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Can packaging impact consumers perceptions of what products appear to look healthy Vs. If they actually are healthy?

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To the Graduate Council:

I am submitting herewith a thesis written by Allison Grace Bagwell entitled "Can packaging impact consumers perceptions of what products appear to look healthy Vs. If they actually are healthy?." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communication and Information.

Dr. Eric Haley, Major Professor

We have read this thesis and recommend its acceptance:

Dr. Eric Haley, Dr. Matthew Pittman, Professor Robyn Blakeman

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

Can packaging impact consumers perceptions of what products appear to look healthy Vs.
If they actually are healthy?

A Thesis Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Allison Grace Bagwell

May 2023

Abstract

Packaging is a crucial aspect in the marketing world. It can give implicit and explicit cues about the content within. Food packaging is especially crucial to examine when analyzing health perceptions about a product. Packaging is a communication vehicle for the consumer to perceive the quality of the food or beverage product and possibly infer if the product is healthy just by examining the exterior of the product. This research hopes to determine if consumers base perceived health notions on bottle shape and/or color. By manipulating the shape and color of the bottle, the study is looking to find any significant differences in perceived health ideas. Three hundred nineteen individuals in the United States took a survey that examined four stimuli. Each stimulus was an image of the fruit-juice product in a bottle that had been manipulated to be tall and slim or short and wide. Each of the manipulated bottle's label and top was assigned the color yellow and green. The participants received one of the randomly assigned stimuli to examine and answer questions regarding product quality, nutrition, health, and confidence.

The results found that there is not a significant difference in the shape of the beverage bottle influencing health perceptions about the product. However, the color yellow was seen as less attractive and less "healthy" than the color green. Although there was no major significance found between packaging shape and color impacting consumer perceived health notions in this study, that could be due to the limited sample size and time-line of the study. More research should be considered to fully understand if a product's package shape and color can impact consumers perceived notions on health. This

is important for food marketers and advertisers to examine to lessen the gap between the product's actual health benefits and the perceived health benefits based on the exterior of the product.

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Introduction

Visual elements in package design can affect overall health perceptions of food or beverage products. Health trends have come and gone for decades, and in recent years, consumers seem to favor more health-conscious products. With diet fads and nutrition becoming a prominent part of society, more and more products advertise as “health” oriented. Packaging aspects such as color and shape play a critical role in grabbing an individual’s attention, especially in a busy grocery store. According to past research, when shopping for everyday products, such as food, consumers usually base their purchase decisions on the product’s visual appearance (Becker, et al, 2011). Advertisers and brand managers require an extensive understanding of the four marketing P’s: product, place, price, and promotion.

As product constitutes a large area of the four P’s, the product’s exterior design and packaging are at the core of overall product success (Bloch, 1995). Packaging is important to evaluate for brand managers and marketers. Research indicates that packaging may play a huge role in the creation or enhancement of the consumer-brand relationship (Underwood, 2003). For this research, it is important to define product packaging. Some definitions evaluate packaging as tangible in nature, a three-dimensional marketing communication vehicle that is usually intertwined with the ongoing performance of product success (Underwood, 2003). Packaging communicates visual ideas that are usually inferred based on the perceived notions of an individual consumer. According to Hirschman, “products that are imbued with symbolism are viewed as possessing meaning beyond their tangible

presence” (Hirschman, 1980). This gives an understanding of the persuasive power that packaging can possess, including health-related benefits. Packaging is a critical component in communicating a product’s intrinsic value. Past research has indicated that packaging design can affect and influence sensory expectations (Tijssen, et al, 2019). Packaging in itself is a form of advertising. But can the outward appearance of the package influence consumers to believe that one product is healthier or more health-oriented, than an alternative choice?

Packaging and Health-Perceptions

The color and shape of the packaging of a product can lead consumers to infer ideas of the quality, taste, and overall healthiness of its content. Research has revealed that expectations solely based on the visual aspects of package design depend on a variety of factors such as the type of product, the setting of the product, and the consumers’ beliefs related to these factors (Tijssen, 2019). Today, more and more consumers are becoming health conscious when selecting food and beverage products at the grocery store. The visual features of a package can give health-related cues to the shopper. The exterior or visual elements of a product are the first aspect or introduction to the product a consumer receives. Then the consumer may be promoted to pick up the product and read the labeling information after first getting an impression of the product based on its visual appearance. Visual cues such as color and shape can all assist a consumer in helping provide relevant information about the content of the package. A food or beverage package’s appearance can subconsciously provide health-related perceptions about the product. Past research has

examined the idea that the attributes of what is depicted on the imagery of a package drive consumers' conclusions on how the product is perceived (Gil-Pérez, Rebollar, & Lidón, 2020). This potentially indicates the idea that consumers may associate the imagery of a product's package with their ideal self. Furthermore, the idea that consumers can relate the physical appearance of an inanimate object with their own self, reveals the notion that packaging plays a vital role in consumers' health perceptions of the product.

