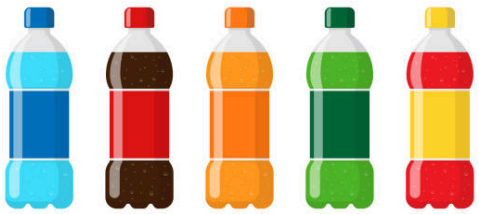
# Sip Wars of the Soda Industry: Diet vs. Regular Soda

Jensen Casassa, Leah Glass, Jenna Leedy, Abby Sauro, Lillian Wilson

This study will focus on the declining soda industry due to the introduction of new alternatives that better meet consumers' needs. According to IBISWorld, since 2012, the soda market has experienced a slight annual revenue decrease. By examining current industry standings, revenue trends, and the substitute market, this study will evaluate preferences between diet and regular soda choices and the rising demand for substitute options. The research will incorporate data visualizations and statistical analysis to examine the relationships between different individuals and their soda consumption habits. This research will identify which consumer segments are gravitating toward alternatives, driving the shift away from traditional sodas while providing insights for marketers that will aid in their marketing efforts.



## Industry Background

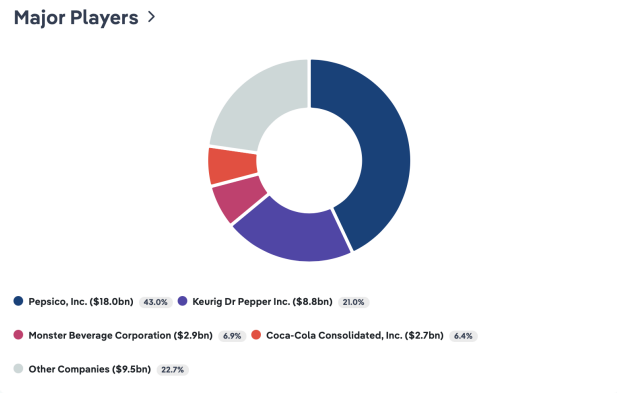
Soda gained popularity rapidly throughout the late 1800s, as sparkling beverages were believed to have medicinal properties. Soda fountains, often located in drugstores, became a popular social gathering place and encouraged experimentation with syrup flavors, ice cream soda, and carbonation science. During the early 1900s, the Temperance movement further boosted the growth of the soda industry, as soft drinks were encouraged as an alternative to alcoholic beverages (Sodasense, 2024). The trend for consumers to prefer an innovative, healthier beverage continued in the early 1960s, as artificially flavored diet soda gained popularity as an alternative to sugary drinks for diabetics. Today, the soda industry continues to be challenged to evolve, as consumers recognize the health consequences of consuming artificially flavored drinks, and demand shifts toward healthier soda alternatives. The demand shift towards these healthier alternatives has led to products such as sparkling water, gut-health-promoting sodas, and energy drinks becoming more appealing to consumers. These drinks are advertised to have a combination of benefits: low to no sugar content, no artificial sweeteners, and zero calories.

The performance of the soda industry has been impacted by consumer health concerns, supply chain disruptions caused by the COVID-19 pandemic, and innovative product differentiation by competing brands. As consumers become more informed about the risks of obesity and the safety concerns surrounding artificial sweeteners, along with legislation limiting soda sales to young children, demand for traditional sodas has declined (CNN, 2021). During COVID-19 restrictions, the soda industry faced carbon dioxide shortages, leading to disparities between large and small soda companies (IBISWorld, 2023). Larger companies with contracts managed well without adjusting for price fluctuations, while smaller soda companies struggled to maintain production due to high costs of carbon dioxide. The major players in the soda industry

face pressure to create innovative products to gain and maintain their market share as products are increasingly differentiated to meet the rising demand for healthier alternatives.

As of 2023, according to IBISWorld, PepsiCo Inc., dominates the industry with a market share of 34.5%. Coca-Cola Consolidated, Inc., currently holds 14.1% of the market share with Keurig Dr Pepper and Monster trailing behind with 11.3% and 10.8% respectively. Coca-Cola Consolidated Inc., was “founded in 1892 and is currently headquartered in Atlanta, Georgia in the United States” (Ridder, 2024). Based out of Purchase, New York, United States, PepsiCo. Inc., is “one of the largest companies worldwide in terms of market value, and is one of the leading soft drink brands worldwide” following Coca-Cola Consolidated Inc. (Ridder, 2024). Current data from 2023 shows PepsiCo Inc., has a revenue value of $18 billion, and Keurig Dr Pepper with $8.8 billion in revenue. Trailing behind, Monster has $2.9 billion in revenue and Coca-Cola Consolidated Inc., has $2.7 billion (IBISWorld, 2024).

**GRAPH 1**




Numerous issues have surfaced as challenges in the success of remaining profitable for the key players in the soda industry. One challenge is the concern about the safety of caffeinated beverage consumption. This has led government officials to propose regulations at both the state and federal levels to control the level of consumption, which in turn will dampen the soda market's growth. Additionally, “as consumers grow more health conscious, demand for regular and calorie-heavy soda, energy drinks and sports drinks” will decrease (IBISWorld, 2024). Per capita soft drink consumption has also decreased, which negatively affects the soda market revenue for the leading beverage companies. When consumer spending is high, people often buy more soda, energy drinks, sports drinks, etc., but recent studies have shown consumer spending at an extreme low starting in 2022 (IBISWorld, 2024). Lastly, demand for sweeteners and sugar has decreased as consumers become more health and weight-conscious, leading them away from traditional soda products.

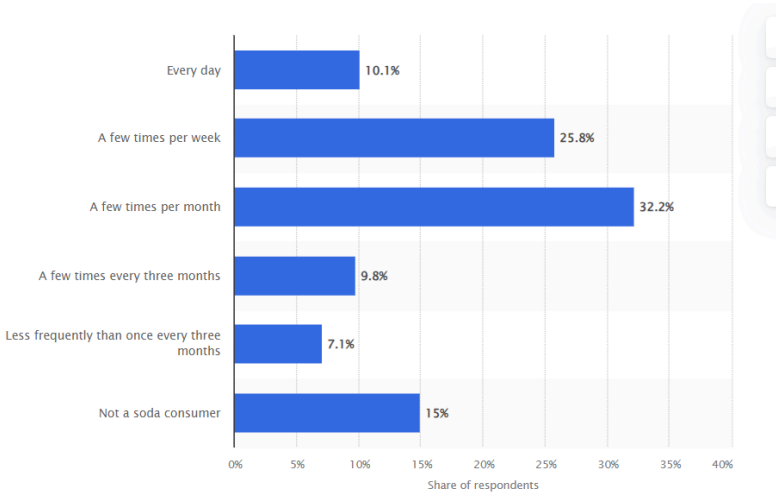
**Soda Production and Consumption**

Originally, the soda production market was centered around the idea of being “the healthy alternative” to alcoholic beverages and became extremely popular as a common beverage that brought people together—a theme still reflected in modern advertisements from major soda companies. However, as consumers have become more health-conscious, the popularity of regular carbonated soft drinks has declined, and the demand for a “new” healthy alternative has been rising. This includes products such as energy drinks, zero- to low-calorie sodas, sparkling water, and water.

Coca-Cola Consolidated Inc., being one of the major key players in this industry, has a total revenue value of $2.7 billion (IBISWorld, 2023). The fan-favorite Coca-Cola Original, Diet Coke, Sprite, and Fanta are all soft drink brands manufactured and sold by the Coca-Cola Company. PepsiCo Inc., another major key player, has a total revenue of $18 billion due to the eleven markets the company has a notable share in. In comparison to Coca-Cola, PepsiCo also produces and sells 7Up, Aquafina, Doritos, Lays, Quaker, Ruffles, Tropicana, etc. This wide range of products helps to explain why the revenue difference between the Coca-Cola Company and PepsiCo Inc., is so extreme.

