that attitude toward the ad and attitude toward the brand were moderately to highly correlated. Also, because all correlations were positive, attitude toward the ad and attitude toward the brand were positively correlated. Therefore, when attitude toward the ad increased, attitude toward the brand also increased.

Table 4-56 shows the results of the differences in correlations tests. There were no significantly different correlations at a $p \leq .05$ level. However, a marginally significant
difference in correlation was found at the $p \leq .10$ level. The structure/function claim ($r = .71$), and the control (taste) claim ($r = .84$), obtained a p-value of $p = .08$. This means that attitude toward the ad and attitude toward the brand were more strongly correlated when a control (taste) claim was present, than when a structure/function claim was present. This was opposite to what was originally hypothesized. Also, it was noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained, given that the difference between all correlations was negative.

As previously mentioned, the analysis was also run controlling for two variables: product category involvement and health concern. Table 4-57 demonstrates small differences in the correlations between attitude toward the ad and attitude toward the brand for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases decreased) for all claim types although they were still statistically insignificant.

Table 4-58 shows the results of the differences in correlations tests. The only significantly different correlation (at a $p \leq .05$ level) was between the structure/function claim ($r = .70$) and the control (taste) claim ($r = .85$) ($p = .05$). This means that attitude toward the ad and attitude toward the brand were more strongly correlated when a control (taste) claim was present, than when a structure/function claim was present. This order was opposite to what was originally hypothesized. However, it should be noted that when the covariates were controlled for, the correlation between attitude toward the ad and attitude toward the brand for these two claims was, in fact stronger. Therefore, the correlation could have been due to the type of claim presented.
Also, it was noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that the difference between all correlations was negative.

**Attitude Toward the Ad * Purchase Intention: Non-Hispanic Whites**

More detailed/objective health or nutrition claims were expected to produce a stronger relationship between attitude toward the ad and purchase intentions. To test this hypothesis a difference of correlation was conducted. The same procedure as in hypotheses 3 through 5 was followed.

Table 4-59 shows the correlations between attitude toward the ad, and purchase intentions for each claim evaluated in this study. Given that all claims had a correlation of .60 or higher, it was noted that attitude toward the ad and purchase intentions were moderately correlated. Also, because all correlations were positive, attitude toward the ad and purchase intentions were positively correlated. Therefore, when attitude toward the ad increased, purchase intentions also increased. Table 4-60 shows the results of the differences in correlations tests.

No significant differences in correlations were found between any two claims. It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained because the difference between the majority of the correlations was negative. Only the structure/function claim had a stronger correlation than the specific nutrient content claim, and the general health claim.

As previously mentioned, this analysis was also conducted controlling for two variables: product category involvement and health concern. Table 4-61 demonstrates the differences seen in the correlations between attitude toward the ad and purchase
intentions for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases increased) for all claim types although still statistically insignificant.

Table 4-62 shows the results of the differences in correlations tests. No significant difference in correlations was found between any two claims. It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that, the difference between the majority of the correlations was negative. Only the structure/function claim had a stronger correlation than the specific nutrient content claim, the general health claim, and the control (taste) claim.

Therefore, the only conclusions drawn from this analysis were that the structure/function claim had a stronger correlation between attitude toward the ad and purchase intentions, than the specific nutrient content claim, the general health claim, and the control (taste) claim (as hypothesized), but the results were not statistically significant.

**Attitude Toward the Brand * Purchase Intention: Non-Hispanic Whites**

More detailed/objective health or nutrition claims were expected to produce a stronger relationship between, attitude toward the brand and purchase intentions. To test this relationship a difference of correlation was conducted. The aforementioned procedure was followed.

Table 4-63 shows the correlations between attitude toward the brand and purchase intentions for each claim evaluated in this study. Given that all claims had a correlation of .56 or higher, it was noted that attitude toward the brand and purchase intentions were low to moderately correlated. Also, because all correlations were
positive, attitude toward the brand and purchase intentions were positively correlated. Therefore, when attitude toward the brand increased, purchase intentions also increased.

Table 4-64 shows the results of the differences in correlations tests. A significant difference in correlation was found at the $p \leq .05$ level. The structure/function claim ($r = .56$) and the control (taste) claim ($r = .77$) obtained a $p$-value of $p = .046$. This means that attitude toward the brand and purchase intentions were more correlated when a control (taste) claim was present, than when a structure/function claim was present. This order was opposite to what was originally hypothesized. It was also noted that the hypothesized order of the claims (structure/function claim $>$ specific nutrient content claim $>$ general health claim $>$ control (taste) claim) was not obtained given that, the difference between all of the correlations was negative.

As previously mentioned, this analysis was also run controlling for two variables: product category involvement and health concern. Table 4-65 demonstrates small differences in the correlations between attitude toward the brand and purchase intentions for each type of claim evaluated. The correlations between the variables slightly varied (in the majority of the cases increased) for all claim types, although still statistically insignificant.

Table 4-66 shows the results of the differences in correlations tests. The only correlation that approached a significant difference in correlation ($p \leq .10$ level) was that between the structure/function claim ($r = .60$), and the control (taste) claim ($r = .78$) ($p = .07$). This means that attitude toward the brand and purchase intentions were more correlated when a control (taste) claim was present than when a structure/function claim
was present. This order is opposite to what was originally hypothesized. However, it should also be noted that when the covariates were controlled for, the correlation between attitude toward the brand and purchase intentions for these two claims was weaker.

It was also noted that the hypothesized order of the claims (structure/function claim > specific nutrient content claim > general health claim > control (taste) claim) was not obtained given that, the difference between the all of the correlations was negative.

The conclusion drawn from this analysis was that type of claim had no effect on the correlation between attitude toward the brand and purchase intention. However, the structure/function claim had a stronger correlation between attitude toward the brand and purchase intentions than the control (taste) claim, as hypothesized.

**ANOVA: Type of claim and ethnicity’s impact on attitude toward the ad**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. In contrast to previous analyses conducted, the differences of means conducted from now on incorporate a second independent variable: ethnicity.

Table 4-67 illustrates the means of each of the claims per ethnicity in terms of attitude toward the ad. No main effect of claim type, $F(3, 456) = 0.80, p = .50$, was found on attitude toward the ad. Also, no main effect of ethnicity, $F(1, 456) = 0.17, p = .68$, was found on attitude toward the ad. In addition, no interaction effect was found, $F(3, 456) = 0.76, p = .52$. Therefore, all of the claims presented had a similar impact on attitude toward the ad, regardless of the ethnicity of the participant. Similarly, neither positive nor negative attitude toward the ad resulted when a structure/function claim was presented to non-Hispanic whites ($M = 3.05, SD = 0.81$) and Hispanic whites ($M = 3.16, SD = 1.02$), when a specific nutrient content claim was presented to non-Hispanic
whites ($M = 2.99$, $SD = 0.98$) and Hispanic whites ($M = 3.08$, $SD = 1.07$), a general health claim was presented to non-Hispanic whites ($M = 3.04$, $SD = 0.93$) and Hispanic whites ($M = 2.88$, $SD = 1.00$), and when a taste claim was presented to non-Hispanic whites ($M = 3.01$, $SD = 0.87$) and Hispanic whites ($M = 2.92$, $SD = 1.07$).

**ANCOVA: Type of claim and ethnicity’s impact on attitude toward the ad**

Given that the literature showed that health concern and product category involvement needed to be controlled for, an analysis of covariance was conducted using those two variables as covariates, as well as age, years spent in the U.S., and reading proficiency, which analysis showed were significantly different between both levels of the ethnicity variable. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates and the dependent variable did differ significantly as a function of the independent variables, $F(8, 455) = 2.31$, $p = .02$. Other combinations of covariates were also tested. However, none resulted in non-significant results that would indicate that the independent variables and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was not conducted.

**ANOVA: Type of claim and ethnicity’s impact on attitude toward the brand**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-68 illustrates the means of each of the claims per ethnicity in terms of attitude toward the brand. No main effect of claim type, $F(3, 456) = 0.15$, $p = .93$, was found on attitude toward the brand. Also, no main effect of ethnicity, $F(1, 456) = 1.65$, $p = .20$, was found on attitude toward the brand. In addition, no interaction effect was found, $F(3, 456) = 0.21$, $p = .89$. Therefore, all of the claims
presented had a similar impact on attitude toward the brand, regardless of the ethnicity of the participant. Similarly, neither positive nor negative attitude toward the brand resulted when a structure/function claim was presented to non-Hispanic whites ($M = 3.12, SD = 0.82$) and Hispanic whites ($M = 3.09, SD = 1.00$), a specific nutrient content claim was presented to non-Hispanic whites ($M = 3.12, SD = 0.89$) and Hispanic whites ($M = 3.05, SD = 1.16$), a general health claim was presented to non-Hispanic whites ($M = 3.21, SD = 0.84$) and Hispanic whites ($M = 3.00, SD = 1.03$), and when a taste claim was presented to non-Hispanic whites ($M = 3.11, SD = 0.86$) and Hispanic whites ($M = 2.96, SD = 1.07$).

**ANCOVA: Type of claim and ethnicity’s impact on attitude toward the brand**

Given that literature showed that health concern and product category involvement needed to be controlled for, an analysis of covariance was conducted using those two variables as covariates, as well as age, years spent in the U.S., and reading proficiency, which analysis showed were significantly different between both levels of the ethnicity variable. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that, the relationship between the covariates and the dependent variable did not differ significantly as a function of the independent variables, $F(8, 455) = 1.24, p = .27$. This means that the independent variables and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was conducted.

Table 4-69 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variances, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(7, 456) = 1.92, p = .06$. The results of the ANCOVA show that the significant covariates were product category involvement ($F(1, 451) = 15.97, p =$
0.00), age \((F(1, 451) = 4.10, p = 0.04)\), and reading proficiency \((F(1, 451) = 3.78, p = 0.05)\). Ethnicity \((F(1, 451) = 10.58, p = 0.001)\) was found to influence (main effect) attitude toward the brand. Non-Hispanic whites \((M = 3.13, SE = 0.06)\) reported higher attitudes toward the brand than Hispanic whites \((M = 3.02, SE = 0.06)\). Nonetheless, type of claim \((F(3, 451) = 0.24, p = 0.87)\), and the interaction between type of claim and ethnicity \((F(3, 451) = 0.17, p = 0.92)\), were not statistically significant. With the incorporation of these covariates, it was concluded that only ethnicity influenced attitude toward the brand. Non-Hispanic whites reported higher attitudes toward the brand without regard to the type of claim presented, since the independent variables (type of claim and ethnicity) were not statistically significant when they interacted. Therefore, ethnicity and type of claim (together) did not affect communication effectiveness.

**ANOVA: Type of claim and ethnicity’s impact on purchase intentions**

A univariate analysis of variance (ANOVA) was used to detect significant differences between means. Table 4-70 illustrates the means of each of the claims per ethnicity in terms of purchase intentions. No main effect of claim type, \(F(3, 456) = 1.16, p = .33\), was found on purchase intentions. Also, no main effect of ethnicity, \(F(1, 456) = 0.96, p = .33\), was found on purchase intentions. In addition, no interaction effect was found, \(F(3, 456) = 1.82, p = .14\). Therefore, all of the claims presented had a similar impact on purchase intentions, regardless of the ethnicity of the participant. Similarly, low purchase intentions resulted when a structure/function claim was presented to non-Hispanic whites \((M = 2.72, SD = 1.27)\) and Hispanic whites \((M = 2.73, SD = 1.16)\), a specific nutrient content claim was presented to non-Hispanic whites \((M = 2.42, SD = 1.05)\) and Hispanic whites \((M = 2.98, SD = 1.40)\), a general health claim was presented to non-Hispanic whites \((M = 2.68, SD = 1.11)\) and Hispanic whites \((M = 2.55, SD = \)
1.31), and when a taste claim was presented to non-Hispanic whites \((M = 2.46, SD = 1.03)\) and Hispanic whites \((M = 2.45, SD = 1.27)\).