Literature Review

A Review of Literature on Perceived Health and Packaging

Within society today, there are thousands of food and beverage product selections stocked up aisle after aisle in the grocery store. With health fads, diet culture, and obesity being major concerns in the United States, advertising has more persuasive power than ever. Food or beverage product packaging is in itself a form of advertising the contents of the product. Economic factors, like a decrease in the advertising budget, and new consumer trends, like online ordering and grocery pickup indicate an increasingly prominent role for packaging in the marketing mix (Underwood, 2003). There is a gap in research when examining packaging as a communication vehicle. According to Killip, a product's packaging is critical to the communication "promise" of the product experience prior to sampling the product (Killip, 1977). This suggests that consumers have a perceived notion of the quality and health-related benefits the product will consist of based on the outward appearance of the food or beverage package. Not only can packaging give implicit cues about the overall

health aspects of the product's content, but according to Hirschman, products that are imbued with symbolism are viewed as possessing meaning beyond their tangible presence (Hirschman, 1980). This notion reinforces the idea that shoppers may associate the outward appearance of a package with their ideal body image. This can be examined in the Dove Beauty campaign: Are you an apple or a pear?

Dove released a marketing campaign for its Dove body wash called, "Real Beauty Bottles." The campaign released six different types of bottle shapes ranging from tall and slim to pear-shaped, and curvy (Marilisarac, 2017). Dove's campaign intended to help women feel represented and confident in their bodies, no matter their body shape. This example highlights the notion that humans may subconsciously purchase products that "mirror" their perceived notion of their ideal self-image.

Package design can also influence sensory expectations (Tijssen, et al, 2019). Package design can play a role in consumers' perceptions of healthy vs unhealthy products which can potentially affect consumer health. A product's packaging is a key driver in the evaluation and can influence a consumer's perceptions of its content in terms of taste and calories (Donato, Barone, and Romani, 2021). Past research has revealed that implicit product packaging cues such as shape and color can have more persuasive power for a consumer than explicit product cues. The explicit product elements include nutrition labels and nutrition claims (Fesila and Chrysochou, 2018). Brands are implicitly advertising when they create a package design that alludes to the content within the package. The advertising of nutrition and health benefits as a primary message appeal of food products has become a

more prominent force to stay relevant with the more health-aware market (Andrews, Netemeyer, and Burton, 1998).

Packaging can lead consumers to believe that the content of a product is “more healthy” or contains fewer calories than an alternative product. Package design may also affect the consumers’ perception of what constitutes a healthy product. For instance, one researcher examined the package design of cookies. The same cookie was used in two tests and the package color and font were altered (Tijssen, et al, 2019). The researchers asked the consumers to evaluate the two products in terms of the expected tastiness, activeness, and healthiness of the product. The results of this research study concluded that the healthier-looking package was perceived as more healthy and less attractive than the hedonic package, which was considered more attractive and less healthy (Tijssen, et al, 2019). This research study supports the idea that package design can potentially influence consumers’ perceived health and nutrition notions. Market research shows that 80% of purchase decisions are made after the shopper examined the package (Togawa, et al, 2019). This reinforces the theory that package design is a critical component of a consumer’s perceived notion of the product.

Packaging Shape

The shape of packaging plays a vital role in consumer perception of the product. Package size, height, and shape have all been shown to affect consumer perceptions of the quality, taste, and healthiness of the product (Becker, et all, 2011). For example, packaging that simulates a slim body shape symbolically represents overall product healthiness or low-

calorie content as opposed to packaging that resembles a wide body shape (Ooijen, et al, 2017). For beverages, bottle shape plays a role in the perceived volume of the product.

According to past research, shape can influence volume and quantity perception which can impact consumption amount, possibly assisting in the problematic obesity rate in America (Festila and Chrysochou, 2018). Homberg's elongation theory suggests that the greater the height-to-width ratio of a container, the greater the estimated volume within the container (Homberg, 1975). Elongation of a container has a more positive effect on volume perceptions and actual consumption (Raghubir and Krishna, 1999). Another factor that can influence consumer perception is convex shapes. Consumers are more inclined to believe that wider or convex package shapes contain more calories and are less healthy than products in elongated or concave packaging (Festila and Chrysochou, 2018).