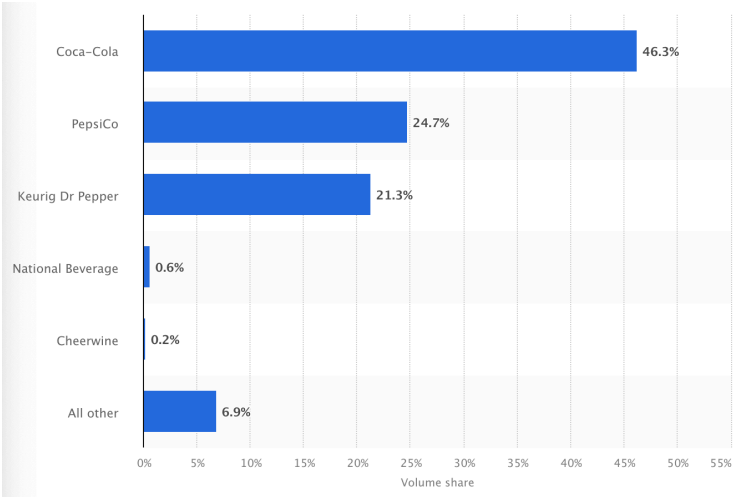
According to Statista, research shows that in the United States in 2022, the second leading consumption share of beverages was carbonated soft drinks (CSD), with bottled water being the most consumed beverage. When comparing the purchase frequency of soda, this graph from Statista shows that 32.2% of respondents who participated in this study purchase soda a few times per month, and 25.8% purchase soda a few times per week (Statista, 2017). This data provides insights into consumer purchasing patterns of soda.

**GRAPH 2**



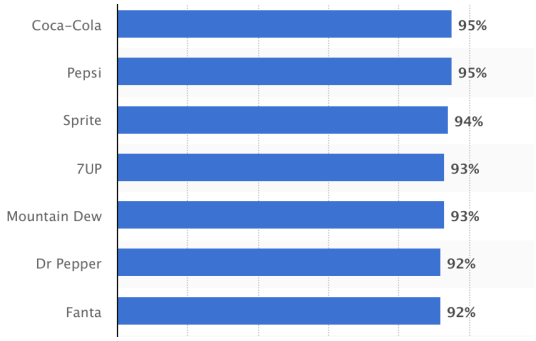
As of 2022, this bar graph from Statista shows the leading carbonated soft drink (CSD) company in the United States was Coca-Cola with 46.3% of the market share. PepsiCo is trailing behind with 25.7% and Keurig Dr Pepper is in third with 21.3% (Statista, 2023). Dating back to 2018, “nearly 52% of American consumers aged between 30 and 49 years old had had Coca-Cola Zero within the previous month” (Ridder, 2023).

**GRAPH 3**




When analyzing the most well-known soft drink brands in the United States as of 2023, Coca-Cola and PepsiCo were tied with 95%. This means 95% of the participants in this study had heard of both Coca-Cola and PepsiCo. In a close second is Sprite with 94% brand awareness. The experiment for this study entailed asking respondents to swipe right or left based on whether they were familiar with the brand or not, to ultimately draw insights about brand awareness. Respondents were shown both the brand’s logo and the written brand name. An interesting observation from a related study that focused purely on taste found that most Americans preferred Pepsi over Coca-Cola when only guided by their taste (Statista, 2023).

**GRAPH 4**

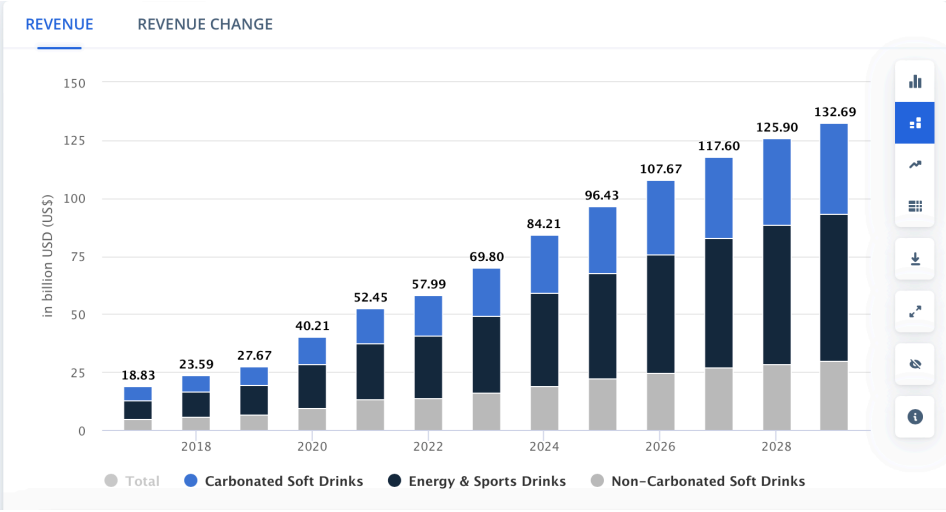


However, when evaluating the soda market and industry as a whole, it is important to note the changing narrative around these beverages. Americans have become wary of consuming sugary beverages that are sweetened with corn syrup and to combat this, leading beverage companies have attempted to introduce new flavors made with natural sweeteners. This shift shows how something that started as a substitute could find itself being substituted for a different, “healthier” option. With this being said, it is important to consider other well-known brands as they are now being posed as the alternative and raising competition in the soda industry.

**Substitutions & The Declining Industry**

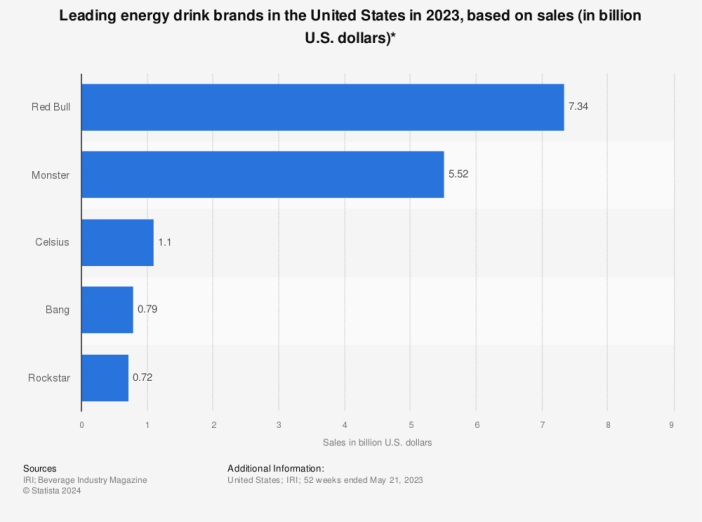
The demand for alternatives in the soda industry has grown significantly as consumers increasingly avoid harmful ingredients due to health concerns. As mentioned earlier, major players must introduce substitute products to stay competitive. Popular alternatives gaining traction include energy drinks, sparkling water, regular water, zero-calorie sodas, and more.

**GRAPH 5**



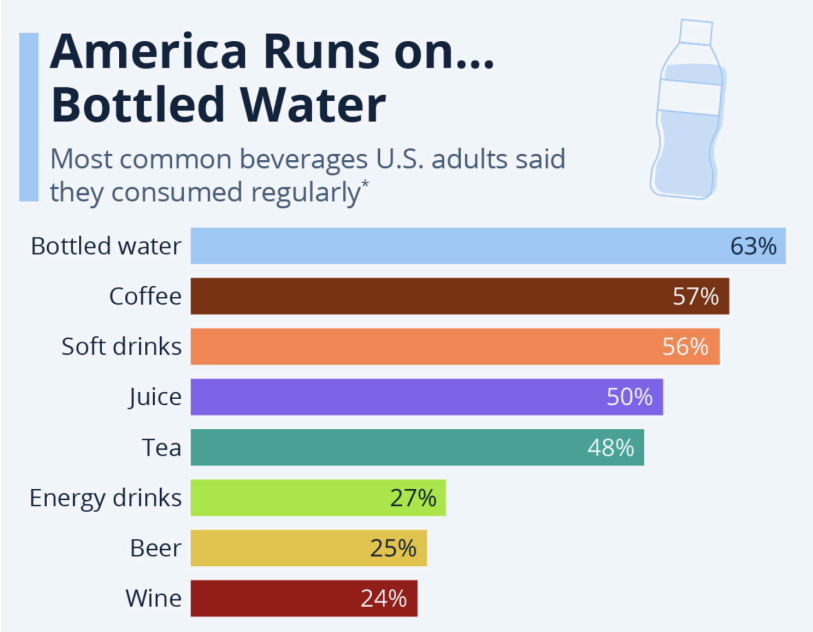

This graph from Statista displays predicted drink consumption from 2018, to 2028 (Statista, 2023). While carbonated soft drinks are increasing in consumption, so are non-carbonated soft drinks and even more distinctly, energy and sports drinks. In 2018 the three drink options appeared to be fairly equal in consumption, however, as consumption has increased the predicted levels for 2028 show energy and sports drinks to be consumed much more than carbonated soft drinks (Statista, 2023). A question to keep in mind throughout our research is what is causing the increase in consumption of energy drinks and non-carbonated drinks, and is influencing the consumers purchasing decisions.