**ANCOVA: Type of claim and ethnicity’s impact on purchase intentions**

Given that the literature showed that health concern and product category involvement needed to be controlled for, an analysis of covariance was conducted using those two variables as covariates, as well as age, years spent in the U.S., and reading proficiency, which analysis showed were significantly different between both levels of the ethnicity variable. Before the ANCOVA was conducted, the homogeneity-of-regression (slope) assumption was tested. The preliminary analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates and the dependent variable did differ significantly as a function of the independent variables, \(F(8, 455) = 2.06, p = .04\). Therefore, other combinations of covariates were tested. Three combinations resulted in interactions between the independent variables and the covariates.

First, when the three variables that differed among ethnicities -- age, number of years spent in the U.S., and reading proficiency -- were tested, the analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates and the dependent variable did not differ significantly as a function of the independent variables, \(F(8, 455) = 1.28, p = .87\). This means that the independent variables and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was conducted.

Table 4-71 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variances, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, \(F(7, 456) = 1.90, p = .07\). The results of the ANCOVA show
that the significant covariates were age \((F(1, 453) = 10.55, p = 0.001)\), and reading proficiency \((F(1, 453) = 6.92, p = 0.009)\). Ethnicity \((F(1, 453) = 0.50, p = 0.06)\) was found to marginally influence purchase intentions. Non-Hispanics had slightly higher \((M = 2.76, SE = 0.09)\), yet still low, purchase intentions compared to Hispanics \((M = 2.50, SE = 0.09)\). In addition, type of claim \((F(3, 453) = 1.17, p = 0.32)\), and the interaction between type of claim and ethnicity, \((F(3, 453) = 1.39, p = 0.25)\) were not statistically significant. With the incorporation of these covariates, it was concluded that only ethnicity marginally influenced purchase intentions.

Second, when the three variables that differed among ethnicities -- age, number of years spent in the U.S., and reading proficiency -- were tested along with product category involvement, the analysis evaluating the homogeneity-of-regression assumption indicated that the relationship between the covariates and the dependent variable did not differ significantly as a function of the independent variables, \(F(8, 455) = 1.67, p = 0.11\). This means that the independent variables and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was conducted.

Table 4-72 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variances, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, \(F(7, 456) = 1.90, p = 0.07\). The results of the ANCOVA show that the significant covariates were age \((F(1, 452) = 12.51, p = 0.00)\), and reading proficiency \((F(1, 452) = 9.51, p = 0.002)\). Ethnicity \((F(1, 452) = 4.24, p = 0.04)\) was found to influence purchase intentions. Non-Hispanics had slightly higher \((M = 2.77, SE = 0.09)\), yet still low, purchase intentions compared to Hispanics \((M = 2.49, SE = 0.08)\). In addition, type of claim \((F(3, 452) = 1.63, p = 0.18)\), and the interaction between type of
claim and ethnicity ($F(3, 452) = 0.90, p = 0.44$), were not statistically significant. With the incorporation of these covariates, it was concluded that only ethnicity influenced purchase intentions.

Third, when the three variables that differed among ethnicities (age, number of years spent in the U.S., and reading proficiency) were tested along with health concern, the analysis evaluating the homogeneity-of-regression assumption indicated that, the relationship between the covariates and the dependent variable did not differ significantly as a function of the independent variables, $F(8, 455) = 1.05, p = 0.40$. This means that the independent variables and the covariates interacted to predict the dependent variables. Therefore, an ANCOVA was conducted.

Table 4-73 shows the results of the ANCOVA analysis. From Levene’s test of equality of error variances, it was seen that the assumption of homogeneity-of-variance for the ANCOVA was met, $F(7, 456) = 1.49, p = 0.17$. The results of the ANCOVA show that the significant covariates were age ($F(1, 452) = 8.49, p = 0.004$), and reading proficiency ($F(1, 452) = 7.10, p = 0.008$). Ethnicity ($F(1, 452) = 7.02, p = 0.008$) was found to influence purchase intentions. Non-Hispanics had slightly higher ($M = 2.78, SE = 0.09$), yet still low, purchase intentions compared to Hispanics ($M = 2.48, SE = .09$). In addition, type of claim ($F(3, 452) = 1.01, p = 0.39$) and the interaction between type of claim and ethnicity ($F(3, 452) = 1.35, p = 0.26$) were not statistically significant. With the incorporation of these covariates, it was concluded that only ethnicity influenced purchase intentions.
Table 4-1. Mean of variables between ethnicities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ethnicity</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Non-Hispanics</td>
<td>3.97</td>
<td>2.12</td>
<td>1.00</td>
<td>7.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>3.68</td>
<td>1.97</td>
<td>1.00</td>
<td>7.00</td>
<td>239</td>
</tr>
<tr>
<td>Education</td>
<td>Non-Hispanics</td>
<td>4.29</td>
<td>1.26</td>
<td>1.00</td>
<td>7.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>4.21</td>
<td>1.39</td>
<td>1.00</td>
<td>7.00</td>
<td>239</td>
</tr>
<tr>
<td>Reading Proficiency</td>
<td>Non-Hispanics</td>
<td>4.97</td>
<td>0.16</td>
<td>4.00</td>
<td>5.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>4.48</td>
<td>0.76</td>
<td>2.00</td>
<td>5.00</td>
<td>239</td>
</tr>
<tr>
<td>Age</td>
<td>Non-Hispanics</td>
<td>25.14</td>
<td>5.46</td>
<td>18.00</td>
<td>48.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>31.58</td>
<td>11.32</td>
<td>18.00</td>
<td>54.00</td>
<td>239</td>
</tr>
<tr>
<td>Sex</td>
<td>Non-Hispanics</td>
<td>1.41</td>
<td>0.52</td>
<td>1.00</td>
<td>3.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>1.49</td>
<td>0.50</td>
<td>1.00</td>
<td>3.00</td>
<td>239</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>Non-Hispanics</td>
<td>24.39</td>
<td>5.66</td>
<td>1.00</td>
<td>48.00</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
<td>17.37</td>
<td>13.10</td>
<td>1.00</td>
<td>53.00</td>
<td>239</td>
</tr>
<tr>
<td>BMI</td>
<td>Non-Hispanics</td>
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<td>6.07</td>
<td>18.01</td>
<td>56.49</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Hispanics</td>
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<td>6.46</td>
<td>15.55</td>
<td>61.33</td>
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</table>

Table 4-2. Significant differences between ethnicities per variable

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<thead>
<tr>
<th>Variable</th>
<th>t-value</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
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<td>462</td>
<td>0.13</td>
</tr>
<tr>
<td>Education</td>
<td>0.68</td>
<td>462</td>
<td>0.50</td>
</tr>
<tr>
<td>Reading Proficiency</td>
<td>9.51</td>
<td>462</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Age</td>
<td>-7.73</td>
<td>462</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Sex</td>
<td>-1.61</td>
<td>462</td>
<td>0.11</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>7.41</td>
<td>462</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>BMI</td>
<td>0.48</td>
<td>462</td>
<td>0.63</td>
</tr>
</tbody>
</table>

*p ≤ .05

Table 4-3. Means of level of objectivity per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>4.86</td>
<td>1.48</td>
<td>1.00</td>
<td>7.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>4.33</td>
<td>1.48</td>
<td>1.00</td>
<td>7.00</td>
<td>109</td>
</tr>
<tr>
<td>General Health</td>
<td>3.68</td>
<td>1.26</td>
<td>1.00</td>
<td>6.20</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>3.52</td>
<td>1.49</td>
<td>1.00</td>
<td>7.00</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-4. Pairwise comparisons level of objectivity per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.38</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.38</td>
</tr>
</tbody>
</table>

* p<0.05

Table 4-5. Means of level of detail per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>4.86</td>
<td>1.48</td>
<td>1.00</td>
<td>6.80</td>
<td>117</td>
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<tr>
<td>Specific Nutrient Content</td>
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<td>1.48</td>
<td>1.00</td>
<td>7.00</td>
<td>109</td>
</tr>
<tr>
<td>General Health</td>
<td>3.68</td>
<td>1.26</td>
<td>1.00</td>
<td>6.40</td>
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<td>Control (taste)</td>
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<td>1.49</td>
<td>1.00</td>
<td>7.00</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-6. Pairwise comparisons level of detail per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.67</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

* p<0.05
Table 4-7. Number of participants who rated claims as health-related

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Health Claim</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Agreed</td>
<td>Neutral</td>
<td>Disagreed</td>
<td>Total</td>
<td></td>
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<tr>
<td>Structure/function claim</td>
<td>87</td>
<td>12</td>
<td>18</td>
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<tr>
<td>Specific nutrient content claim</td>
<td>80</td>
<td>15</td>
<td>14</td>
<td>109</td>
<td></td>
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<tr>
<td>General health claim</td>
<td>72</td>
<td>13</td>
<td>38</td>
<td>123</td>
<td></td>
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<td>22</td>
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<td>77</td>
<td>115</td>
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</tbody>
</table>

Table 4-8. Number of participants who rated claims as taste-related

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Taste Claim</th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
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<td>Neutral</td>
<td>Disagreed</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Structure/function claim</td>
<td>26</td>
<td>24</td>
<td>67</td>
<td>117</td>
<td></td>
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<tr>
<td>Specific nutrient content claim</td>
<td>49</td>
<td>27</td>
<td>33</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>General health claim</td>
<td>52</td>
<td>33</td>
<td>38</td>
<td>123</td>
<td></td>
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<tr>
<td>Control (taste) claim</td>
<td>89</td>
<td>15</td>
<td>11</td>
<td>115</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-9. Descriptives on believability of ad per claim type

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function claim</td>
<td>4.29</td>
<td>1.57</td>
<td>1.00</td>
<td>7.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content claim</td>
<td>4.00</td>
<td>1.63</td>
<td>1.00</td>
<td>7.00</td>
<td>109</td>
</tr>
<tr>
<td>General health claim</td>
<td>3.92</td>
<td>1.56</td>
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<td>7.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste) claim</td>
<td>3.89</td>
<td>1.61</td>
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<tr>
<td>Total</td>
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<td>1.59</td>
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</tr>
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</table>

Table 4-10. Univariate analysis of variance of respondent characteristics (all participants)

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.22</td>
<td>0.88</td>
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<tr>
<td>Sex</td>
<td>2.02</td>
<td>0.11</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>0.40</td>
<td>0.75</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>0.70</td>
<td>0.55</td>
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<tr>
<td>Education</td>
<td>1.31</td>
<td>0.27</td>
</tr>
<tr>
<td>Income</td>
<td>0.71</td>
<td>0.55</td>
</tr>
<tr>
<td>BMI</td>
<td>0.55</td>
<td>0.65</td>
</tr>
</tbody>
</table>
Table 4-11. Univariate analysis of variance of respondent characteristics (non-Hispanic whites)

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.48</td>
<td>0.88</td>
</tr>
<tr>
<td>Sex</td>
<td>0.71</td>
<td>0.55</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>0.12</td>
<td>0.95</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>1.16</td>
<td>0.33</td>
</tr>
<tr>
<td>Education</td>
<td>0.98</td>
<td>0.40</td>
</tr>
<tr>
<td>Income</td>
<td>0.14</td>
<td>0.94</td>
</tr>
<tr>
<td>BMI</td>
<td>1.77</td>
<td>0.15</td>
</tr>
</tbody>
</table>