One research study conducted by Piaget helps to show this theory that shape can affect perceived volume amount. Piaget's research study examined children's perception of volume by using a tall, elongated cylinder beside a short, fat cylinder. Piaget used the same quantity of liquid in both cylinders and some children observed different volumes in the two containers. Piaget concluded that children appeared to base volume judgments off the height and shape of the container (Piaget, Inhelder, and Szeminska, 1960). Research has also indicated that packages with an angular shape are associated with bold flavors and are perceived as healthier than non-angular packaging (Festila and Chrysochou, 2018). Angular shapes can induce feelings of energy and strength while rounded shapes usually express friendliness (Becker, et al, 2011).

Package Color

The color of a food product package can also communicate implicit ideas to the consumer. Color plays a vital role in communicating meaning and sensory perceptions. The color of the packaging of a product is the most active visual element in the package design (Yu, et al, 2017). Package color is an important visual element that can impact and influence consumer judgments regarding taste, calorie content, and overall healthiness of the product (Festila and Chrysochou, 2018). Color is a design aspect that easily captures the shopper's eye. Color is also one of the package features that triggers the quickest, more reactive response in consumers (Swientek, 2001). Past research has shown that individuals unknowingly make connections between different sensory areas, a sensation known as cross-modal correspondence (Becker, et al, 2011). This idea reinforces the notion that the color of a package can impact perceived notions of the actual content.

An example of this is a research study that examined the 7UP brand can packaging. This study revealed that the color of the can cause consumers to experience different tastes. By adding a small percentage of yellow to the overall green 7UP cans, consumers experienced the taste of the beverage as more lemony, despite the actual drink not being altered at all (Becker, et al, 2011). This study demonstrates that altering the color of a product's packaging can influence consumer taste perception. Another research study regarding color and taste perception examined two flavors of chips. The study switched the flavor of chips that shoppers usually associated with a particular color into an alternative-colored package. Researchers discovered that incongruent pairings, such as an orange bag

that commonly indicates cheese-flavor chips, to a green bag which indicates sour cream and onion, consumers gave more incorrect responses to the actual flavor of the chip (Piqueras-Fizman and Spence, 2011). This denotes that color is a vital aspect in taste perception. Color also plays a critical role at the point of purchase. According to past research, between 62% and 90% of purchase decisions are strictly guided by the color of the package (Singh, 2006). Color attracts attention and can alter individuals' moods. This is an important aspect when examining packaging and health perceptions, as some colors can induce hunger feelings.

Hypothesis and Research Questions:

This research study examines a fruit juice beverage in four different bottle packaging options to examine if packaging can influence health perceptions. It is hypothesized based on the review of literature that shape and color of product packaging factors into a consumer's perceived health. There are two main hypotheses.

H1: Package shape (tall, thin V short, wide) will lead to different perceptions of the quality and overall perceived healthiness (healthy V unhealthy) of the product.

H2: Package color (yellow V green) can impact perceived notions of the product's health perception.

Methodology

Participants

Three hundred nineteen people participated in the survey. The survey was distributed through MTurk and isolated to just the United States.

Stimuli Development

To address the hypotheses four stimuli were needed to be developed to manipulate package shape and color. As such, four stimuli were created using Adobe Photoshop. Each stimuli contains the same volume amount and consisted of a clear bottle with an orange/red fruit juice within. There was no brand name designated for the stimuli to control brand bias. Stimulus 1's packaging consisted of a green label with a matching green bottle top and was tall and thin. Stimulus 2's packaging consisted of a green label with a green top and was short and wider. Stimulus 3's consisted of a yellow label with a yellow top and was tall and thin to match stimulus one's shape. The 4th stimulus also had a yellow label and yellow top and was short and wide to match stimulus two's shape. See figure 6 for stimuli. The color green was chosen for numerous reasons. Past research has indicated that green colors on food packaging have been correlated to perceptions of healthy or more nutritious foods (Festila and Chrysochou, 2018). Green was also chosen based on self-observations from the researcher. After visiting numerous grocery stores and observing the organic "health" aisles, green was a very prominent color in the health section of each store. Not only was green seen as being placed on "healthy" smoothie drinks and juice drinks, but

green was also placed on food packages labeled as organic. Organic items are likely to be perceived as being healthier to the average consumer. If green can be associated with organic items which can be associated as healthier, it was hypothesized by the researcher that the color green could be perceived as being more healthy than other colors. Yellow was chosen as the opposite color for the other stimuli, to see if the hypothesis that green is perceived as more healthy was accurate.

To test the hypotheses, a research instrument was developed. The randomizer effect was applied in the survey so only one stimulus was shown to the individual completing the survey. The survey contained numerous questions regarding the stimuli's product evaluation. After exposure to the randomized stimulus, participants were asked to answer questions about their evaluations of the stimulus. The questions were rated on a five-point scale, with 1 being strongly disagree and 5 being strongly agree. The instrument consisted of the following sections:

A. Questions about health:

1. This bottle looks like it would contain a healthy product.
2. This bottle looks like it would contain a product with very low sugar.