**GRAPH 6**




As mentioned above, substitutions for soda, such as energy drinks, have increased in popularity over time becoming an option drawing some consumers away from choosing soda as a beverage of choice. Red Bull, Monster, and Celsius have become some of the most popular kinds of energy drinks among Americans, in order of highest to lowest revenue among the three. According to this Statista graph, when looking at the top three options in 2023, Red Bull had sales of $7.34 billion, Monster had sales of $5.52 billion, and Celsius had sales of $1.1 billion (Statista, 2023). These large sales show how quickly these energy drinks are becoming popular and bringing an increasing amount of revenue over time, threatening the soda industry.

**GRAPH 7**



Another leading substitute in the soda industry is bottled water, with 63% of people consuming it regularly (Statista, 2023). Bottled water stands out for its health benefits and hydration, offering no harmful additives. In fact, in 2022, bottled water made up roughly 25% of beverage consumption in the U.S., making it the most consumed beverage that year (Statista, 2024). When analyzing this data, it is evident that consumers have a wide range of alternatives to choose from, including coffee, juice, and tea, which are all within 8% of soft drink consumption. In our market research, it is crucial to consider these alternatives and understand the factors driving consumers to choose them over traditional sodas.

Beyond water, the major players in the soda industry, like Coca-Cola and PepsiCo, are capitalizing on the growing trend by launching sparkling water lines. These products offer an ideal middle ground for consumers seeking a healthier alternative to soda. Coca-Cola now partners with Topo Chico and has even introduced a caffeinated sparkling water line called Aha, while PepsiCo has its own line of carbonated water, Bubly (CNN, 2021). More recently, sparkling water has evolved to promote additional health benefits, such as gut health. Brands like Poppi and Olipop are gaining attention by positioning themselves as healthier alternatives to soda, promoting digestive wellness while offering familiar flavors like root beer, cola, and more. With these new options entering the market, consumer focus is shifting away from traditional sodas and toward healthier, innovative choices.

**Statement of the Business Problem**

As the demand for soda alternatives and substitutes continues to rise, traditional soda brands face declining sales. This presents a critical business problem: should established soda companies expand their product lines to include alternative beverages or focus on repositioning and marketing their existing drinks to appeal to new or different consumer segments? This study aims to explore how established soda brands can best respond to changing consumer preferences toward diet soda, energy drinks, sparkling water, etc.

Many soda brands have begun offering alternative beverages, reflecting the industry shift. Popular brands including The Coca-Cola Company and PepsiCo have introduced new products to diversify their product lines and capture health-conscious consumers. The main purpose of this study is to determine which consumer segments are most likely to purchase soda alternatives, and which types of alternatives are gaining the most traction in the market. Specifically, this study will examine how consumer preferences for soda alternatives differ across geographic regions, age, gender, socioeconomic status, race/ethnicity, and health-conscious behaviors. By formulating hypotheses and gathering input from consumers, the study will explore which demographics and behaviors are driving the shift toward soda substitutes.

As shown in graph 5, the popularity of soda alternatives, including energy drinks and non-carbonated drinks, are expected to grow exponentially by 2028. This proves that consumer preferences in this market are changing and stresses the need for big companies to adjust their

marketing strategies accordingly. This analysis aims to provide consumer insights into what steps companies can take to keep up with the changing marketing by discovering links between consumer demographics and preferences.

**Sample**

Data for this study was collected using Prolific. Prolific parameters are set so that subjects are drawn from only the United States. After the data was cleaned, there were a total of 175 complete responses. These responses varied in demographics such as religion, education, location, politics, sex, and ethnicity as reported in Table 1.

**TABLE 1**

| Religion | | Education | | Location | | Politics | | Sex | | Ethnicity | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| None | 81 | Less than high school | 2 | Urban | 49 | Rep | 37 | Male | 54 | Latino | 14 |
| Protestant | 40 | High school graduate | 34 | Suburban | 90 | Dem | 71 | Female | 119 | White | 105 |
| Catholic | 32 | Some college | 27 | | | | | | | Black | 31 |
| Jew | 2 | 2-year degree | 21 | Rural | 36 | Ind | 62 | Other | 2 | Asian | 13 |
| Muslim | 2 | 4-year degree | 67 | | | Other | 5 | | | American Indian | 1 |
| Buddhist | 1 | Professional degree | 19 | | | | | | | Native Hawaiian | 2 |
| Other | 17 | Doctorate | 5 | | | | | | | Other | 9 |

Overall, our sample is similar to U.S. population norms, however, the differences lie in sex, religion, politics, and ethnicity. Using data from the U.S Census Bureau and Pew Research Center, we compared U.S population norms to the demographic data collected in our sample. Our sample consists of 119 females, being 68% female, and 54 males, or 30.8% male. The U.S population differs widely, being 50.5% female and 49.5% male. Our sample consists of 81 respondents, or 46% who identify as having no religion. This varies from the U.S population, where typically 22.8% of the population identifies as having no religion. Our sample consists of 37 republicans and 71 democrats, or 21% republican and 41% democrat. Our sample varies from U.S population data, where 32% of the U.S identifies as republican, and 33% identifies as democrats. In comparing ethnicity, our sample is very similar to U.S population data, but varies widely in the amount of white respondents. Our sample consists of 105 white respondents, or 75% white, whereas the U.S population is 60% white. When running our tests, we took these differences into account by

**Hypothesis and Results**

We conducted many statistical tests to identify substitute preferences and the reasons why individuals choose other alternatives that affect their beverage consumption habits. These hypotheses can be broken down into two categories: a priori hypotheses based on theory and

post hoc exploratory hypotheses. Post hoc hypotheses explore other possible relationships before forming an initial theory. Furthermore, it is important to acknowledge that the relationships shown may be from random chance and not from real causation between two testing variables.

In the following sections below, we ran a variety of tests, including Independent Samples T-Test and Paired Samples T-Test, 2 Independent Samples (Mann Whitney U) and 2 Related Samples (Wilcoxon W) tests, Chi-Square one variable and crosstabs, Pearson and Spearman correlations, CHAID, and Regression. For each of the tests, we used varying independent and dependent variables for the different types of tests, to come to well-rounded conclusions about our survey results, all using an appropriate set alpha value. If alpha is not specified as being otherwise, it is .05.

**Independent Samples T-Test**

**A Priori Hypothesis:** To conduct the Independent Samples T-Test the nominal independent variable used was the comparison of females versus males. The statement in question, “I drink healthy beverages,” is used as the dependent variable to test whether sex is an important factor in choosing healthy beverage options. Sex as an independent variable categorizes our results for this test into 2 nominal groups while the question, “I drink healthy beverages,” was interval data with a scale to select how strongly you agree with the statement. Reasoning from stereotypes, we assume that females are more likely to choose healthier beverage options than males.