Table 4-12. Univariate analysis of variance of respondent characteristics (Hispanic whites)

<table>
<thead>
<tr>
<th>Variable</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.72</td>
<td>0.54</td>
</tr>
<tr>
<td>Sex</td>
<td>1.30</td>
<td>0.28</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>0.67</td>
<td>0.57</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>0.96</td>
<td>0.41</td>
</tr>
<tr>
<td>Education</td>
<td>1.00</td>
<td>0.39</td>
</tr>
<tr>
<td>Income</td>
<td>0.93</td>
<td>0.43</td>
</tr>
<tr>
<td>BMI</td>
<td>1.11</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Table 4-13. Means of each claim for attitude toward the ad for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.11</td>
<td>0.92</td>
<td>1.00</td>
<td>5.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.04</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>109</td>
</tr>
<tr>
<td>General Health</td>
<td>2.95</td>
<td>0.97</td>
<td>1.00</td>
<td>5.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>2.92</td>
<td>1.08</td>
<td>1.00</td>
<td>5.00</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-14. Pairwise comparisons for attitude toward the ad per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>0.60</td>
</tr>
<tr>
<td>General Health</td>
<td>General Health</td>
<td>0.24</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Control (taste)</td>
<td>0.15</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>0.60</td>
</tr>
<tr>
<td>General Health</td>
<td>General Health</td>
<td>0.52</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Control (taste)</td>
<td>0.37</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.24</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Specific Nutrient Content</td>
<td>0.52</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Control (taste)</td>
<td>0.78</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.15</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Specific Nutrient Content</td>
<td>0.37</td>
</tr>
<tr>
<td>General Health</td>
<td>Control (taste)</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Table 4-15. Means and standard deviations for product category involvement and health concern

<table>
<thead>
<tr>
<th>Product Category Involvement</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>3.73</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>3.73</td>
<td>0.88</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>NH</td>
<td>3.75</td>
<td>1.16</td>
<td>1.00</td>
<td>5.00</td>
<td>3.56</td>
<td>0.83</td>
<td>1.50</td>
<td>5.00</td>
</tr>
<tr>
<td>H</td>
<td>3.71</td>
<td>0.99</td>
<td>1.00</td>
<td>5.00</td>
<td>3.89</td>
<td>0.89</td>
<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

AP – all participants
NH – non-Hispanics
H – Hispanics

Table 4-16. ANCOVA test on attitude toward the ad with two covariates for all participants

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>12.10</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>9.24</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>0.83</td>
<td>0.48</td>
</tr>
</tbody>
</table>

* p≤0.05

Table 4-17. Means of each claim for attitude toward the brand for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.11</td>
<td>0.91</td>
<td>1.00</td>
<td>5.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.09</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>109</td>
</tr>
<tr>
<td>General Health</td>
<td>3.10</td>
<td>0.95</td>
<td>1.00</td>
<td>5.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>3.03</td>
<td>0.97</td>
<td>1.00</td>
<td>5.00</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-18. Pairwise comparisons for attitude toward the brand per claim for all participants

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.56</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.68</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.60</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Table 4-19. Correlation between attitude toward the ad and attitude toward the brand per claim for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.68</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.79</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.73</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.74</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-20. Differences of correlations (attitude toward the ad * attitude toward the brand) for all participants

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.11</td>
<td>-1.77</td>
<td>0.08</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.05</td>
<td>-0.79</td>
<td>0.43</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.07</td>
<td>-0.98</td>
<td>0.33</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.06</td>
<td>1.02</td>
<td>0.31</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.05</td>
<td>0.80</td>
<td>0.42</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.01</td>
<td>-0.21</td>
<td>0.83</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)
Table 4-21. Correlation between attitude toward the ad and attitude toward the brand per claim (with covariates) for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.67</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.76</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.72</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.74</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-22. Differences of correlations (attitude toward the ad * attitude toward the brand) for all participants when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.08</td>
<td>-1.28</td>
<td>0.20</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.05</td>
<td>-0.67</td>
<td>0.50</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.07</td>
<td>-0.99</td>
<td>0.32</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.04</td>
<td>0.64</td>
<td>0.52</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.02</td>
<td>0.30</td>
<td>0.76</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>-0.34</td>
<td>0.74</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)

Table 4-23. Correlation between attitude toward the ad and purchase intentions per claim for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.67</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.72</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.62</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.75</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-24. Differences of correlations (attitude toward the ad * purchase intentions) for all participants

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.05</td>
<td>-0.65</td>
<td>0.52</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.05</td>
<td>0.71</td>
<td>0.48</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.08</td>
<td>-1.14</td>
<td>0.25</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.10</td>
<td>1.35</td>
<td>0.18</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.03</td>
<td>-0.48</td>
<td>0.63</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.13</td>
<td>-1.86</td>
<td>0.06</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)

Table 4-25. Correlation between attitude toward the ad and purchase intentions per claim (with covariates) for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.66</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.68</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.60</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.75</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-26. Differences of correlations (attitude toward the ad * purchase intentions) for all participants when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.02</td>
<td>0.24</td>
<td>0.81</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.06</td>
<td>0.81</td>
<td>0.42</td>
</tr>
<tr>
<td>SF * C</td>
<td>0.09</td>
<td>-1.38</td>
<td>0.18</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.08</td>
<td>1.04</td>
<td>0.30</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.07</td>
<td>-1.12</td>
<td>0.26</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.16</td>
<td>-2.21</td>
<td>0.03*</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)

*p ≤ .05
Table 4-27. Correlation between attitude toward the brand and purchase intentions per claim for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.67</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.74</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.69</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.75</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-28. Differences of correlations (attitude toward the brand * purchase intentions) for all participants

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.07</td>
<td>-1.05</td>
<td>0.29</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.03</td>
<td>-0.36</td>
<td>0.72</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.08</td>
<td>-1.23</td>
<td>0.22</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.05</td>
<td>0.71</td>
<td>0.48</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.01</td>
<td>0.17</td>
<td>0.87</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.06</td>
<td>-0.88</td>
<td>0.37</td>
</tr>
</tbody>
</table>

SF - Structure/function  SNC - Specific nutrient content  GH - General health  C - Control (taste)

Table 4-29. Correlation between attitude toward the brand and purchase intentions per claim (with covariates) for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.68</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.70</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>0.69</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.75</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-30. Differences of correlations (attitude toward the brand * purchase intentions) for all participants when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.02</td>
<td>-0.30</td>
<td>0.76</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.07</td>
<td>-0.10</td>
<td>0.92</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.07</td>
<td>-1.00</td>
<td>0.32</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.01</td>
<td>0.20</td>
<td>0.84</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.04</td>
<td>-0.68</td>
<td>0.50</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.06</td>
<td>-0.06</td>
<td>0.36</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

Table 4-31. Means of each claim for attitude toward the ad for Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.16</td>
<td>1.02</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.08</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>54</td>
</tr>
<tr>
<td>General Health</td>
<td>2.88</td>
<td>1.00</td>
<td>1.00</td>
<td>4.80</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>2.82</td>
<td>1.23</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-32. Pairwise comparisons for attitude toward the ad per claim for Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.09</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.69</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.14</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.78</td>
</tr>
</tbody>
</table>
Table 4-33. ANCOVA test on attitude toward the ad with covariate for Hispanics

<table>
<thead>
<tr>
<th>Source</th>
<th>Df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acculturation</td>
<td>1</td>
<td>2.72</td>
<td>0.10</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>1.15</td>
<td>0.29</td>
</tr>
</tbody>
</table>

* p<0.05

Table 4-34. Means of each claim for attitude toward the brand for Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.09</td>
<td>1.00</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.05</td>
<td>1.16</td>
<td>1.00</td>
<td>5.00</td>
<td>54</td>
</tr>
<tr>
<td>General Health</td>
<td>3.00</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>2.96</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-35. Pairwise comparisons for attitude toward the brand per claim for Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.51</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.66</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.84</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Table 4-36. ANCOVA test on attitude toward the brand with covariates for Hispanics

<table>
<thead>
<tr>
<th>Source</th>
<th>Df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>5.31</td>
<td>0.02*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>6.30</td>
<td>0.01*</td>
</tr>
<tr>
<td>Acculturation</td>
<td>1</td>
<td>1.43</td>
<td>0.23</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>0.20</td>
<td>0.90</td>
</tr>
</tbody>
</table>

* p<0.05
Table 4-37. Correlation between attitude toward the ad and attitude toward the brand per claim for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.66</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.81</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.66</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.69</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-38. Differences of correlations (attitude toward the ad * attitude toward the brand) for Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.14</td>
<td>-1.63</td>
<td>0.10</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.00</td>
<td>-0.02</td>
<td>0.98</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.03</td>
<td>-0.25</td>
<td>0.80</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.14</td>
<td>1.67</td>
<td>0.09</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.12</td>
<td>1.39</td>
<td>0.16</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>0.24</td>
<td>0.81</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

Table 4-39. Correlation between attitude toward the ad and attitude toward the brand per claim (with covariates) for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.65</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.70</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.65</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.67</td>
<td>59</td>
</tr>
</tbody>
</table>
Table 4-40. Differences of correlations (attitude toward the ad * attitude toward the brand) for Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>( r_1 - r_2 )</th>
<th>( z )</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.05</td>
<td>-0.48</td>
<td>0.62</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.01</td>
<td>0.05</td>
<td>0.96</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.02</td>
<td>-0.17</td>
<td>0.87</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.06</td>
<td>0.55</td>
<td>0.58</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.03</td>
<td>0.32</td>
<td>0.75</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>-0.22</td>
<td>0.83</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

Table 4-41. Correlation between attitude toward the ad and purchase intentions per claim for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>( r )</th>
<th>( n )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.70</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.82</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.60</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.80</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-42. Differences of correlations (attitude toward the ad * purchase intentions) for Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>( r_1 - r_2 )</th>
<th>( z )</th>
<th>( p )-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.14</td>
<td>-1.63</td>
<td>0.13</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.00</td>
<td>-0.02</td>
<td>0.31</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.03</td>
<td>-0.25</td>
<td>0.24</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.14</td>
<td>1.67</td>
<td>0.01*</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.12</td>
<td>1.39</td>
<td>0.72</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>0.24</td>
<td>0.03*</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

*p \( \leq 0.05 \)
Table 4-43. Correlation between attitude toward the ad and purchase intentions per claim (with covariates) for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.67</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.76</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.55</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.70</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-44. Differences of correlations (attitude toward the ad * purchase intentions) for Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.09</td>
<td>-0.98</td>
<td>0.33</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.12</td>
<td>1.04</td>
<td>0.30</td>
</tr>
<tr>
<td>SF * C</td>
<td>0.12</td>
<td>-1.43</td>
<td>0.15</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.21</td>
<td>2.03</td>
<td>0.04*</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.03</td>
<td>0.42</td>
<td>0.67</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.24</td>
<td>-2.52</td>
<td>0.01*</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)
*p<.05

Table 4-45. Correlation between attitude toward the brand and purchase intentions per claim for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.78</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.84</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.67</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.74</td>
<td>59</td>
</tr>
</tbody>
</table>
Table 4-46. Differences of correlations (attitude toward the brand * purchase intentions) for Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.06</td>
<td>-0.91</td>
<td>0.36</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.11</td>
<td>1.25</td>
<td>0.21</td>
</tr>
<tr>
<td>SF * C</td>
<td>0.04</td>
<td>0.45</td>
<td>0.65</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.17</td>
<td>2.15</td>
<td>0.03*</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.10</td>
<td>1.35</td>
<td>0.18</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.07</td>
<td>-0.78</td>
<td>0.44</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)
*p<.05