B. Questions about quality:

3. The beverage inside this bottle is probably luxurious.
4. The beverage inside this bottle is high quality.
5. The beverage inside this bottle is attractive.

C. Questions about taste and health:

6. The bottled beverage looks like it tastes bland.
7. The bottled beverage does not contain nutritious ingredients.

In addition to product evaluations, a more in-depth understanding of the participants background and personalities was needed in order to understand why the participants may respond differently to stimuli. As such, the survey used numerous scales to measure factors including confidence, health motivation, product evaluation, and visual aesthetics. The confidence scale metrics helped measure the extent of certainty an individual has (Brinol, Petty, & Tormala, 2004). The health motivation scale assisted in measuring to what degree the consumer's attitude toward viewing health as important vs. unimportant. The health motivation scale measurement used in the survey was created by (Hung and Labroo 2011). A visual aesthetics scale was developed by (Bloch, Brunel, and Arnold, 2003). This scale assisted in measuring the extent to how product visuals factored into consumer perception of quality of the product. The survey contained numerous questions regarding the stimuli's product evaluation.

Procedure

The survey was created within Qualtrics and transferred and distributed through the software Mechanical Turk (MTurk). The individuals took part on a voluntary basis and remained anonymous. Participants were shown a statement at the beginning of the survey that said, "We would like you to participate in this research project conducted by a graduate student at the University of Tennessee. The purpose of this research is to examine

your perceptions of product packaging.” If participants did not wish to take the survey, they could close out their internet browser.

The time to complete the survey was unrestricted. However, roughly 5 to 10 minutes was the estimated completion time for the survey. The individuals were asked to consent to the survey and then could continue on to see the stimulus and questions. The participants were split up into four categories. Each category randomly received one of the four stimuli to examine.

Stimuli

The product examined is a basic, generic fruit juice in a bottled container. The bottle was manipulated in each of the 4 stimuli the participants were asked to examine. All four stimuli were clear bottles and the shape, and label and top color were manipulated in each of the stimuli presented to the participants. Stimulus 1 consisted of an image of a clear fruit juice bottle with a green label and top. The shape of stimulus one was tall and slim. Stimulus 2 was an image of a clear bottle of an orange-colored fruit juice with a green label and top. Stimulus 2's shape was manipulated to be shorter and wider than stimulus one. Stimulus 3 was an image of the fruit juice bottle that is tall and slim with a red label and top. The final stimulus, stimulus 4 was an image of a short and wide bottle with a green label and top. The randomizer effect was used within Qualtrics so each individual received one of the four stimuli at random. All four bottles are frequently used by the commercial brands in the American market.

The participants were randomly separated into four groups consisting of one of the four stimuli. They were then given the same questions in the survey to respond to the stimulus presented in their respective survey. All the elements of the bottle were the exact same except for the factors that were manipulated (shape and color of label/top). The volume of the product remained consistent in each of the four stimuli. There was no verbiage or branding on the packaging.

Measurements

The survey was divided into segments based on the measurement questions. Part one of the survey examined the stimuli and product review. The second segment of the survey asked questions to measure the participants' feelings on health. The survey then attempted to measure the participants' confidence levels and feelings on body image. The survey also asked questions pertaining to feelings on nutrition and fitness behaviors as well as feelings of luxury. The survey concluded with demographics and any concluding thoughts the respondent may have.

When the survey was complete, the data was collected and exported into the software SPSS to compare and analyze the results.

Results

The first test to be conducted in SPSS was the univariate analysis of variance. Health was measured against shape and color factors. The results showed a significance value of 0.865 and an R squared equal to 0.002. This appears to indicate that the shape and color of

the fruit juice beverage packaging did not significantly impact the perceived health of the product. However, this being said there was an inverted effect between shape and color of the product. As seen in Figure 1, there is a positive relationship between the color yellow and the shape of the bottle. The short yellow bottle was seen as less healthy than the tall yellow bottle. Comparatively, the short green bottle was seen as more healthy than the tall green bottle. This would indicate that based off the stimuli presented, there was no real significance in perceived health notions.

The next data that was compared was examining if shape and color had any significant effect on the perceived quality of the product. There was not a statistically significant difference between the shape and color of the beverages packaging on perceived quality of the product. The significant factor was equal to 0.583 with a mean square of 0.578. However, as seen in Exhibit 2, both shapes of the green colored packaging were perceived as being a higher quality product than either of the yellow shaped bottles. The short wide yellow bottle was perceived as being the lowest quality product while the slim, tall yellow bottle was perceived as being a higher quality than the short, wide yellow bottle. These results may indicate that the color green for a fruit juice beverage is perceived as being a higher quality than yellow.