$H_1$: Males and females differ in their choice of drinking healthier beverages

With the independent variable being nominal and the dependent variable being interval, we used a t-test to test this hypothesis. The dependent variable was measured by a 5-point agreement scale with (1) strongly disagree to (5) strongly agree. Surprisingly, males drink healthier beverages (mean = 10.61) more than females (mean = 10.47), but the difference was not significant: $p = 0.404$. Therefore, being male or female does not seem to affect the decision to choose healthier beverage alternatives, supported by this Independent T-Test.

**Post Hoc Exploratory Hypothesis:** We ran 17 post hoc tests where the independent variable remained nominal, breaking sex into two categorical groups, and the dependent variables were interval or ratio. In the table below we report the result for the 3 out of 17 tests that were significant at the $a = 0.1$ or lower level. Of the three tests that were supported, % of soda bought at restaurants and concerns about weight were the most significant.

**TABLE 2**

| **Variable** | T-value | P-value | Male Mean | Female Mean |
|---|---|---|---|---|
| What % of soda do you buy from___? Convenience Store | 1.746 | 0.085 | 15.7037 | 8.9580 |
| What % of soda do you buy from___? Restaurants | -3.019 | 0.003 | 12.7222 | 22.9076 |
| I am concerned about my weight | -2.079 | 0.040 | 10.37 | 10.82 |

*Significant at the alpha 0.1 level

The results above reflect the differences between where males and females purchase their soda and how weight-conscious they are. As we expected, females are more conscious about their weight compared to males, and therefore, are more likely to be purchasing soda at dining experiences rather than on-the-go convenience stores, which are more accessible and visited more frequently. It is important to keep in mind these purchasing habits when strategizing how to market soda to males and females. For example, weight-conscious females are not going to recognize soda as a part of their daily consumption habits, whereas males might incorporate it more.

**Paired Samples**

**A Priori Hypothesis:** When looking at beverage consumption, there are many options other than soda that people could choose for various reasons. The most highly consumed beverage choice from our research was water, primarily for the purpose of its hydration and health benefits. The reasons behind people drinking beverages could have to do with their habits, mood, exercise, etc, so it can vary across individuals. Since water is the most consumed beverage, we decided to compare people's weekly water intake to soda, energy drinks, and coffee in our hypothesis tests. The goal of running these tests is to better understand how much people are choosing these other options over the consumption of water. The nominal portion of this test compares water against other beverage choices, and the dependent variable is ratio as the survey question asks people to choose how many servings they drink per week of each option. Since people can be drinking water, soda, coffee, and other options simultaneously throughout the week, we used the paired-samples t-test to run this as it is within subjects.

$H_2$: People's weekly water consumption differs from soda

$H_3$: People's weekly water consumption differs from energy drinks

$H_4$: People's weekly water consumption differs from coffee

**TABLE 3**

| **Variables:** How many servings of —----- do you drink a week? | T- Value | P-Value | 1st Mean | 2nd Mean |
|---|---|---|---|---|
| Water / Soda | 15.613 | <0.001 | 23.3412 | 5.9765 |
| Water/ Energy Drinks | 21.441 | <0.001 | 23.5460 | 2.3620 |
| Water/ Coffee | 15.203 | <0.001 | 23.7349 | 7.9458 |

The first hypothesis was supported showing that the average weekly consumption of water is significantly higher than the average weekly consumption of soda. This is not a surprise as water is consumed much more frequently than other beverages.

The second hypothesis was supported showing that the average weekly consumption of water is significantly higher than the average weekly consumption of energy drinks.

The third hypothesis was also supported showing that the average weekly consumption of water is significantly higher than the average weekly consumption of coffee.

When compared with water, the mean for coffee was the next highest consumed drink weekly, then soda, and lastly energy drinks. It is interesting to note why coffee is higher than soda, and how soda can better market their drinks to satisfy what coffee does for people to increase its consumption habits. All of these hypotheses being significant is not surprising for how reliant people are on water for hydration and various health benefits that drink substitutes cannot provide.

**Post Hoc Exploratory Hypothesis:** To further evaluate drink consumption in comparison to one another, we decided to run all different tests comparing not just water to other variables but comparing drink substitutes with one another. We ran 8 tests to see how the means compared to get a better feel of what people are choosing to consume weekly. In the table below we report the result for the 5 out of the 8 tests that were significant at the a = 0.05 or lower level. The independent variable, or the nominal values of these tests is comparing the two beverage options i.e. soda vs. energy drinks. The dependent variable, or the ratio values of these tests is where the survey asks individuals to choose how many servings of each drink are consumed a week.

**TABLE 4**

| **Variables:** How many servings of —----- do you drink a week? | T- Value | P-Value | 1st Mean | 2nd Mean |
|---|---|---|---|---|
| Soda / Energy Drinks | 5.549 | <0.001 | 5.6625 | 2.3125 |
| Soda/ Coffee | -2.997 | 0.003 | 5.4815 | 7.9753 |
| Energy Drinks/ Coffee | -8.411 | <0.001 | 2.3354 | 8.0570 |
| Energy Drinks/ Tea | -6.412 | <0.001 | 2.3789 | 6.0186 |
| Coffee/ Tea | 3.075 | 0.002 | 7.9693 | 5.6933 |

Compared to when servings of water were compared to all of the other substitutes, these tests were much closer in looking at the difference between mean 1 and mean 2. This makes sense because by taking out water, you can get a better feel for how frequently people are choosing among the substitutes. Based on this, our results showed that after water, coffee was the most consumed drink substitute, followed by soda, tea, then energy drinks. This aligns well with what our research showed before the project of consumers beverage preferences. We found it interesting that tea is consumed more than energy drinks, given the upswing of how popular they have become.

**2 Independent Samples**

**A Priori Hypothesis:** When it comes to soda, there are numerous options such as regular, diet, sugar-free, zero calorie, etc. With such diverse selections, people tend to rank these soda choices based on their personal perspective of health, considering factors like calories, artificial sweeteners, and overall nutritional value. Because of this, we wanted to explore how males and females rank the healthiness of soda options. To run the 2 Independent Samples test, we used the nominal variable “sex” and the ordinal variable “rank the following from 1 (healthiest) to 4 (least healthy)”. The scale includes regular soda, diet soda, zero-sugar soda, and sparkling water. We decided to test at the level of alpha = 0.08 with the hypothesis stated below.

$H_5$: Females rank sparkling water as a healthier option than regular soda, compared to males.

**TABLE 5**

| **Variables**: Rank the following from 1 (healthiest) to 4 (least healthy). | Mann Whitney U | P-value | Male mean | Female mean |
|---|---|---|---|---|
| Sparkling water | 2782.000 | 0.109 | 90.51 | 82.48 |
| Regular soda | 2902.000 | 0.535 | 81.89 | 86.42 |
| Independent Variable: What is your sex? Male or female | | | | |

When tested at a significance level of alpha = 0.08, the table above indicates that our hypothesis was supported. The data shows that females had a lower mean number for sparkling water healthiness, on a scale of a lower number equating to healthiest. The data also shows that on average, men had a lower mean number for regular soda, meaning they believe this option is healthier on the scale. With this data, we suggest that sparkling water companies should market campaigns to females, mentioning their product as a healthy alternative to soda. This can be done by highlighting the benefits of sparkling water such as fewer calories and more natural flavors.

**Post Hoc Exploratory Hypothesis:** To learn more about the comparison of choices between females and males, we ran 16 tests using the significance level of alpha = 0.08, with the ordinal variables “indicate how often you use the following social media”, “rank your

preference for the following drinks from 1 (favorite) to 7 (least favorite)", and "rank the following from 1 (healthiest) to 4 (least healthy)" all tested against the nominal variable "what is your sex?". Social media use results that were significant are labeled in Table 6, the significant result of ranking the healthiness of soda is labeled in Table 7, and since there were no significant results when testing sex compared to ranking drink preference from favorite to least favorite, there is no table.