Table 4-47. Correlation between attitude toward the brand and purchase intentions per claim (with covariates) for Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.78</td>
<td>59</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.78</td>
<td>54</td>
</tr>
<tr>
<td>General health</td>
<td>0.65</td>
<td>67</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.72</td>
<td>59</td>
</tr>
</tbody>
</table>

Table 4-48. Differences of correlations (attitude toward the brand * purchase intentions) for Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>0.01</td>
<td>0.08</td>
<td>0.94</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.13</td>
<td>1.52</td>
<td>0.13</td>
</tr>
<tr>
<td>SF * C</td>
<td>0.06</td>
<td>0.72</td>
<td>0.47</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>0.13</td>
<td>1.40</td>
<td>0.16</td>
</tr>
<tr>
<td>SNC * C</td>
<td>0.05</td>
<td>0.63</td>
<td>0.53</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.08</td>
<td>-0.78</td>
<td>0.44</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)
### Table 4-49. Means of each claim for attitude toward the ad for non-Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.01</td>
<td>0.87</td>
<td>1.00</td>
<td>5.00</td>
<td>58</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.04</td>
<td>0.93</td>
<td>1.00</td>
<td>5.00</td>
<td>55</td>
</tr>
<tr>
<td>General Health</td>
<td>2.99</td>
<td>0.98</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>3.05</td>
<td>0.81</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
</tbody>
</table>

### Table 4-50. Pairwise comparisons for attitude toward the ad per claim for non-Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.74</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.90</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.87</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.84</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.87</td>
</tr>
</tbody>
</table>

### Table 4-51. ANCOVA test on attitude toward the ad with two covariates for non-Hispanics

<table>
<thead>
<tr>
<th>Source</th>
<th>Df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>4.68</td>
<td>0.03*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>0.68</td>
<td>0.41</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>0.03</td>
<td>0.99</td>
</tr>
</tbody>
</table>

*p<0.05

### Table 4-52. Means of each claim for attitude toward the brand for non-Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>3.12</td>
<td>0.82</td>
<td>1.00</td>
<td>5.00</td>
<td>58</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>3.12</td>
<td>0.89</td>
<td>1.00</td>
<td>5.00</td>
<td>55</td>
</tr>
<tr>
<td>General Health</td>
<td>3.21</td>
<td>0.84</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>3.11</td>
<td>0.86</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
</tbody>
</table>
Table 4-53. Pairwise comparisons for attitude toward the brand per claim for non-Hispanics

<table>
<thead>
<tr>
<th>Claim</th>
<th>Claim</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Specific Nutrient Content</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.93</td>
</tr>
<tr>
<td>Specific Nutrient Content</td>
<td>Structure/function</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.93</td>
</tr>
<tr>
<td>General Health</td>
<td>Structure/function</td>
<td>0.56</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>Control (taste)</td>
<td>0.51</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Structure/function</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>Specific Nutrient Content</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>General Health</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Table 4-54. ANCOVA test on attitude toward the brand with two covariates for non-Hispanics

<table>
<thead>
<tr>
<th>Source</th>
<th>Df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>7.53</td>
<td>0.01*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>0.01</td>
<td>0.91</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>0.15</td>
<td>0.93</td>
</tr>
</tbody>
</table>

* p ≤ 0.05

Table 4-55. Correlation between attitude toward the ad and attitude toward the brand per claim for non-Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.71</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.77</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.83</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.84</td>
<td>56</td>
</tr>
</tbody>
</table>
Table 4-56. Differences of correlations (attitude toward the ad * attitude toward the brand) for non-Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.07</td>
<td>-0.78</td>
<td>0.44</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.12</td>
<td>-1.59</td>
<td>0.11</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.13</td>
<td>-1.74</td>
<td>0.08</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.06</td>
<td>-0.79</td>
<td>0.43</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.06</td>
<td>-0.94</td>
<td>0.35</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.01</td>
<td>-0.15</td>
<td>0.82</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)  
*p<.05

Table 4-57. Correlation between attitude toward the ad and attitude toward the brand per claim (with covariates) for non-Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.70</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.76</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.82</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.85</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 4-58. Differences of correlations (attitude toward the ad * attitude toward the brand) for non-Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.07</td>
<td>-0.68</td>
<td>0.50</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.12</td>
<td>-1.53</td>
<td>0.13</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.15</td>
<td>-1.94</td>
<td>0.05*</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.06</td>
<td>-0.83</td>
<td>0.41</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.08</td>
<td>-1.23</td>
<td>0.22</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>-0.41</td>
<td>0.68</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)  
*p<.05
Table 4-59. Correlation between attitude toward the ad and purchase intentions per claim for non-Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.66</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.60</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.65</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.67</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 4-60. Differences of correlations (attitude toward the ad * purchase intentions) for non-Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>0.06</td>
<td>0.52</td>
<td>0.60</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.01</td>
<td>0.08</td>
<td>0.94</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.01</td>
<td>-0.06</td>
<td>0.95</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.05</td>
<td>-0.44</td>
<td>0.66</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.07</td>
<td>-0.57</td>
<td>0.57</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>-0.14</td>
<td>0.89</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

Table 4-61. Correlation between attitude toward the ad and purchase intentions per claim (with covariates) for all participants

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.68</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.57</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.67</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.67</td>
<td>56</td>
</tr>
</tbody>
</table>
Table 4-62. Differences of correlations (attitude toward the ad * purchase intentions) for non-Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>0.11</td>
<td>0.94</td>
<td>0.35</td>
</tr>
<tr>
<td>SF * GH</td>
<td>0.01</td>
<td>0.11</td>
<td>0.91</td>
</tr>
<tr>
<td>SF * C</td>
<td>0.01</td>
<td>0.07</td>
<td>0.94</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.10</td>
<td>-0.83</td>
<td>0.41</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.10</td>
<td>-0.87</td>
<td>0.38</td>
</tr>
<tr>
<td>GH * C</td>
<td>0.00</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

Table 4-63. Correlation between attitude toward the brand and purchase intentions per claim for non-Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.56</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.65</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.74</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.77</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 4-64. Differences of correlations (attitude toward the brand * purchase intentions) for non-Hispanics

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.09</td>
<td>-0.72</td>
<td>0.47</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.18</td>
<td>-1.62</td>
<td>0.11</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.21</td>
<td>-2.00</td>
<td>0.046*</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.09</td>
<td>-0.88</td>
<td>0.38</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.12</td>
<td>-1.26</td>
<td>0.21</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.03</td>
<td>-0.38</td>
<td>0.70</td>
</tr>
</tbody>
</table>

SF - Structure/function
SNC - Specific nutrient content
GH - General health
C - Control (taste)

*p≤.05
Table 4-65. Correlation between attitude toward the brand and purchase intentions per claim (with covariates) for non-Hispanics

<table>
<thead>
<tr>
<th>Claim Type</th>
<th>r</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>0.60</td>
<td>58</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>0.62</td>
<td>55</td>
</tr>
<tr>
<td>General health</td>
<td>0.76</td>
<td>56</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>0.78</td>
<td>56</td>
</tr>
</tbody>
</table>

Table 4-66. Differences of correlations (attitude toward the brand * purchase intentions) for non-Hispanics when covariates are included

<table>
<thead>
<tr>
<th>Combination of claims tested</th>
<th>r1-r2</th>
<th>z</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF * SNC</td>
<td>-0.02</td>
<td>-0.15</td>
<td>0.88</td>
</tr>
<tr>
<td>SF * GH</td>
<td>-0.16</td>
<td>-1.52</td>
<td>0.13</td>
</tr>
<tr>
<td>SF * C</td>
<td>-0.18</td>
<td>-1.79</td>
<td>0.07</td>
</tr>
<tr>
<td>SNC * GH</td>
<td>-0.14</td>
<td>-1.35</td>
<td>0.18</td>
</tr>
<tr>
<td>SNC * C</td>
<td>-0.16</td>
<td>-1.62</td>
<td>0.11</td>
</tr>
<tr>
<td>GH * C</td>
<td>-0.02</td>
<td>-0.26</td>
<td>0.80</td>
</tr>
</tbody>
</table>

SF - Structure/function  
SNC - Specific nutrient content  
GH - General health  
C - Control (taste)

Table 4-67. Means of each claim per ethnicity for attitude toward the ad

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Ethnicity</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Non-Hispanic</td>
<td>3.05</td>
<td>0.81</td>
<td>1.00</td>
<td>5.00</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3.16</td>
<td>1.02</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.11</td>
<td>0.92</td>
<td>1.00</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>Non-Hispanic</td>
<td>2.99</td>
<td>0.98</td>
<td>1.00</td>
<td>5.00</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3.08</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.04</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>Non-Hispanic</td>
<td>3.04</td>
<td>0.93</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.88</td>
<td>1.00</td>
<td>1.00</td>
<td>4.80</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.95</td>
<td>0.97</td>
<td>1.00</td>
<td>5.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Non-Hispanic</td>
<td>3.01</td>
<td>0.87</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.82</td>
<td>1.23</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.92</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-68. Means of each claim per ethnicity for attitude toward the brand

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Ethnicity</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Non-Hispanic</td>
<td>3.12</td>
<td>0.82</td>
<td>1.00</td>
<td>5.00</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3.09</td>
<td>1.00</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.11</td>
<td>0.91</td>
<td>1.00</td>
<td>5.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>Non-Hispanic</td>
<td>3.12</td>
<td>0.89</td>
<td>1.00</td>
<td>5.00</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3.05</td>
<td>1.16</td>
<td>1.00</td>
<td>5.00</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.09</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>Non-Hispanic</td>
<td>3.21</td>
<td>0.84</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>3.00</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.10</td>
<td>0.95</td>
<td>1.00</td>
<td>5.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Non-Hispanic</td>
<td>3.11</td>
<td>0.86</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.96</td>
<td>1.07</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3.03</td>
<td>0.97</td>
<td>1.00</td>
<td>5.00</td>
<td>115</td>
</tr>
</tbody>
</table>

Table 4-69. ANCOVA test on attitude toward the brand

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>15.97</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>3.26</td>
<td>0.07</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>4.10</td>
<td>0.04*</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>1</td>
<td>3.25</td>
<td>0.07</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>1</td>
<td>3.78</td>
<td>0.05*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1</td>
<td>10.58</td>
<td>0.001*</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>0.24</td>
<td>0.87</td>
</tr>
<tr>
<td>Ethnicity*Claim</td>
<td>3</td>
<td>0.17</td>
<td>0.92</td>
</tr>
</tbody>
</table>