Luxury was also assessed to gain a deeper understanding of the consumers preferences on packaging shape and color. There were no significant results found when analyzing luxury with shape and color of the stimuli. A multivariate test was conducted to examine how shape and color of the packaging interacted with perceived notions of if the product was luxurious. The Pillai's Trace significance factor was equal to 0.812 indicating

there is no real significance. However, it should be noted, as seen in Exhibit 3, the tall, slim yellow colored bottle's contents were perceived as more luxurious than the other stimuli. This contradicts the previous results on quality, as both the yellow shaped bottles were not seen as containing a high-quality product.

To determine if packaging shape and color had any effect on perceived health of the product's content, multiple questions were asked regarding sugar levels of the product and perceived nutrition of the product. There was no significant difference found in the data. However, it can be noted that as seen in Exhibit 4, there is no real significance between color and shape of the packaging and low sugar levels. Exhibit 5 compares shape and color of the bottle and the question; this bottled beverage looks like it does NOT contain nutritious ingredients. The significance value between these factors equaled 0.307 indicating there is no statistically significant difference between the bottles and perceived nutrition of the product. As seen in Exhibit 5, both the short, wide shaped bottles were perceived as less nutritious than the tall, slim bottles. This result may indicate that shorter, wider bottles are more likely to be perceived by the average consumer as containing less nutritious ingredients as bottles that are tall and slim.

Discussion

The results found that there is no real significance between package color and shape and overall health perceptions. In this research method utilizing mechanical Turk, the individuals sampled do not have strong opinions or preferences between yellow and green labeled bottles that are tall and thin or short and wide. This could be due to the limited

number of people sampled. There are factors that could have impacted the lack of significance found in my research. The variables of the stimuli created in Photoshop may not have been manipulated enough. The shape could have been manipulated and adjusted more to create a larger difference, which may have been a perceived indicator of health. The colors used in the stimulus may also have not been far enough apart on the color wheel to create a large enough gap to indicate if the product appears healthy or not. For further research, more enhanced stimuli would be created. The shapes would be manipulated more and different colors would be chosen to see if color has an effect on perceived health. For the next research study, women should be the isolated factor as they tend to put more emphasis on appearance. The next study should also focus more on health perceptions and nutrition instead of quality. Further research should still be conducted on this to help food marketers understand the interactions between color and shape on consumers perceptions.