**TABLE 6**

| **Variable:** Indicate how often you use the following social media | Mann Whitney U | P-value | Male mean | Female mean |
|---|---|---|---|---|
| YouTube | 2407.000 | 0.005 | 101.93 | 80.23 |
| Instagram | 2693.000 | 0.077 | 77.37 | 91.37 |
| Twitter/X | 2306.500 | 0.003 | 102.48 | 79.38 |
| Independent Variable: What is your sex? Male or female | | | | |

For this ordinal variable, the following options were given: YouTube, Facebook, Snapchat, Instagram, and Twitter/X. Out of these social media platforms, significant results were observed for YouTube, Instagram, and Twitter/X. The tests for Youtube and Twitter/X revealed that males spent more time on those platforms while females spent more time on Instagram. This is important to note because soda brands that prioritize marketing toward the male demographic should be promoted highly on Youtube and Twitter/X. On the other hand, brands aiming to reach a female audience would benefit most from a strong presence on Instagram.

**TABLE 7**

| **Variable**: Rank the following from 1 (healthiest) to 4 (least healthy) | Mann Whitney U | P-value | Male mean | Female mean |
|---|---|---|---|---|
| Diet Soda | 2596.000 | 0.073 | 75.98 | 89.12 |
| Independent Variable: What is your sex? Male or female | | | | |

For the ordinal variable, respondents were asked to rank regular soda, diet soda, zero-sugar soda, and sparkling water from 1 (healthiest) to 4 (least healthy). There was a significant result in how males and females rated the healthiness of diet soda. On average, females ranked diet soda higher on the scale, indicating that they view diet soda as less healthy compared to the other soda options. Based on these findings, we recommend that soda companies aiming to market their products as healthy should target their diet soda options towards males, while positioning regular soda for females.

**2 Related Samples (Wilcoxon)**

**A Priori Hypothesis:** An important part of understanding consumer beverage preferences in comparison to soda is knowing how people rank their beverage options from favorites to least favorite. This information is helpful in marketing in knowing consumer's beverage favorites and least favorites, to know what soda's biggest competition is. By understanding this, soda brands can come up with their own versions of these drinks to suit more customers who prefer other beverage options like energy drinks, teas, etc. Based on this information, we ran 2 related sample tests, based on ranking preferences for various drink options which is ordinal data. For this, we decided an alpha value of 0.07 or lower level was appropriate for these tests.

$H_6$: The various beverage options differ in their degree of favorability among respondents compared to soft drinks.

**TABLE 8**

| Variables: Rank your preference from 1 (favorite) to 7 (least favorite) | P-Value | Positive Difference | Negative Difference |
|---|---|---|---|
| Soft Drink-Water | <0.001 | 122 | 49 |
| Juice- Soft Drink | 0.067 | 93 | 78 |
| Energy Drink- Soft Drink | <0.001 | 140 | 31 |
| Sparkling Water- Soft Drink | <0.001 | 117 | 54 |

Above, the table shows the results of the within-sample test when asking people to rank their drink preferences from 1 (favorite) to 7 (least favorite). The first test that was run looked at the difference between preference for soft drinks compared to water. Since water is being subtracted from soft drinks, and there is a significant value with there being 122 positive differences and only 49 negative differences, this shows that people prefer water more than soft drinks. The next row has soft drinks being subtracted from juice with 93 positive differences and 78 negative differences, showing that soft drinks are preferred in this study over juice. The same goes for the next two rows where soft drink is subtracted from energy drinks and sparkling water, the results of more positive differences being found, and since the lower number indicates a higher preference shows that soft drinks are favored over energy drinks and sparkling water. Overall the hypothesis appeared to be true, getting statistically significant differences for 4 of the beverage options. It is interesting to note that coffee and tea were not statistically significant in their tests, so they are ranked most similarly as a favorite in comparison to soda.

**Post Hoc Exploratory Hypothesis:** In the above a priori hypothesis, we compared various beverage options to soft drinks specifically, seeing if there was a difference in favorites when looking at its substitutes. Below, we will be looking at the preference not just in comparison with soft drinks but with all the other drink options to grasp a better feel of how these drinks relate to one another. With these tests, an alpha value of a=0.05 or lower level will be most appropriate. The independent variable is the two beverage options that are compared in the test (nominal data) and the dependent variable is the ordinal data of the ranking of the

preferences of the drinks. We will use a within-related samples test because people are getting ranked all of the beverages. Overall we ran over 10 tests for this and got these results.

**TABLE 9**

| Variables: Rank your preference from 1 (favorite) to 7 (least favorite) | P-Value | Positive Difference | Negative Difference |
|---|---|---|---|
| Coffee- Sparkling Water | <0.001 | 62 | 109 |
| Juice- Coffee | 0.022 | 101 | 70 |
| Energy Drinks- Coffee | <0.001 | 136 | 35 |
| Sparkling Water- Coffee | <0.001 | 109 | 62 |
| Energy Drinks- Tea | <0.001 | 129 | 42 |
| Sparkling Water- Juice | <0.001 | 60 | 111 |
| Sparkling Water- Tea | <0.001 | 111 | 60 |
| Energy Drinks- Sparkling Water | <0.001 | 103 | 38 |

In conducting these tests, it is interesting to see how many of them are extremely significant with their p-value being <0.001. This shows that people have similar rankings of what beverages are their favorites vs. least favorites. While the drinks serve different purposes in terms of hydration, caffeine, temperature, etc., it is still surprising to see such strong relationships between all of the survey participants having common preferences. In the results from the table above, we can see that coffee is preferred to sparkling water, juice, and energy drinks. Additionally, tea is preferred over energy drinks and sparkling water. However, an interesting thing to note was that when running this test for coffee and tea, there was not a significant difference showing people favored it similarly. It is shocking that there are not any other close beverages in ranking favorites as drinks such as juice and sparkling water could be similar substitutes. One of the results in this table that stuck out was that sparkling water was preferred over juice. This is helpful for soda companies as this is a huge win for people to like the carbonation over natural juice, and could suggest that soda companies join the healthier carbonated drinks trend by producing not only soda but sparkling water too.

**Post Hoc Exploratory Hypothesis:** In addition to the above post hoc hypothesis test, we decided to run another one focused on a different ordinal question about ranking soda variations based on how healthy the responder thinks the beverage is with 1 being the healthiest and 4 being the least healthy. We ran 6 tests to see how people view these drink options which is important knowledge for soda marketers to understand. For this hypothesis, we will be using an alpha value of 0.05 or lower. In these within-subject tests, the independent variable (nominal) was the type of soda, and the dependent variable was the ordinal value of how the respondents ranked the beverage on the health scale.

**TABLE 10**

| Variables: Rank the following items from 1 (healthiest) to 4 (least healthy) | P-Value | Positive Difference | Negative Difference |
|---|---|---|---|
| Diet Soda- Regular Soda | 0.034 | 67 | 104 |
| Zero Sugar Soda- Regular Soda | <0.001 | 50 | 121 |
| Sparkling Water- Regular Soda | <0.001 | 18 | 153 |
| Zero Sugar Soda- Diet Soda | <0.001 | 52 | 119 |
| Sparkling Water- Diet Soda | <0.001 | 19 | 152 |
| Sparkling Water- Zero Sugar Soda | <0.001 | 18 | 153 |

The results of this test allow us to understand what consumers find to be healthy vs. unhealthy. It is no surprise that when regular soda was compared to diet, zero sugar, and sparkling water, respondents found regular soda to be the least healthy. However, this information was still helpful because although “diet” claims to be less healthy there are different additives in diet sodas which other people perceive to have more negative effects than a regular soda. In fact, 67 people which is over ⅓ of respondents ranked diet soda as less healthy than regular soda which is interesting to note and this test was the closest call with a p-value of 0.034 compared to all the rest being <0.001. In addition, it was not a surprise for the opposite to happen for sparkling water, where respondents thought of it to be the healthiest drink. The comparison most interesting to look at during this test was where people ranked diet vs. zero sugar soda, as both have additives that make it seem healthier however they both equally have negative health effects that people do not like. When looking at zero sugar soda-diet soda, people viewed zero-sugar soda to be healthier than diet soda. This can largely be an effect of the name sounding like it is healthier than other options. Marketers for zero sugar sodas should heavily take this into consideration in marketing their products as they know the effect it can have on their consumers.