* p≤0.05

Table 4-70. Means of each claim per ethnicity for purchase intentions

<table>
<thead>
<tr>
<th>Type of Claim</th>
<th>Ethnicity</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure/function</td>
<td>Non-Hispanic</td>
<td>2.72</td>
<td>1.27</td>
<td>1.00</td>
<td>5.00</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.73</td>
<td>1.16</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.73</td>
<td>1.21</td>
<td>1.00</td>
<td>5.00</td>
<td>117</td>
</tr>
<tr>
<td>Specific nutrient content</td>
<td>Non-Hispanic</td>
<td>2.42</td>
<td>1.05</td>
<td>1.00</td>
<td>5.00</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.98</td>
<td>1.40</td>
<td>1.00</td>
<td>5.00</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.70</td>
<td>1.26</td>
<td>1.00</td>
<td>5.00</td>
<td>109</td>
</tr>
<tr>
<td>General health</td>
<td>Non-Hispanic</td>
<td>2.68</td>
<td>1.11</td>
<td>1.00</td>
<td>4.67</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.55</td>
<td>1.31</td>
<td>1.00</td>
<td>5.00</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.61</td>
<td>1.22</td>
<td>1.00</td>
<td>5.00</td>
<td>123</td>
</tr>
<tr>
<td>Control (taste)</td>
<td>Non-Hispanic</td>
<td>2.46</td>
<td>1.03</td>
<td>1.00</td>
<td>5.00</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>2.45</td>
<td>1.27</td>
<td>1.00</td>
<td>5.00</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.46</td>
<td>1.16</td>
<td>1.00</td>
<td>5.00</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 4-71. ANCOVA test on purchase intentions with three covariates

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1</td>
<td>10.55</td>
<td>0.001*</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>1</td>
<td>3.10</td>
<td>0.08</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>1</td>
<td>6.92</td>
<td>0.009*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1</td>
<td>3.50</td>
<td>0.06</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>1.17</td>
<td>0.32</td>
</tr>
<tr>
<td>Ethnicity*Claim</td>
<td>3</td>
<td>1.39</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* p ≤ 0.05

Table 4-72. ANCOVA test on purchase intentions with three covariates and product category involvement

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1</td>
<td>12.51</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Years in the U.S.</td>
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<td>3.57</td>
<td>0.06</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>1</td>
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<td>0.002*</td>
</tr>
<tr>
<td>Product category involvement</td>
<td>1</td>
<td>39.40</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1</td>
<td>4.24</td>
<td>0.04*</td>
</tr>
<tr>
<td>claim</td>
<td>3</td>
<td>1.63</td>
<td>0.18</td>
</tr>
<tr>
<td>Ethnicity*Claim</td>
<td>3</td>
<td>0.90</td>
<td>0.44</td>
</tr>
</tbody>
</table>

* p ≤ 0.05

Table 4-73. ANCOVA test on purchase intentions with three covariates and health concern

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1</td>
<td>8.49</td>
<td>0.004*</td>
</tr>
<tr>
<td>Years in the U.S.</td>
<td>1</td>
<td>3.02</td>
<td>0.08</td>
</tr>
<tr>
<td>Reading proficiency</td>
<td>1</td>
<td>7.10</td>
<td>0.008*</td>
</tr>
<tr>
<td>Health concern</td>
<td>1</td>
<td>7.02</td>
<td>0.008*</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>1</td>
<td>4.70</td>
<td>0.03*</td>
</tr>
<tr>
<td>Claim</td>
<td>3</td>
<td>1.01</td>
<td>0.39</td>
</tr>
<tr>
<td>Ethnicity*Claim</td>
<td>3</td>
<td>1.35</td>
<td>0.26</td>
</tr>
</tbody>
</table>

* p ≤ 0.05
<table>
<thead>
<tr>
<th></th>
<th>Interviews</th>
<th>Main experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>33.67 (11.56)</td>
<td>28.45 (9.52)</td>
</tr>
<tr>
<td>Median</td>
<td>28</td>
<td>25</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>16 35%</td>
<td>257 55%</td>
</tr>
<tr>
<td>Females</td>
<td>30 65%</td>
<td>204 44%</td>
</tr>
<tr>
<td>Other</td>
<td>0 0%</td>
<td>3 1%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>0 0%</td>
<td>0 0%</td>
</tr>
<tr>
<td>High school</td>
<td>0 0%</td>
<td>49 11%</td>
</tr>
<tr>
<td>Some college</td>
<td>8 17%</td>
<td>120 26%</td>
</tr>
<tr>
<td>Associate’s or 2-yr degree</td>
<td>3 7%</td>
<td>47 10%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>20 43%</td>
<td>178 38%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>9 20%</td>
<td>56 12%</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>7 15%</td>
<td>14 3%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>18 39%</td>
<td>239 52%</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>28 61%</td>
<td>225 48%</td>
</tr>
</tbody>
</table>
CHAPTER 5
DISCUSSION

This chapter provides a brief summary of the results obtained in the main experiment. Then, the possible factors that could have influenced the results revealed in the main experiment are explained. Finally, conclusions as to the contributions of the results of the study are revealed.

Overview of the Study

The study sought to discover which of the most widely used health and nutrition claims produced the most effective communication outcomes (positive attitudes toward the ad and brand and increased purchase intentions) among non-Hispanic whites and Hispanic whites living in the United States. Also, this study sought to assess if there were any differences in attitudes and purchase intentions between non-Hispanics and Hispanic whites. Based on the dual-mediation hypothesis and the economics of information theory (Ford, Smith & Swasy, 1990; Lutz, MacKenzie, & Belch, 1983; MacKenzie, Lutz, & Belch, 1986), it was expected that exposure to a health or nutrition claim would produce better communication effectiveness than exposure to another type of claim (in this study, a taste claim). Also, more objective claims and more detailed claims would result in better communication effectiveness. The results obtained in the study did not reflect what was expected.

To test these propositions, five hypotheses and three research questions were proposed and tested. The hypotheses tested the effects of claim types on communication effectiveness without differentiating between ethnicities. After conducting differences of means and differences of correlations analysis, it was concluded that none of the hypotheses posited were supported. The presence of a
health or nutrition claim did not produce different attitudes and purchase intentions from when a taste claim was presented. In addition, more objective and/or more detailed health or nutrition claims did not produce different attitudes and purchase intentions. Even when additional variables that influenced the effect that claim type had on communication effectiveness were controlled for (e.g. product category involvement and health concern), type of claim was not a statistically significant variable. This means that communication effectiveness did not vary per claim type.

Nevertheless, pairwise comparisons did show one exception. After controlling for product category involvement and health concern, the control (taste) claim produced a stronger and statistically significantly different correlation between attitude toward the ad and purchase intentions, than the general health claim. This was opposite to that which was hypothesized. The researcher noted that the manipulation check on the level of objectivity demonstrated that the general health claim and the control (taste) claim were seen as similarly subjective. Therefore, the level of objectivity (or in this case subjectivity) was a not an influencing factor in creating differing correlations between these two claim types. In addition, the manipulation check for level of detail did show that the general health claim was more detailed than the control (taste) claim. It had been hypothesized that a claim seen as more detailed would produce better communication effectiveness\textsuperscript{55}. This pair of claims did not support the hypothesis. The results obtained could be related to a possible preference consumers might have for concise claims (Williams, 2005) due to their lack of time and effort, and to the lack of nutrition knowledge among consumers (Andrews, Burton, & Netemeyer, 2000). If

\textsuperscript{55}Communication effectiveness in this case refers solely to the correlation between attitude toward the ad and purchase intention.
consumers do not understand the information provided in more objective and detailed health/nutrition claims, they may bypass those claims, and may even think of them as manipulative (Andrews, Burton, & Netemeyer, 2000; Ford, Smith, & Swasy, 1990; Nelson, 1974).

On the other hand, the research questions examined the effects of claim types and ethnicity/race (non-Hispanic whites versus Hispanic whites), on attitudes and purchase intentions. After conducting differences of means (ANOVAS and ANCOVAS), and differences of correlations analysis, it was concluded that non-Hispanic whites as well as Hispanic whites’ responses did not reflect significant differences between claim types on communication effectiveness, with or without controlling for influencing variables such as product category involvement, health concern, and/or acculturation.

However, pairwise comparisons did show two exceptions for non-Hispanic whites, and two exceptions for Hispanic whites. When non-Hispanic whites were examined, and product category involvement and health concern were controlled for, the structure function claim influenced the correlation between attitude toward the ad and attitude toward the brand less than the control (taste) claim (it was significantly different). That result was opposite to what was expected. In addition, when no variables were controlled for, the control (taste) claim also resulted in a stronger correlation between attitude toward the brand and purchase intention than the structure/function claim. Nonetheless, this effect was only marginally significant once product category involvement and health concern were controlled for.

Therefore, when significant differences were obtained, non-Hispanic whites provided better evaluations for the taste claim over the structure/function claim. This
could be due to the effects that lack of nutrition knowledge could have on claim understanding. For instance, Brucks, Mitchell, and Staelin (1984) found that more knowledgeable people tended to prefer and use more detailed information in claims (such as that provided by nutrient content claims), instead of abstract concepts of health. Given that taste is also a relatively abstract and subjective concept, it can be assumed that the same situation that Brucks et al. (1984) encountered could have been encountered in the study. Research has established that even though people report an interest in health (as they did in the study), they are lacking the knowledge to effectively understand and use the information provided about nutrition (as cited in Andrews, Burton, and Netemeyer (2000)).

Even though this study did not measure participants’ nutrition knowledge, other studies have related nutrition knowledge to the level of education and income of the person. People with lower education (Laberge, 2004-2011) and lower income (Alipour, 2009; Dray, 2010; McKeon, 2009; Szalavitz, 2011) tend to have less nutritional knowledge. The study revealed that 42% of non-Hispanic whites had educations that consisted of a two-year associate degree or lower; and 55% had incomes of $49,999 or lower. In addition, education and reading level proficiency were correlated \(r = .12, p = .008\), meaning that people with lower levels of education had lower self-reported reading proficiency. Therefore, it is possible that nutrition knowledge played a role in influencing the results of this study.

Non-Hispanic whites could have also reacted better to the taste claim over the structure-function claim, because consumers tend to prefer concise or succinct claims
over those claims that contain a lot of information (Williams, 2005). The structure function claim was significantly more detailed than the taste claim.

Finally, another reason why the taste claim received better ratings than the structure-function claim could be that participants of the study might consume cereal, not for health purposes, but for hedonic purposes, making a health claim less favorable. If this were the case, consumers would have been looking for a claim that related to sensory pleasure, such as taste (Choi, Paek, & King, 2012).

When Hispanic whites were examined, the correlation between attitude toward the ad and purchase intention was stronger -- and significantly different -- when participants were exposed to a specific nutrient content claim than the general health claim (as expected). In addition, the general health claim was found to influence a significant difference in the correlation between, attitude toward the ad and purchase intention less than the control (taste) claim, which is opposite to what was expected. The differences were still significant once product category involvement, health concern and acculturation were controlled for. This is an indication of how Hispanic whites might have a tendency to dislike general health claims and might react better to other claim types.

Hispanics might have responded better to the specific nutrient content claim than to the general health claim given that it provides more health information. This study revealed that Hispanics tended to have a slightly higher, and significantly different ($F(1, 462) = 17.18, p < .001$), level of health concern ($M = 3.88, SD = 0.89$) than non-Hispanics ($M = 3.56, SD = 0.83$), which may motivate them to be more inclined towards health claims that have a slightly, more easily understood, health/nutrition information.
Hispanics also believe that foods prepared at home and with fresh ingredients are healthier than packaged foods (Cuellar, 2006). Even though a packaged food product was advertised in the study, Hispanics may have reacted better when a specific-nutrient content claim was present than when a general health claim was present, because the specific nutrient claim was more objective/detailed than the general health claim, which could have possibly convinced them of the product’s healthiness status. The product informed participants of what the healthy aspects of it were without being too detailed (which could confuse them), or too vague (which would not convince them or could mislead them).