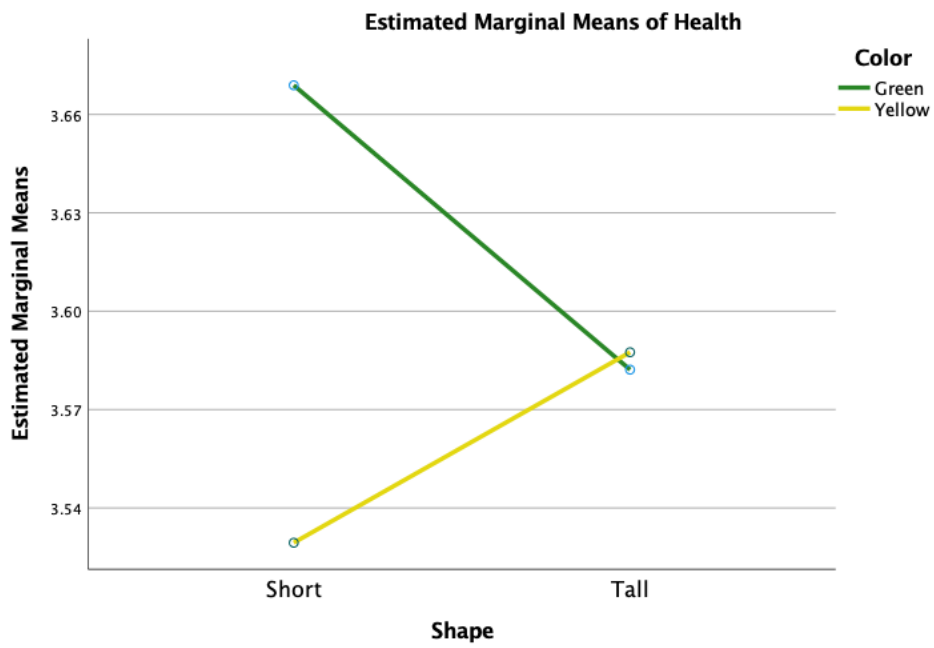


Figure 1: Health

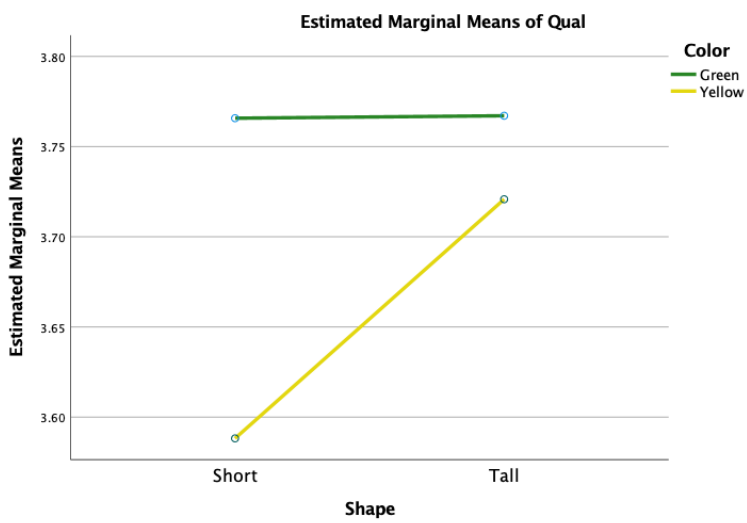


Figure 2: Quality

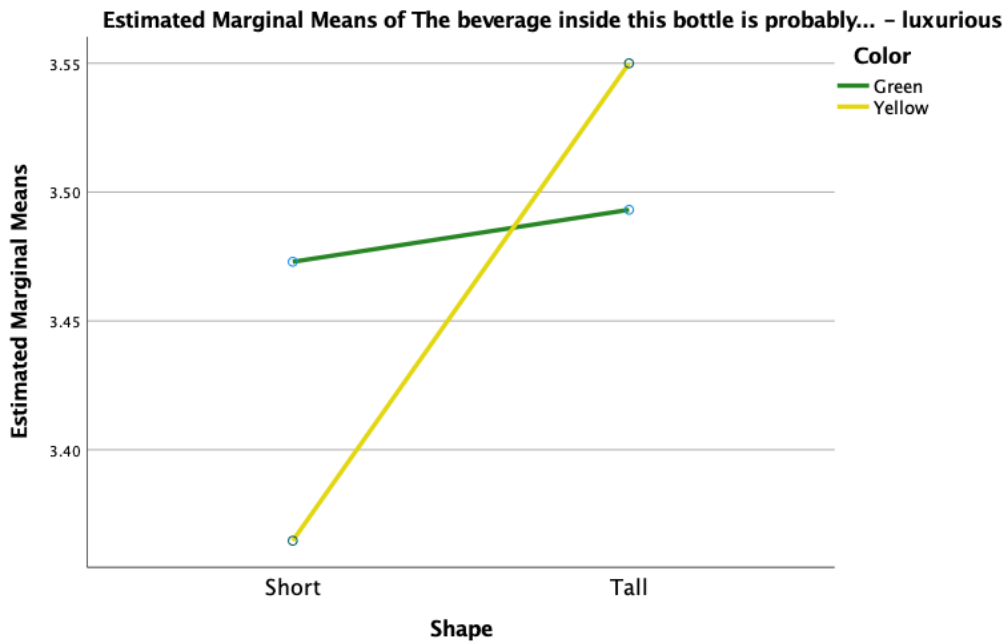
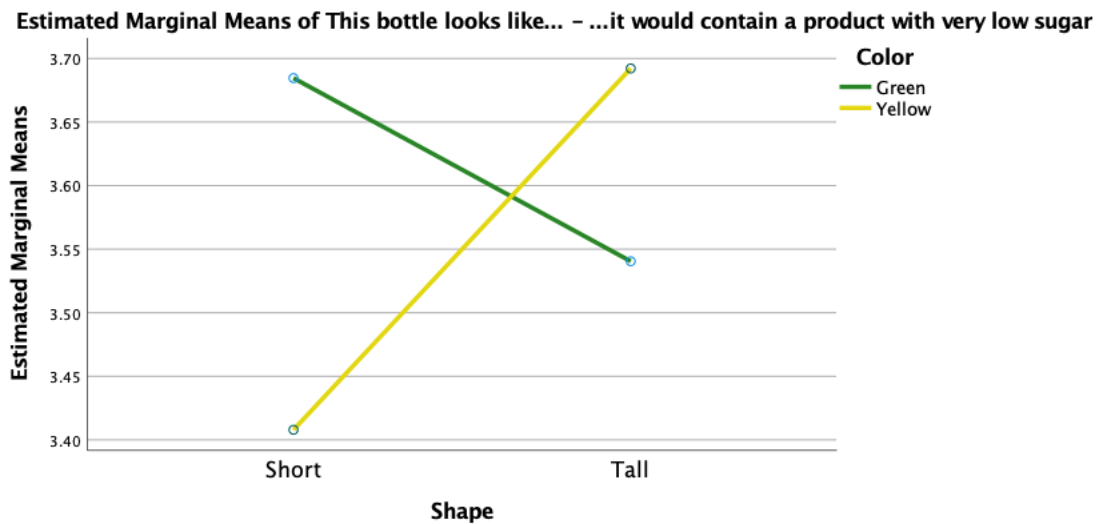