**Spearman**

**A Priori Hypothesis:** When evaluating the challenges facing the soda industry, it is crucial to understand the factors that influence consumer purchasing decisions. This analysis will examine whether there is a relationship between preferring soda and believing diet soda is the healthiest beverage when compared to regular soda, zero-sugar soda, and sparkling water. By identifying how soda preferences align with health perceptions, the soda industry can gain insights into consumer behavior and tailor marketing strategies accordingly. Understanding these connections will help soda companies address the growing health-conscious trend and adjust their offerings to meet evolving consumer demands. The independent variable used for this test was the consumer’s ranking of their favorite beverage, and the dependent variable was

their ranking of what beverages they think are the healthiest out of sparkling water, zero-sugar soda, diet soda, and regular soda.

$H_7$: There is a relationship between preferring soda and believing diet soda is the healthiest beverage out of regular soda, zero-sugar soda, and sparkling water.
This hypothesis is supported by a p-value of .001 using an alpha value of .05. This result suggests a statistically significant relationship between preferring soda and believing diet soda is the healthiest beverage among regular soda, zero-sugar soda, and sparkling water. This insight indicates that consumers who favor soda may also perceive diet soda as a healthier option, highlighting the importance of health perceptions in their purchasing decisions. Soda companies can leverage this by focusing on health-conscious branding for diet sodas, promoting them as a low-calorie, sugar-free alternative. This approach could help retain soda drinkers who are concerned about health, and may also encourage them to choose diet soda over regular soda, while potentially expanding their market to compete more effectively with healthier beverage options like sparkling water.

**Post Hoc Exploratory Hypothesis:** We ran 28 post hoc exploratory tests where beverage preference was tested against what the consumer believed to be the most healthy beverage. Using an alpha of .05, four results were significant. The tested variables that had significant results are listed in Table 11 showing the correlation coefficient and Table 12 showing the p-value. The preference for water tea and energy drinks had a negative correlation with the related healthy beverage rank. The preference for energy drinks has a positive correlation with the related healthy beverage rank. The negative correlations indicate that the healthier the consumer thinks a certain beverage is, the less they prefer the related drinks. For example, the correlation coefficient between diet soda and water is -.191, meaning that a person who perceives diet soda as the most healthy option does not prefer water compared to the other beverages.

**TABLE 11**

| Correlation Coefficients Between Soda Preference and Health Beverage Liking | | | | |
|---|---|---|---|---|
| | **Independent Variable: Rank the following from 1 (healthiest) to 4 (least healthy)** | | | |
| **Dependent Variable: Rank your preference for the following drinks from 1 (favorite) to 7 (least favorite)** | Regular Soda | Diet Soda | Zero-sugar soda | Sparkling Water |
| Water | | -.191 | | |
| Tea | | -.167 | | |
| Energy Drink | | .195 | | -.174 |

**TABLE 12**

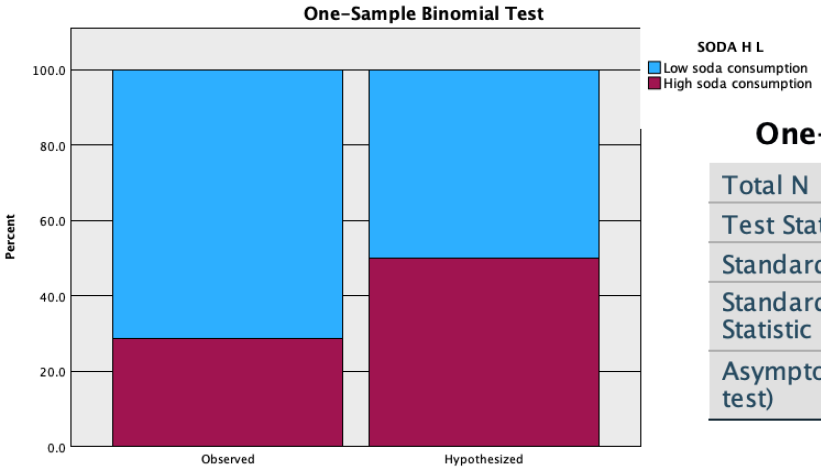
| P-Values Between Soda Preference and Health Beverage Liking | | | | |
|---|---|---|---|---|
| | **Independent Variable: Rank the following from 1 (healthiest) to 4 (least healthy)** | | | |
| **Dependent Variable: Rank your preference for the following drinks from 1 (favorite) to 7 (least favorite)** | Regular Soda | Diet Soda | Zero-sugar soda | Sparkling Water |
| Water | | .013 | | |
| Tea | | .029 | | |
| Energy Drink | | .011 | | .023 |

**Chi-Square (One-Variable)**

**A Priori Hypothesis:** As healthier beverage options have become more prevalent in the market, the demand for soda has declined over time. Various factors influence consumer beverage choices, prompting us to test a hypothesis regarding whether soda consumption remains frequent among the majority of our survey sample.

$H_8$: The majority of people who took our survey drink soda often

**GRAPH 8**




**One-Sample Binomial Test Summary**

| | |
|---|---|
| Total N | 170 |
| Test Statistic | 121.000 |
| Standard Error | 6.519 |
| Standardized Test Statistic | 5.445 |
| Asymptotic Sig.(2-sided test) | <.001 |

We used a Chi-Square test because the stated hypothesis we wanted to test is a nominal variable. The relationship between soda consumption frequency and our survey sample is statistically significant, which is demonstrated by the asymptotic significance (2-sided test) value of <0.001, which is lower than our alpha of 0.05. As shown by the results, there were significantly more people who participated in our study who said they do not drink soda frequently than hypothesized. Additionally, we have observed a much lower amount of people who did say they drank soda frequently than what was expected. This survey observed that 70% of our respondents do not drink soda that frequently and only 30% do. This data supports our overarching purpose of the survey of evaluating consumers choices in choosing healthier beverage alternatives.

**Chi-Square (Crosstabs)**

**A Priori Hypothesis:** When exploring the beverage market and what factors influence individuals' decisions to choose soda versus beverage alternatives, we wanted to test how the level of education, where a respondent lives, ethnicity, and sex affect beverage consumption habits. We tested the following a priori hypothesis.

$H_9$: Females with more education choose healthier beverage options

## TABLE 13

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What is the highest level of school you have completed or the highest degree you have received? * What is your sex? - Selected Choice | 175 | 100.0% | 0 | 0.0% | 175 | 100.0% |

**What is the highest level of school you have completed or the highest degree you have received? * What is your sex? - Selected Choice Crosstabulation**

Count

| | | What is your sex? - Selected Choice | | | |
|---|---|---|---|---|---|
| | | Male | Female | Other (Please Specify) | Total |
| What is the highest level of school you have completed or the highest degree you have received? | Less than high school | 0 | 2 | 0 | 2 |
| | High school graduate | 13 | 21 | 0 | 34 |
| | Some college | 9 | 18 | 0 | 27 |
| | 2 year degree | 6 | 15 | 0 | 21 |
| | 4 year degree | 18 | 47 | 2 | 67 |
| | Professional degree | 8 | 11 | 0 | 19 |
| | Doctorate | 0 | 5 | 0 | 5 |
| Total | | 54 | 119 | 2 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 8.821[a] | 12 | .718 |
| Likelihood Ratio | 11.375 | 12 | .497 |
| Linear-by-Linear Association | .874 | 1 | .350 |
| N of Valid Cases | 175 | | |

The tables above show the relationship between sex and level of education from everyone who completed our survey. Looking at the big picture, we are predicting that higher-educated females make healthier beverage choices. The relationship between education level and health-conscious behaviors, including beverage choices, has been explored in various studies. While individual preferences can vary widely, there is evidence to suggest that females with a higher level of education tend to make healthier drink choices compared to those with lower levels of education. Higher education often correlates with greater health literacy, higher income levels, engagement in a lifestyle that prioritizes health and wellness, etc. Our test results show that the female respondents who participated in our survey generally earned a higher education

than the men who completed the survey. For example, 5 females have earned their doctorate degree, whereas there weren't any males in our study who had.