As noted, Hispanics also reacted better to the taste claim over the general health claim. Klassen et al. (1991) noted that consumers are capable of distinguishing between the foods that they need to consume from the ones that they want to consume for pleasure. Therefore, if Hispanics consume cereal for pleasure rather than nutritional purposes, that fact may have lead to the preference of a taste claim over a health claim. Because of this, it is important to collect data as to what is the reason respondents consume cereal (or the products used in the study) in future studies in order to be able to make a correlation between the claims participants react to better and reasons for the reactions.

Finally, three analyses of variance were conducted in order to determine if there were significant differences between the responses of non-Hispanic whites and Hispanic whites. No significant differences were found between the responses of non-Hispanic whites and Hispanic whites. Ethnicity, the type of claim, nor their interaction had an effect on creating differing attitudes and purchase intentions.
The fact that ethnicity did not influence the results of this study could have been due to the similarity between the samples. Comparisons of non-Hispanic whites and Hispanic whites showed that the samples were similar in terms of income ($p = .13$), education ($p = .50$), sex ($p = .11$), and BMI ($p = .63$). Ethnicity could have lacked influence since the Hispanic whites that completed this study stated that they are highly acculturated to the American culture. Only 15.1% of Hispanic participants indicated having low levels of acculturation, while 84.9% of Hispanic participants indicated having high levels of acculturation. Higher levels of acculturation lead people to follow behaviors and opinions of non-Hispanic whites (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005).

However, since Hispanic whites and non-Hispanic whites differed in terms of age ($p < .001$), number of years in the U.S. ($p < .001$), and reading proficiency ($p < .001$), another analysis was conducted controlling for these effects, as well as the effects of product category involvement and health concern. Results showed that only ethnicity resulted in different attitudes toward the brand and purchase intentions once these variables were controlled for. Non-Hispanic whites demonstrated higher attitudes toward the brand and purchase intentions than Hispanics. Hispanics could have had lower attitudes toward the brand because they have reported to prefer communications that are made in Spanish (all communications in this study were in English), and because they prefer to prepare meals from scratch instead of buying prepackaged or processed foods (Cuellar, 2006). Therefore, the fact that a packaged product was advertised could make them dislike the brand, and may have potentially pushed them away from purchasing the product.
Possible Explanations for the Non-Significant Results

The fact that no statistically significant differences were seen on the dependent variables due to the type of claim could have been due to numerous reasons. One of the most important reasons why differences among the claims were not obtained could have been the power of the statistical analysis. For example, a power analysis conducted post-experiment using the SPSS software revealed that the type of claim had a very low observed power of .24 when no covariates were included, and .23 when covariates were included for hypothesis 1. This means that there was a 23 to 24% chance of obtaining significant differences if they exist with the sample size used. Therefore, it is possible that the type of claim presented could have a statistically significant impact on attitude toward the ad. However, the impact could be so small that it is not noticeable with the sample size used in the study. A much larger sample is needed to reflect statistically significant results.

Nonetheless, the fact that no significant difference in effects were obtained, and that if an effect were to exist that it might be minor, is of importance. Advertisers should consider this lack, and possible minor effect when developing advertising claims. Consumers did not really differentiate between different health/nutrition claims and a taste claim. Therefore, all alternatives are equally plausible, as long as they result in positive attitudes and higher purchase intentions. Other studies, such as Roe, Levy, and Derby (1999), have found more positive attitudes and higher purchase intentions due to

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56 A statistical test of power is the probability that the analysis conducted will reject the null hypothesis when the null hypothesis is false. The power is a value between 0 and 1. The power of an analysis should be of .80 or higher, meaning that there is an 80% chance of obtaining a significant difference when one exists. (Agresti & Finlay, 2009).
a variety of claim types. This supports the importance of pretesting claims and advertisements among the target market before launching them.

In addition, it has been found that information in food advertisements is often misleading and therefore, can make consumers skeptical of the truthfulness of the claims (Jones, Andrews, Tapsell, Williams, & McVie, 2008; Keller, Landry, Olson, Velliquette, Burton, & Andrews, 1997). This is a perception that is becoming common among consumers (Andrews, Burton, & Netemeyer, 2000). In their study, Keller et al. (1997) found that attitudes were not affected greatly by the claims presented. They concluded that this goes in accordance with research that talks about consumer suspicion of advertising claims. This could have affected the current study as well. If participants already have the notion implanted in their minds that advertising claims are being used to manipulate them (just for sales), it may cause them to react more negatively to the ads and therefore, could lower their purchase intentions. The study did not measure suspicion on advertising claims. However, it did measure believability of the advertisements. Two items were used to measure believability: not believable-believable and unconvincing-convincing. Although more than half of participants (n = 238, 51.29%) found the advertisements believable (i.e. realistic), more than half of them (n = 242, 52.16%) also found the ads unconvincing. Given that the only part that varied in the ads was the claim, it can be assumed that the claims were not found to convince participants of the study. The fact that they were not viewed as convincing may be due to skepticism of the claims. Therefore, future studies should make sure to evaluate how skeptical participants are of the claim they were presented with, and of claims in general in order to control for its effects.
The low attitudes and purchase intentions that were observed could have been attributed to the focus of the claim (i.e. sugar and calories). Keller et al. (1997) found product evaluations varied depending on the nutrient or health issue that was being highlighted in the claim. For example, cholesterol and sodium-related claims had a weaker impact than fat-related claims on product evaluations. Even though pretest interviews demonstrated that people were interested in and concerned with the amount of sugar and calories that they consumed, the fact that sugar was the ingredient highlighted in the claim could have influenced the results. If sugar or calories were not ingredients or aspects of nutrition that concerned participants, then they could have developed less positive attitudes and lower purchase intentions. Since they are not the target market of the product, they might ignore it and/or react negatively. Data collected demonstrated relatively neutral effects from each claim type on communication effectiveness. Therefore, sugar-related claims could have caused a weaker impact than expected on communication effectiveness outcomes. Since the selection of sugar as the focal ingredient was made based on subjects in a small area within the United States, it is possible that the preferences of the majority of the population in the United States is different (refer to Table 4-74 for descriptive information that compares interview participants to the main experiment participants). Therefore, future studies should test a variety of ingredients or nutritional aspects in their claims to verify if these in fact do produce different evaluations.

Also, it is important to test the health perception of the product. Adam and Geuens (2007) found that there was a significant interaction between the claim presented and product type on product evaluations. They found more positive outcomes when a health
claim was presented for a product that is perceived as healthy versus a product that was not perceived as healthy. In the study, cereal was used as a healthy product given that literature shows that it is typically portrayed as healthy (Adams & Geuens, 2007; Mintel, 2009). However, future studies should confirm that the participants of their study actually view the product as healthy.

In addition, literature has established that there are a number of variables that could influence the selection of food products for each person, ranging from a person’s motivation to select/consume a product, health concern (Adams & Geuens, 2007; Fishbein, 1965; Palmgreen & Rayburn II, 1982), acculturation (Himmelgreen, Bretnall, Perez-Escamilla, Peng, & Bermudez, 2005), and a person’s taste or preferences (Asp, 1999; Blades, 2001; Dray, 2010; Rodriguez, 2011). The study controlled for numerous factors and demonstrated that, when covariates were taken into consideration, a weaker impact of the type of claim presented on attitudes and purchase intentions. On a few occasions, the presence of a covariate increased the effect of claim type, although still obtaining no statistical significance. For example, the presence of product category involvement, health concern, and acculturation minimally increased the correlation between attitude toward the brand and purchase intention for the structure/function claim (among Hispanic whites). Among non-Hispanics, the presence of covariates minimally increased the correlation between (1) attitude toward the ad and brand for the control claim, and (2) attitude toward the ad and purchase intentions for the structure/function claim and the general health claim, and the control (taste) claim. Finally, among all participants, the correlation between attitude toward the ad and purchase intention increased for the control (taste) claim. Consequently, future studies
should also evaluate the health perception of the product (Burton, Andrews, & Netemeyer, 2000), given that this could help build more credibility for the health claim presented if it matches (i.e. expectancy-value model (Fishbein, 1965; Palmgreen & Rayburn II, 1982) and the match-up hypothesis, (Choi, Paek, & King, 2012)). Kim, Cheong, and Zheng (2009), as well as Adam and Geuens (2007) and Choi, Paek, and King (2012) state that matching advertising claims to the nature of the product could bring about better evaluations.

Furthermore, the results obtained could have been due to the impact of nutrition knowledge. If people have low nutritional knowledge, they might not understand the claims well, and just take the fact that a health claim was present as a sign that the product is healthy. This means that they overgeneralize claims to other aspects of the product (Andrews, Netemeyer, & Burton, 1998).

**Conclusion: Study Contribution**

Although the hypotheses posited in the study were not supported, the study does contribute to advertising literature in several ways. First, further support for the relationships presented in the dual-mediation hypothesis and the independent influence hypothesis was found. The hypotheses tested in this study and the research questions supported the propositions of the dual-mediation hypothesis and the independent influence hypothesis when tested among all participants, non-Hispanic whites individually, and Hispanic whites individually. This is an important factor to recognize since it demonstrates how the hypotheses of Lutz, MacKenzie, and Belch, (1983) and MacKenzie, Lutz, and Belch (1986) can be applied to different population segments.

In addition, a new population segment -- Hispanic whites -- was studied, and data on their reactions to claim types was obtained. The research noted that Hispanics do
not differentiate between the types of claims; therefore, they do not react differently when exposed to one of various types of food claims. However, whenever exceptions were present and they did differentiate between some claims, it was found that they reacted better to the specific nutrient content claim and the taste claim over the general health claim. Therefore, it can be assumed that among Hispanics, it is not the fact that a health or nutrition claim was present that contributed to better communication effectiveness, but the fact that Hispanics favored less detailed claims (manipulation checks revealed that participants did not differentiate between the specific-nutrient content claim and taste claim in terms of level of detail). These two claims were the most concise claims in participants’ eyes. This could be due to the fact that Hispanics in the United States may have more trouble understanding the information provided related to nutrition (may find it too complex), and may prefer information that they can understand (use simpler language). In fact, data collected in the study showed that Hispanics self-reported lower English reading proficiency than non-Hispanic whites.

Finally, the study has helped contribute to the ongoing debate as to which health or nutrition claims work better. Again, even though the hypotheses were not supported, the study showed that people were not able to differentiate between claim types. The study supports some of the results obtained by previous researchers. For example, Garretson and Burton (2000) found that nutrient claims have no impact on consumer’s attitudes and/or purchase intentions. Also, Kuzop, Creyer, and Burton (2003) found that a health claim did not influence attitude toward the product nor purchase intentions, although, it did influence nutrition attitude and the perceived risk of disease.
This study also supports the results obtained by Choi, Paek and King (2012). The purpose of their study was “to examine the extent to which such prevalent nutrient-content claims in food advertising are positively evaluated and how those evaluations differ across two food product types (i.e. perceivably healthy vs unhealthy)” (p.422). Similar to the current study, they used health concern (i.e. heath consciousness) as a covariate. However, they also included two different covariates not used in this study: gender and nutrition knowledge. Products that were considered to be healthy, and had a specific-nutrient content claim, received higher claim believability scores, higher attitude scores, and higher purchase intentions scores than unhealthy products with the same claim. Products that were considered to be unhealthy, and had a taste claim, received higher claim believability scores, higher attitude scores, and higher purchase intentions scores than healthy products with the same claim. They concluded that the results observed “might indicate that consumers do not favourably respond to unmatched claims in food advertising, the worst consequence of which could be deterioration in advertising effects, brand image and sales/profit” (p. 436). Nonetheless, no main effect of claim type was found on any of the dependent variables measured (claim believability, attitude toward the ad, attitude toward the brand, and purchase intentions).