Figure 3: Luxury



Covariates appearing in the model are evaluated at the following values: Please read the following statements a select a response - I reflect about my health a lot: = 3.76, Please read the following statements a select a response - I'm very self-conscious about my health: = 3.82, Please read the following statements a select a response - I'm generally attentive to my inner feelings about my health: = 3.96, Please read the following statements a select a response - I'm very involved with my health = 3.84, Please read the following statements a select a response - I stay in shape = 3.74, Please read the following statements a select a response - I exercise every week = 3.93

Figure 4: Sugar Levels

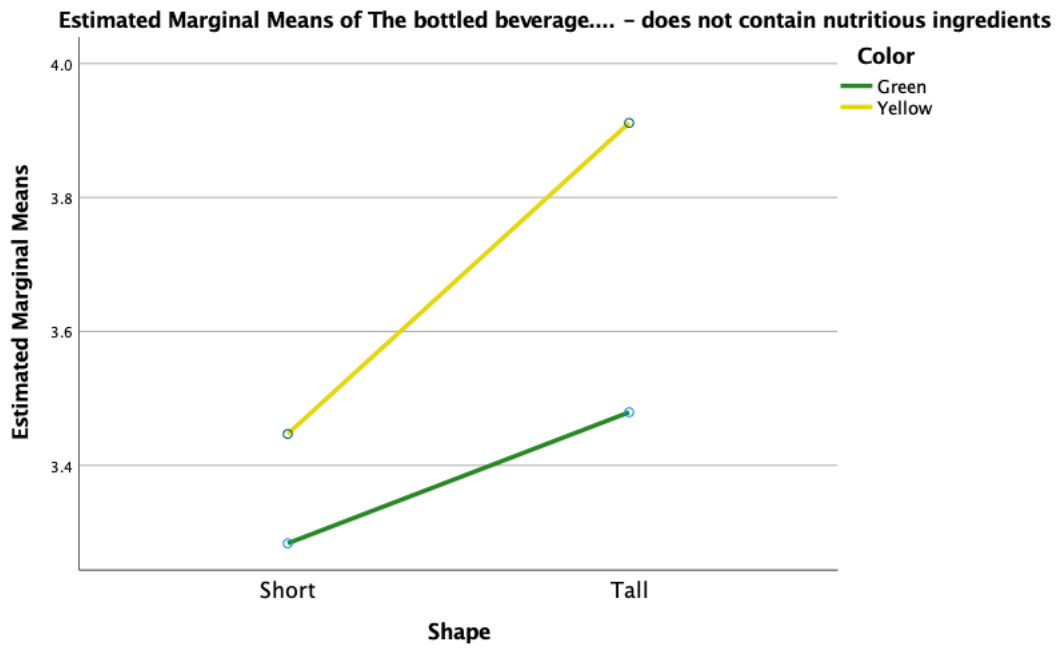


Figure 5: Nutrition

Figure 5: Nutrition



Tall, slim, green bottle



Tall, slim, yellow bottle



Short, fat, green bottle



Short, fat, yellow bottle

Figure 6: Stimuli

References

- Andrews, J. C., Netemeyer, R. G., & Burton, S. (1998). Consumer Generalization of Nutrient Content Claims in Advertising . *Journal of Marketing* , 62, 62–75. <https://doi.org/DOI:10.1177/002224299806200405>
- Becker, L., van Rompay, T. J. L., Schifferstein, H. N. J., & Galetzka, M. (2011). Tough package, strong taste: The influence of packaging design on taste impressions and product evaluations. *Food Quality and Preference* , 22(1), 17–23.
<https://doi.org/https://doi.org/10.1016/j.foodqual.2010.06.007>
- Bloch , P. H. (1995). Seeking the Ideal Form: Product Design and Consumer Response . *Journal of Marketing* , 59, 16–29.
- Bloch, P. H., Brunel, F. F., & Arnold, T. J. (2003). Individual differences in the centrality of visual product aesthetics: Concept and measurement. *Journal of Consumer Research*, 29(4), 551–565. <https://doi.org/10.1086/346250>
- Donato, C., Barone, A. M., & Romani, S. (2021). The satiating power of sustainability: the effect of package sustainability on perceived satiation of healthy food. *British Food Journal* , 123(13). <https://doi.org/> <https://doi.org/10.1108/BFJ-12-2020-1094>
- Festila, A., & Chrysochou, P. (2018). Implicit communication of food product healthfulness through package design: A content analysis. *Journal of Consumer Behavior* , 461–476.
<https://doi.org/https://doi.org/10.1002/cb.1732>