$H_{10}$: African American men favor healthier beverage options rather than soda
$H_{11}$: The majority of African Americans who took our survey populate in urban areas

## TABLE 14

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What is your ethnicity? - Selected Choice * What is your sex? - Selected Choice | 175 | 100.0% | 0 | 0.0% | 175 | 100.0% |

**What is your ethnicity? - Selected Choice * What is your sex? - Selected Choice Crosstabulation**

Count

| | | What is your sex? - Selected Choice | | | |
|---|---|---|---|---|---|
| | | Male | Female | Other (Please Specify) | Total |
| What is your ethnicity? - Selected Choice | Latino or Hispanic | 8 | 6 | 0 | 14 |
| | White | 28 | 75 | 2 | 105 |
| | Black or African American | 12 | 19 | 0 | 31 |
| | Asian | 2 | 11 | 0 | 13 |
| | American Indian or Alaska Native | 1 | 0 | 0 | 1 |
| | Native Hawaiian or Pacific Islander | 1 | 1 | 0 | 2 |
| | Other (please specify) | 2 | 7 | 0 | 9 |
| Total | | 54 | 119 | 2 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 11.816[a] | 12 | .461 |
| Likelihood Ratio | 12.357 | 12 | .417 |
| Linear-by-Linear Association | .273 | 1 | .602 |
| N of Valid Cases | 175 | | |

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What is your ethnicity? - Selected Choice * The place where I live is best described as ... | 175 | 100.0% | 0 | 0.0% | 175 | 100.0% |

**What is your ethnicity? - Selected Choice * The place where I live is best described as ... Crosstabulation**

Count

| | | The place where I live is best described as ... | | | |
|---|---|---|---|---|---|
| | | Urban | Suburban | Rural | Total |
| What is your ethnicity? - Selected Choice | Latino or Hispanic | 6 | 6 | 2 | 14 |
| | White | 21 | 55 | 29 | 105 |
| | Black or African American | 14 | 12 | 5 | 31 |
| | Asian | 3 | 10 | 0 | 13 |
| | American Indian or Alaska Native | 1 | 0 | 0 | 1 |
| | Native Hawaiian or Pacific Islander | 0 | 2 | 0 | 2 |
| | Other (please specify) | 4 | 5 | 0 | 9 |
| Total | | 49 | 90 | 36 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 22.700[a] | 12 | .030 |
| Likelihood Ratio | 27.135 | 12 | .007 |
| Linear-by-Linear Association | 4.789 | 1 | .029 |
| N of Valid Cases | 175 | | |

The results above show the relationship between varying ethnic groups that completed our survey and were broken down more specifically to grouping each ethnic group by sex. The second set of tables looks at the ethnic groups that occupy each type of neighborhood. While African American men have historically favored soda more than some other beverage options, the trend is shifting due to numerous factors. Historically, African American communities have shown higher consumption rates of sugary drinks, including soda, compared to other groups. However, in recent years, there has been a growing awareness of the negative health effects of sugary drinks, including links to obesity, diabetes, and other chronic diseases. Many African American men, particularly in urban centers, are increasingly turning to healthier alternatives like bottled water, flavored water, or drinks with fewer calories. When looking at the data from our survey results, the African American community populated the urban area the most compared to suburban and rural. This ethnic group is also a significant target demographic for

many soda companies, and their marketing strategies have often emphasized soda as a desirable and refreshing choice. Over time, however, changing public health messages and greater availability of healthier beverages have led to a shift in consumer habits.

When analyzing our data and the research stated above, we can appropriately conclude that, while it has been studied that African American men have preferred soda in the past, as times are changing and more information has become available, this ethnic group has shifted. We are starting to see now that more are choosing healthier beverages, especially in the urban area.

**Post Hoc Exploratory Hypothesis:** We ran three tests for Chi-Square where we tested a number of different nominal variables to see if there were any notable relationships or revealed understandings worth highlighting.

**TABLE 15**

**What is your ethnicity? - Selected Choice * Marital status - Selected Choice Crosstabulation**

Count

| | | Marital status - Selected Choice | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Single (never married) | Married | Divorced | Separated | Widowed | In a domestic partnership | Total |
| What is your ethnicity? - Selected Choice | Latino or Hispanic | 5 | 7 | 0 | 0 | 0 | 2 | 14 |
| | White | 36 | 48 | 7 | 1 | 3 | 10 | 105 |
| | Black or African American | 15 | 9 | 4 | 0 | 0 | 3 | 31 |
| | Asian | 11 | 2 | 0 | 0 | 0 | 0 | 13 |
| | American Indian or Alaska Native | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | Native Hawaiian or Pacific Islander | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Other (please specify) | 5 | 3 | 1 | 0 | 0 | 0 | 9 |
| Total | | 74 | 70 | 12 | 1 | 3 | 15 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 25.246[a] | 30 | .713 |
| Likelihood Ratio | 30.372 | 30 | .447 |
| Linear-by-Linear Association | 5.182 | 1 | .023 |
| N of Valid Cases | 175 | | |

As shown in the table above, the data supports that there were more single individuals who grouped themselves into the “White” ethnic group who took our survey than any other marital status category and ethnic group. When comparing beverage preferences between different demographic groups, including white people and single people, it’s important to consider several factors like health trends, lifestyle, and access to different drink options that can influence a decision. Research has shown that white Americans in rural areas or certain regions like the Midwest or South drink more soda compared to urban populations, where healthier options or cultural differences in beverage preferences may play a role. However, it’s worth noting that the overall trend in recent years has been a decline in soda consumption across nearly all racial and ethnic groups, as people become more aware of the health risks associated with sugary drinks. There has been a significant push for healthier beverages across all demographics, with white Americans also turning to alternatives like sparkling water, flavored water, or low-sugar options. When it comes to those who are single, or just younger, they are

more likely to drink soda due to convenience, social trends and less focus on family health habits.

## TABLE 16

**What is your ethnicity? - Selected Choice * What is your religion? - Selected Choice Crosstabulation**

Count

| | | What is your religion? - Selected Choice | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Protestant | Catholic | Jew | Muslim | Other (please specify) | None | Buddhist | Total |
| What is your ethnicity? - Selected Choice | Latino or Hispanic | 0 | 3 | 0 | 0 | 3 | 8 | 0 | 14 |
| | White | 29 | 16 | 2 | 1 | 5 | 51 | 1 | 105 |
| | Black or African American | 7 | 8 | 0 | 0 | 7 | 9 | 0 | 31 |
| | Asian | 2 | 2 | 0 | 1 | 1 | 7 | 0 | 13 |
| | American Indian or Alaska Native | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Native Hawaiian or Pacific Islander | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Other (please specify) | 2 | 0 | 0 | 0 | 1 | 6 | 0 | 9 |
| Total | | 40 | 32 | 2 | 2 | 17 | 81 | 1 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 42.141[a] | 36 | .222 |
| Likelihood Ratio | 41.373 | 36 | .248 |
| Linear-by-Linear Association | .000 | 1 | 1.000 |
| N of Valid Cases | 175 | | |

The relationship between religion and ethnicity can influence soda consumption, though the impact can vary widely depending on cultural practices, dietary restrictions, health beliefs, and socioeconomic status. While religion does not typically forbid soda, religious values of moderation, health, or purity may encourage some individuals to limit their consumption of sugary drinks. For example, Christians, who encompass 16 of our survey respondents, tend to be more health conscious and might be influenced by principles of bodily stewardship and avoid soda due to concerns over sugar intake or health.