Although some studies have found significant effect of claim types of communication effectiveness (Andrews, Netemeyer, & Burton, 1998; Burton, Andrews, & Netemeyer, 2000), the current study conducted differed from them. For example,

57 Gender (in the current study measured as sex) was not incorporated as a covariate in this study (although it was measured) because manipulation checks demonstrated that there was no variability between groups in terms of sex.
Andrews et al. (1998) were seeking to “(1) provide a better understanding of how consumers might misinterpret (i.e., over- generalize) common nutrient content claims in advertising, and (2) examine the influence of a variety of ad disclosures, ad claim types, and nutrition knowledge on such nutrition generalizations, and ad beliefs” (p.70). To achieve this, they conducted interviews with consumers, instead of conducting a questionnaire. Conducting interviews allows participants of the study to ask questions, and allows the researcher to clarify any aspect of the study that is not understood by the participant. The researcher would also be able to obtain additional information as to why the participant responded in a certain manner to a claim type. In addition, Andrews et al.’s study was composed mostly of female participants (67%), the primary shoppers of food products, while the current study was mostly composed of male participants (44% were female). Moreover, although ad claim type was among their independent variables, their study used a different typology of claims and tested a different variety of claims (i.e. control or taste claim -- delicious eating --, specific nutrient claim -- no cholesterol --, and a general nutrient claim – healthy). Furthermore, the dependent variables they tested were different. Although they looked at evaluations of the product, they examined this by looking at how the claim affected perceptions of healthiness, fat content of the product, cancer risk, and heart disease risk. Another difference is that their study used margarine as a product (not a product that people tend to look at as healthy), while this study used cereal as a product (a product more closely related to health).

Another study by Burton, Andrews, and Netemeyer (2000) also found significant effects of ad claim type on product evaluations. Similar to the current study, evaluations
were measured using attitude toward the ad and brand, as well as purchase intentions. Although they conducted additional analyses (using variables such as disclosures and product health perceptions) not related to the current study, they did test whether or not there were main effects of ad claim type on attitudes and purchase intentions. Using seven-point semantic differential scales, they found positive attitude towards the ad and brand as well as high purchase intentions for both the general nutrition treatment -- ``Here's a (margarine) that's Healthy for You'' -- and the specific nutrition treatment -- ``No Cholesterol -- Zero'' (p.240). However, their study differed from the current study in that they only had two ad claim types (general versus specific); they used a different typology to label their claims, and they had no control claim. Therefore, it was easier to differentiate between claims in terms of level of detail/vagueness/subjectivity. In addition, it was more believable that margarine could have no cholesterol over it being healthy for you. This could bias participants and cause them to react significantly different to each claim. Meanwhile, the current study used cereal as a product and focused on sugar and calories, healthiness, and taste in the claims tested. All of the claims could be more believable in the eyes of the participants when seen on a cereal ad (more plausible), and cause them to react similarly, as the results of this study demonstrated.
CHAPTER 6
LIMITATIONS

After conducting the experiment, several limitations were identified that could have impacted the results and could pave the way for a more effective method of testing the concept in the future. The first limitation of the study was the power of the statistical analysis. Even though at least 54 participants were assigned to each cell of the experimental design, power analysis demonstrated very low power. This could have been a cause for the lack of statistical significance of the independent variables on the dependent variables. This means that the effects of the type of claim were not large, or even moderate. If any effect of claim type or ethnicity exists on the dependent variables, the effect is small.

Also, given that it was an experimental study, it was limited in the artificial nature of it. Participants were not in their normal environment, looking at an advertisement in between other ads, in magazines, with the usual noises and distractions. Instead, they were fully aware that they were going to be exposed to an advertisement on a computer screen and asked questions about it. In addition, there was no way of knowing whether participants knew each other and revealed information about the study to one another, which potentially could have caused validity and reliability issues.

Another limitation of this study is the fact that a consumer panel was used to collect data. Therefore, participants who completed the questionnaire needed to have access to the Internet, thus limiting the generalizability of the study. The study was also limited in terms that Hispanics and non-Hispanics did not differ in terms of income, education, and BMI, three factors that differentiate the two population segments in the nation. This also affected the generalizability of the study.
Also, the selection of the ingredient or health/nutrition aspect that was the focus of the claims (sugar and calories) was pretested in the Gainesville, Florida area. The main experiment sample was collected nationwide. There is a possibility that the focus of the claim could have been a different one if the interviews had been done with a nationwide sample.

In addition, as mentioned in the discussion section, the study was limited in the fact that only one ingredient/nutrition aspect was highlighted in the claims. The study should be repeated using a variation of ingredients or health/nutrition aspects, and more than one example of each claim type should be tested.

Furthermore, manipulation checks revealed that participants did not notice significant differences between the specific nutrient content claim and the control (taste) claim, in terms of the level of detail. Therefore, this should be differentiated more in future studies. Perhaps the specific nutrient content claim should contain more detail (numbers, units, comparisons) that a taste claim cannot contain.

Additionally, there were three other factors that could affect the study. First, the Hispanics that completed the study did not have reading levels low enough to represent the Hispanics in the United States. This also affects the generalizability of the study. Second, the reading level of all the advertisements was different. The structure/function claim and the specific nutrient content claim in particular had higher reading levels. Third, the ads were not rated as highly believable. This could affect the external validity of the study since this provided an indication that the advertisements were not seen as real advertisements that could be published.
Finally, some variables that could have influenced the results of this study were not measured. Future studies should make sure to measure respondent’s skepticism of the claim, and of claims in general, health perception of the product, and nutrition knowledge.
Informed Consent

I am a graduate student at the University of Florida. As part of my dissertation, I am conducting short interviews, in order to get to know what people’s biggest health or nutritional concerns are. You (the interviewee) are being asked to participate in an interview lasting no longer than 5 minutes. The questions you will be asked are enclosed with this form. You do not have to answer any question you do not wish to answer. The interview will begin right after I have received a copy of this signed consent from you. Your identity will be kept confidential to the extent provided by law and your identity will not be revealed in the final manuscript (paper).

There are no anticipated risks, compensation or other direct benefits to you as a participant in this interview. You are free to withdraw your consent to participate and may discontinue your participation in the interview at any time without consequence.

If you have any questions regarding the study, please contact:

Mari Luz Zapata Ramos
Graduate Student
mzapata@ufl.edu

Dr. Robyn Goodman
Supervisor
rgoodman@jou.ufl.edu

If you have additional questions or problems regarding your rights as a research participant, please contact the UFIRB Office at:

IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 392-0433; email irb2@ufl.edu.

Please sign and return this copy of the form. A second copy is provided for your records. By signing this letter, you give me permission to report your responses anonymously in the final manuscript to be submitted to my faculty supervisor as part of my dissertation.

Mari Luz Zapata Ramos

I have read the procedure described above. I voluntarily agree to participate in the interview and I have received a copy of this description.

Participant name: ____________________________ Date: ______________________

Participant signature: _________________________________________________
APPENDIX B
INTERVIEW QUESTIONS

1. Whenever you are shopping for groceries or buying food, do you think about or take into consideration health or nutrition?

2. When shopping for groceries, what is the biggest health concern you focus on addressing?

3. What is it about _____________ that concerns you?

4. How do you address this problem?
   a. Do you look for any nutrients in particular?

5. How often do you eat cereal?
   a. Everyday
   b. 2-3 times a week
   c. once a week
   d. 2-3 times a month
   e. once a month
   f. never
   g. other:________________________

6. Why do you eat cereal?
7. Age: ______________

8. Gender: ____ Male ____ Female

9. Education level

   ____ Elementary School
   ____ High school
   ____ Some college
   ____ Associate’s degree or other 2-year degree
   ____ Bachelor’s degree
   ____ Master’s degree
   ____ Doctoral degree

10. Location of the interview:

    ________________________________________________
Informed Consent

Please read through this entire document before you consent to your participation in the study. Thank you.

Purpose of this research study: The purpose of this study is to get to know people’s opinions on an advertisement.

What you will be asked to do in this study: Participants will be asked to view an ad and fill in a questionnaire that will remain confidential.

Time required: Approximately 10 minutes

Risks and benefits: There are no anticipated risks or immediate benefits associated with participating in this study.

Compensation: No monetary compensation will be given on behalf of the experimenter for participating in this study. There is a possibility of receiving extra credit if the instructor of the course from where the student was recruited decides to do so. The extra credit provided will be no greater than 1% of the final grade.

Confidentiality: Every person’s answer from this study will remain confidential. No names will be used in any part of the study. Your identity will be kept confidential to the extent provided by law.

Voluntary participation: Participation in this study is completely voluntary.

Right to withdraw: Any participant may withdraw at any moment. No penalty will be enforced.

Results: The individual results of this study will only be viewed by the experimenter, the supervisor, and the coders. Group results will be available for the public to view.

Whom to contact if you have any questions about this study: If any participant has any questions, please contact the experimenter or supervisor.

Mari Luz Zapata Ramos
Graduate Student
mzapata@ufl.edu

Dr. Robyn Goodman
Supervisor
rgoodman@jou.ufl.edu

Whom to contact about your rights as a research participant in this study: UFIRB Office
Agreement: I have read the document stating the procedures to be used and followed in this study. I have received a copy of informed consent and AGREE to participate in the study.

Participant _______________________________ Date __________

Principal Experimenter _______________________________ Date __________
APPENDIX D
INFORMED CONSENT: MAIN EXPERIMENT

Please read through this entire document before you consent to your participation in the study. Thank you.

Purpose of this research study: The purpose of this study is to get to know people’s opinions on an advertisement.

What you will be asked to do in this study: Participants will be asked to view an ad and fill in a questionnaire that will remain confidential.

Time required: Approximately 10 minutes

Risks and benefits: There are no anticipated risks or immediate benefits associated with participating in this study.

Compensation: Participants will be compensated by the company from which they were recruited from in the form of company credit or monetary.

Confidentiality: Every person’s answer from this study will remain confidential. No names will be used in any part of the study. *Your identity will be kept confidential to the extent provided by law.*

Voluntary participation: Participation in this study is completely voluntary.

Right to withdraw: Any participant may withdraw at any moment. No penalty will be enforced.

Results: The individual results of this study will only be viewed by the experimenter, the supervisor, and the coders. Group results will be available for the public to view.

Whom to contact if you have any questions about this study: If any participant has any questions, please contact the experimenter or supervisor.

Mari Luz Zapata Ramos Graduate Student mzapata@ufl.edu
Dr. Robyn Goodman Supervisor rgoodman@jou.ufl.edu

Whom to contact about your rights as a research participant in this study: UFIRB Office IRB02 Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; phone 392-0433
Agreement: I have read the document stating the procedures to be used and followed in this study. I have received a copy of informed consent and AGREE to participate in the study.

Participant ___________________________ Date __________
Principal Experimenter ___________________________ Date __________
APPENDIX E
PRETESTED QUESTIONNAIRE FOR MAIN EXPERIMENT

Instructions: You will be presented with an advertisement and a set of questions. Look at the advertisement carefully. You will have 30 seconds to view it. Then, read the following questions and/or statements. Answer honestly how you feel about each. There are no right or wrong answers, only opinions. Select only one response.

For the questions with scale responses, click over the line that best corresponds to your opinion. The closer the marking is to the word, the stronger your feeling/intention.