- Gil-Pérez, I., Rebollar, R., & Lidón, I. (2020). Without words: the effects of packaging imagery on consumer perception and response. *Current Opinion in Food Science*, 33, 69–77. <https://doi.org/https://doi.org/10.1016/j.cofs.2019.12.006>
- He, X. F., & Lv, X. G. (2022). From the color composition to the color psychology: Soft drink packaging in warm colors, and spirits packaging in dark colors. *Color Research and Application*, 47(3), 758–770. <https://doi.org/https://doi.org/10.1002/col.22748>
- Hung, Iris W., and Aparna A. Labroo. "From Firm Muscles to Firm Willpower: Understanding the Role of Embodied Cognition in Self-Regulation." *The Journal of consumer research* 37.6 (2011): 1046–1064. Web.
- Ooijen, I. V., Fransen, M. L., Verlegh, P. W. J., & Smit, E. G. (2017). Signalling product healthiness through symbolic package cues: Effects of package shape and goal congruence on consumer behaviour. *Appetite*, 109, 73–82. <https://doi.org/https://doi.org/10.1016/j.appet.2016.11.021>
- Pablo Briñol, Richard E. Petty, Zakary L. Tormala, Self-Validation of Cognitive Responses to Advertisements, *Journal of Consumer Research*, Volume 30, Issue 4, March 2004, Pages 559–573, <https://doi.org/10.1086/380289>
- Piqueras-Fiszman, B., & Spence, C. (2011). Crossmodal correspondences in product packaging. assessing color–flavor correspondences for Potato Chips (crisps). *Appetite*, 57(3), 753–757. <https://doi.org/10.1016/j.appet.2011.07.012>

Raghubir, P., & Krishna, A. (1999). Vital Dimensions in Volume Perception: Can the Eye Fool the Stomach? . *Journal of Marketing Research* , XXXVI, 313–326.

<https://doi.org/10.1177/002224379903600302>

Singh S. Impact of color on marketing. *Manag Decis.* 2006; 44(6): 783- 789.

Szocs, C., & Lefebvre, S. (2016). 23. The Blender Effect: Physical Food State Influences Consumers' Perceptions and Consumption . *Advances in Consumer Research* , 44.

Tijssen, I. O. J. M., Zandstra, E. H., Boer, A. den, & Jager, G. (2019). Taste matters most: Effects of package design on the dynamics of implicit and explicit product evaluations over repeated in-home consumption. *Food Quality and Preference* , 72, 126–135. <https://doi.org/https://doi.org/10.1016/j.foodqual.2018.09.009>

Togawa, T., Park, J., Ishii, H., & Deng, X. (2019). A Packaging Visual-Gustatory Correspondence Effect: Using Visual Packaging Design to Influence Flavor Perception and Healthy Eating Decisions. *Journal of Retailing* , 95(4), 204–218. <https://doi.org/https://doi.org/10.1016/j.jretai.2019.11.001Get>

Underwood, R. L. (2003). The Communicative Power of Product Packaging: Creating Brand Identity via Lived and Mediated Experience. *Journal of Marketing Theory and Practice* , 11(1), 62–76. Retrieved from https://www.jstor.org/stable/40470084?sid=primo#metadata_info_tab_contents.

Vila-Lopez, N., & Kuster-Boluda, I. (2018). Commercial versus technical cues to position a new product: Do hedonic and functional/healthy packages differ?☆. *Social Science & Medicine* , 198, 85–94.

<https://doi.org/https://doi.org/10.1016/j.socscimed.2017.12.018>

Yu L, Westland S, Li Z, Pan Q, Shin MJ, Won S. The role of individual colour preferences in consumer purchase decisions. *Color Res Appl.* 2017; 43(2): 258- 267.

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Allison Bagwell is a master's student in the College of Communication and Information Sciences program at The University of Tennessee, Knoxville. She is determined to pursue a career in advertising and consumer psychology after completing her degree. The desire to create, innovate, and communicate has always been a passion of Allison's. Allison plans to continue her higher education and receive her Doctorates in Quantitative Psychology after gaining industry experience. This research has allowed Allison to explore consumer behavior with advertising methods and will help her gain the knowledge she needs to continue her education and career goals.