STIMULI PRESENTED

Attitude toward the ad (Adams & Geuens, 2007)

I believe that the advertisement presented was:

- Not attractive: __:__:__:__:__ : Attractive
- Not credible: __:__:__:__:__ : Credible
- Not convincing: __:__:__:__:__ : Convincing
- Not appealing: __:__:__:__:__ : Appealing
- Bad: __:__:__:__:__ : Good

Attitude toward the brand (Homer, 1990)

The brand shown in the advertisement was:

- Like: __:__:__:__:__ : Dislike
- Favorable: __:__:__:__:__ : Unfavorable
- Good: __:__:__:__:__ : Bad

Purchase intentions (Karson & Fisher, 2005)

If this product were available today, would you buy it?

- Likely: __:__:__:__:__ : Unlikely
- Probable: __:__:__:__:__ : Improbable
Manipulation check #1 (MacKenzie & Lutz, 1989)

I feel that the advertisement presented was:

Unconvincing: _____:_____:_____:_____:_____:_____:_____: Convincing
Unbelievable: _____:_____:_____:_____:_____:_____:_____: Believable

Manipulation check #2 (Darley & Smith, 1993; Ford, Smith, & Swasy, 1990)

Read the following definitions carefully before answering any questions.

“Objective Claims: Sometimes when you read an advertisement, you know that the claim describes some feature of the product that is measured in a standard way. For example, when an ad states, "Our product weighs 24 pounds," you know that you could weigh that product and tell whether it really does weigh 24 pounds. Claims of this type are called objective claims.” (Ford, Smith, & Swasy, 1990, p.436)

“Subjective Claims: Sometimes when you read an advertisement, you know that the claim describes some feature of the product that is not measured in a standard way. For example, when an advertisement claims "This is the most beautiful station wagon ever built!" you know that different people will come to different conclusions about whether it really is the most beautiful station wagon ever built, because different people measure beauty in different ways. In other words, "beauty is in the eye of the beholder." Claims of this type are called subjective claims.” (Ford, Smith, & Swasy, 1990, p.436)

Based on this information rate the claim you were presented with.

The claim presented in the advertisement was:

Complete subjective: _____:_____:_____:_____:_____:_____:_____: Completely objective
Not based on facts: _____:_____:_____:_____:_____:_____:_____: Based on facts
Abstract: _____:_____:_____:_____:_____:_____:_____: Concrete
Contained content not everyone can agree on: _____:_____:_____:_____:_____:_____:_____: Contained content everyone can agree on
Impressionistic: _____:_____:_____:_____:_____:_____:_____: Factual
The claim presented in the advertisement was: (Adams & Geuens, 2007; Andrews, Netemeyer, & Burton, 1998)

<table>
<thead>
<tr>
<th>Not at all detailed:</th>
<th>__:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>: Very detailed</th>
</tr>
</thead>
<tbody>
<tr>
<td>General:</td>
<td><strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:____: Specific</td>
</tr>
<tr>
<td>Vague:</td>
<td><strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:____: Accurate</td>
</tr>
<tr>
<td>Not explanatory:</td>
<td><strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:____: Explanatory</td>
</tr>
<tr>
<td>Uninformative:</td>
<td><strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:<strong><strong>:</strong></strong>:____: Informative</td>
</tr>
</tbody>
</table>

Manipulation check #3 (Cheong & Kim, 2011)

State how strongly you agree or disagree with the following statements about the claim presented in the advertisement.

The claim was health-related.
   Strongly disagree: ____:____:____:____:____: : Strongly agree

The claim was taste-related.
   Strongly disagree: ____:____:____:____:____: : Strongly agree

Health Concern (Jayanti & Burns, 1998)

How strongly do you agree or disagree with the following statements?

I worry that there are harmful chemicals in my food.
   Strongly disagree: ____:____:____:____:____: : Strongly agree

I am concerned about my drinking water quality.
   Strongly disagree: ____:____:____:____:____: : Strongly agree

I usually read the ingredients on food labels.
   Strongly disagree: ____:____:____:____:____: : Strongly agree
I read more health-related articles than I did 3 years ago.

Strongly disagree: __:___:____:____:____: Strongly agree

I am interested in information about my health.

Strongly disagree: __:___:____:____:____: Strongly agree

I am concerned about my health all the time.

Strongly disagree: __:___:____:____:____: Strongly agree

Product category involvement (Adam & Geuens, 2007)

The following four (4) statements seek to understand how involved you are with a product category. The product category that is being referred to here is CEREAL (no brand in particular).

How strongly do you agree or disagree with the following statements?

Cereal is not for me.

Strongly disagree: __:___:____:____:____: Strongly agree

I rather like cereal.

Strongly disagree: __:___:____:____:____: Strongly agree

I think cereal is rather useless to me.

Strongly disagree: __:___:____:____:____: Strongly agree

Cereal leaves a good impression on me.

Strongly disagree: __:___:____:____:____: Strongly agree

Body Mass Index

What is your height?

___ feet and ___ inches
What is your weight?

__ pounds

Demographic Information

Age: _______________

Sex:

____ Male
____ Female
____ Other

Number of years spent in the U.S.: _________________

Do you consider yourself to be of Hispanic or Latino origin?

____ No, not of Hispanic nor Latino
____ Yes, Mexican, Mexican American, Chicano
____ Yes, Puerto Rican
____ Yes, Cuban
____ Yes, another Hispanic or Latino origin
    Please specify: _____________________

If yes, acculturation questions will be presented: (Marin, Sabogal, Vanoss Marin, Otero-Sabogal, & Perez-Stable, 1987)

In general, what language do you read in?

____ 1: __2: __3: __4: __5

Only Spanish: Better than English
Both equally
English better than Spanish
Only English

In general, what language do you speak in?

____ 1: __2: __3: __4: __5

Only Spanish: Better than English
Both equally
English better than Spanish
Only English
<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
</tr>
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<tbody>
<tr>
<td><strong>What was the language you used as a child?</strong></td>
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</tr>
<tr>
<td><strong><strong>1</strong></strong> : <strong><strong>2</strong></strong> : <strong><strong>3</strong></strong> : <strong><strong>4</strong></strong> : <strong><strong>5</strong></strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only Spanish</td>
<td>better than English</td>
<td>Both equally better than English</td>
</tr>
</tbody>
</table>

**What language do you usually speak at home?**

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<th></th>
<th>English</th>
<th>Spanish</th>
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<tr>
<td><strong><strong>1</strong></strong> : <strong><strong>2</strong></strong> : <strong><strong>3</strong></strong> : <strong><strong>4</strong></strong> : <strong><strong>5</strong></strong></td>
<td></td>
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</tr>
<tr>
<td>Only Spanish</td>
<td>better than English</td>
<td>Both equally better than English</td>
</tr>
</tbody>
</table>

**In which language do you usually think?**

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<th>English</th>
<th>Spanish</th>
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<td><strong><strong>1</strong></strong> : <strong><strong>2</strong></strong> : <strong><strong>3</strong></strong> : <strong><strong>4</strong></strong> : <strong><strong>5</strong></strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only Spanish</td>
<td>better than English</td>
<td>Both equally better than English</td>
</tr>
</tbody>
</table>

**What language do you usually speak with your friends?**

<table>
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<th>English</th>
<th>Spanish</th>
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<td><strong><strong>1</strong></strong> : <strong><strong>2</strong></strong> : <strong><strong>3</strong></strong> : <strong><strong>4</strong></strong> : <strong><strong>5</strong></strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only Spanish</td>
<td>better than English</td>
<td>Both equally better than English</td>
</tr>
</tbody>
</table>

**In what language are the T.V. programs you usually watch?**

<table>
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<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
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<tbody>
<tr>
<td><strong><strong>1</strong></strong> : <strong><strong>2</strong></strong> : <strong><strong>3</strong></strong> : <strong><strong>4</strong></strong> : <strong><strong>5</strong></strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only Spanish</td>
<td>better than English</td>
<td>Both equally better than English</td>
</tr>
</tbody>
</table>
In what language are the radio program you usually listen to?

1: 2: 3: 4: 5
Only Spanish: Both equally better: Only English
Better than Spanish: English

In general, in what language are the movies, T.V. and radio programs you prefer to watch and listen to?

1: 2: 3: 4: 5
Only Spanish: Both equally better: Only English
Better than Spanish: English

Your close friends are:

1: 2: 3: 4: 5
All Latinos/ More About More All
More Americans than half and Americans
Latinos than half Americans
than Latinos

You prefer to go to social gatherings/parties at which the people are:

1: 2: 3: 4: 5
All Latinos/ More About More All
More Americans than half and Americans
Latinos than half Americans
than Latinos

The persons you visit or who visit you are:

1: 2: 3: 4: 5
All Latinos/ More About More All
More Americans than half and Americans
Latinos than half Americans
than Latinos
If you could choose your children’s friends, you would want them to be:

1: __________ 2: __________ 3: __________ 4: __________ 5: __________
All Latinos/Hispanics       More Latinos than Americans
About half and than Americans
More Americans than Latinos
All Americans

Reading proficiency (Sheorey & Mokhtari, 2001).

How would you rate your English reading skills/ability?

1: __________ 2: __________ 3: __________ 4: __________ 5: __________
poor below average average good excellent

Race: (according to the Census)

1: __________ 2: __________ 3: __________ 4: __________ 5: __________
White
African American, Black, Negro
American Indian or Alaska Native
Asian
Pacific Islander
Other
Please specify: _________________________________

Highest level of education completed:

1: __________ 2: __________ 3: __________ 4: __________ 5: __________
Elementary School
High school
Some college
Associate’s degree or other 2-year degree
Bachelor’s degree
Master’s degree
Doctoral degree

Annual household income: (Income, Expenditures, Poverty, and Wealth, 2011)

1: __________ 2: __________ 3: __________ 4: __________ 5: __________
Under $15,000
$15,000 - $24,999
$25,000 - $34,999
$35,000 - $49,999
$50,000 - $74,999
$75,000 - $99,999
$100,000 and over

Manipulation check #3

What do you think this study was about?

Thank you for your time and cooperation!
APPENDIX F
ADS USED TO MODEL STIMULI

Figure F-1. MultiGrain Cheerios® Ad
Figure F-2. Fruit Loops® Ad
Figure F-3. Cheerios® Ad #1
Proven to lower cholesterol.

Cheerios® are a heart-healthy part of a balanced diet.

A delicious way to start your day, and a step towards a healthier heart. The 100% whole-grain oats in Cheerios® brand cereal are clinically-proven to lower cholesterol in a low-fat diet. With 4 grams of dietary fiber and only 2 grams of fat per serving, you can feel good knowing your breakfast is working to keep you healthy.
Figure F-5. Quaker® Ad

Figure F-6. Fiber One® Ad
With only 3 grams of sugar and 60 calories per 1 cup serving, eating Crispy Crunch may help you manage weight as part of a healthy diet.


facebook.com/crispycrunch

Figure G-1. Structure/function Claim
Reduced sugar. Fewer calories.


facebook.com/crispycrunch

Figure G-2. Specific Nutrient Content Claim
Good for your health.


facebook.com/crispycrunch

Figure G-3. General Health Claim
A tasty breakfast treat.


facebook.com/crispycrunch

Figure G-4. Control (Taste) Claim
LIST OF REFERENCES


http://www.census.gov/compendia/statab/2012/tables/12s0690.pdf


BIOGRAPHICAL SKETCH

Mari Luz Zapata Ramos completed a Bachelor in Science in Business Administration in 2006 from the University of Puerto Rico at Mayagüez and completed several M.B.A. courses at the University of Puerto Rico at Rio Piedras. She then pursued and completed a master's degree in advertising at the University of Florida. Her research focused on the brand and health outcomes that society obtains from advertising. She then pursued a doctoral degree from the same university, focusing on advertising and health communication.