## TABLE 17

**What is your ethnicity? - Selected Choice * What is your political affiliation? - Selected Choice Crosstabulation**

Count

| | | What is your political affiliation? - Selected Choice | | | | |
|---|---|---|---|---|---|---|
| | | Republican | Democrat | Independent | Other (please specify) | Total |
| What is your ethnicity? - Selected Choice | Latino or Hispanic | 2 | 5 | 6 | 1 | 14 |
| | White | 27 | 38 | 37 | 3 | 105 |
| | Black or African American | 6 | 14 | 11 | 0 | 31 |
| | Asian | 1 | 8 | 4 | 0 | 13 |
| | American Indian or Alaska Native | 0 | 1 | 0 | 0 | 1 |
| | Native Hawaiian or Pacific Islander | 0 | 1 | 1 | 0 | 2 |
| | Other (please specify) | 1 | 4 | 3 | 1 | 9 |
| Total | | 37 | 71 | 62 | 5 | 175 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 11.839[a] | 18 | .855 |
| Likelihood Ratio | 12.955 | 18 | .794 |
| Linear-by-Linear Association | .428 | 1 | .513 |
| N of Valid Cases | 175 | | |

While political affiliation is not typically a primary factor in beverage preferences, there are some indirect ways in which political leanings could correlate with soda consumption patterns. It is important to note that these are general trends and not absolute rules. Soda consumption tends to be higher in rural areas or regions where conservative values are more prevalent. These areas often have a cultural association with traditional, comfort foods and drinks, including soda. On the other hand, liberal-leaning areas may see lower levels of soda consumption. Liberal political values are often associated with greater concern for public health, environmental sustainability, and wellness.

The data presented in the tables above clearly demonstrate that beverage consumption habits among Americans are influenced by more than just two variables. It is evident that a variety of factors, including health goals, education, dietary lifestyles, etc all play a significant role in individuals' consumption patterns.

### Pearson Correlation

**A Priori Hypothesis:** An important part of understanding consumers' beverage preferences is knowing how people rank their soda preferences by regular or diet soda, especially in the context of age. For soda companies, this information is helpful for making marketing decisions of consumer trends towards preferring diet or regular soda options and can

make these decisions based on reaching younger or older generations.

The first Pearson correlation test was run using ratio data of consumer age and interval data or consumer preference for regular or diet soda. To best understand consumer beverage preferences, we decided to test the relationship between consumer preferences for soda brands against energy drink brands, specifically within the context of Pepsi as it is the second most popular soda brand in the U.S. In the second Pearson correlation test, we compared the interval data for consumer preferences for Pepsi against the interval data for consumer preferences for Rockstar, Redbull, Monster, Celsius, and Bang brands. For both tests, we determined an alpha value where an alpha of 0.05 was appropriate.

$H_{12}$: There is a relationship between consumer's age and soda preference.

$H_{13}$: There is a relationship between Pepsi preference and energy drink brand preference.

The first hypothesis was supported with a p-value of 0.034, meaning there is a relationship between age and preference for regular or diet soda. The correlation is -0.160, describing that as age increases, consumer preferences lean toward regular soda. As age decreases, consumer preferences lean toward diet soda. Using this information, soda companies competing with healthier beverage options should consider marketing a diet soda line toward younger generations, while marketing regular soda toward older generations.

The tests, shown in Table 19, produced the correlation coefficient and p-value for the relationship between Pepsi and each energy drink brand preference. The second hypothesis was supported with p-values of 0.000, 0.004, 0.000, 0.001, and 0.011. The relationship between Pepsi brand preference and each energy drink brand preference produced a positive correlation and p-values below the threshold. We can, however, conclude that the relationship between brand preference for Pepsi and brand preference for Rockstar energy drink produced the highest positive correlation value of 0.270 and a low p-value of 0.000. With the strongest correlation, we can conclude that while there is a relationship between brand preference for Pepsi and brand preference for energy drink brands, the strongest correlation is between Pepsi and Rockstar brands. This is an important insight, as Pepsi Co. owns the Rockstar energy brand. Using this information, we can conclude that Pepsi owning Rockstar Energy is a strong marketing tactic, as the correlation of positive brand preference between the two brands is strong.

**TABLE 18**

| Correlation Between Soda Preference and Consumer's Age | Correlation | P-Value |
|---|---|---|
| Soda Preference and Consumer's Age | -0.160 | 0.034 |

**TABLE 19**

| Correlation Between Pepsi Preference and Energy Drink Brand Preference | Correlation | P-Value |
|---|---|---|
| Pepsi Preference & Rockstar Brand | 0.270 | 0.000 |
| Pepsi Preference & Redbull Brand | 0.221 | 0.004 |
| Pepsi Preference & Monster Brand | 0.264 | 0.000 |
| Pepsi Preference & Celsius Brand | 0.247 | 0.001 |
| Pepsi Preference & Bang Brand | 0.193 | 0.011 |

**Post Hoc Exploratory Hypothesis:** We ran 40 post hoc exploratory where soda brand preferences were tested for a relationship between energy drink brand preference.
Table 20 provides the correlation coefficients for each Pearson test run, and Table 21 provides the p-values for each Pearson test run.

**TABLE 20**

| **Correlation Coefficients Between Soda Brand Preference and Energy Drink Brand Preference** | | | | | |
|---|---|---|---|---|---|
| | **Independent Variable: Energy Drink Brand Preference** | | | | |
| **Dependent Variable: Soda Brand Preference** | Rockstar | Redbull | Monster | Celsius | Bang |
| Pepsi | 0.270 | 0.221 | 0.264 | 0.247 | 0.193 |
| Coke | 0.200 | 0.248 | 0.262 | 0.175 | 0.131 |
| Dr. Pepper | 0.138 | 0.058 | 0.082 | 0.089 | 0.151 |
| Sprite | 0.247 | 0.373 | 0.281 | 0.295 | 0.224 |
| Mountain Dew | 0.328 | 0.231 | 0.441 | 0.283 | 0.230 |
| Fanta | 0.300 | 0.245 | 0.206 | 0.183 | 0.220 |
| A&W | 0.192 | 0.154 | 0.145 | 0.118 | 0.202 |
| Canada Dry | 0.136 | 0.215 | 0.011 | 0.210 | 0.178 |

**TABLE 21**

| P-Values Between Soda Brand Preference and Energy Drink Brand Preference | | | | | |
|---|---|---|---|---|---|
| | **Independent Variable: Energy Drink Brand Preference** | | | | |
| **Dependent Variable: Soda Brand Preference** | Rockstar | Redbull | Monster | Celsius | Bang |
| Pepsi | 0.000 | 0.004 | 0.000 | 0.001 | 0.011 |
| Coke | 0.008 | 0.001 | 0.000 | 0.021 | 0.086 |
| Dr. Pepper | 0.071 | 0.449 | 0.287 | 0.242 | 0.047 |
| Sprite | 0.001 | 0.000 | 0.000 | 0.000 | 0.003 |
| Mountain Dew | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 |
| Fanta | 0.000 | 0.001 | 0.007 | 0.015 | 0.004 |
| A&W | 0.011 | 0.044 | 0.057 | 0.123 | 0.008 |
| Canada Dry | 0.075 | 0.005 | 0.891 | 0.006 | 0.019 |

We found that for the majority of soda brands, such as Pepsi, Coke, Sprite, and Mountain Dew, there is a positive correlation and notable relationship between soda brand preference and preference for energy drink brands such as Rockstar, Redbull, Monster, Celsius, and Bang. What stands out, however, is a stark difference in p-values and correlation coefficients for brands Dr. Pepper, A&W, and Canada Dry.

When testing these soda brands for a relationship between energy drink brand preference, we found that there is a very weak positive correlation and no notable relationship, using an alpha value of 0.05. We suggest Dr. Pepper avoids partnering with energy drink brands, as there is no notable relationship between consumer preferences of Dr. Pepper with energy drink brands Rockstar, Redbull, Monster, Celsius, and Bang. A&W soda brand resulted in a notable relationship with preferences for Rockstar, Redbull, and Bang energy drink brands, but resulted in no notable relationship with preferences for Monster and Celcisu energy drink brands. We suggest if A&W were to partner with energy drink brands, that Monster and Celsius would not be considered. Similarly, Canada Dry soda brand resulted in a notable relationship with preferences for Red Bull, Celsius, and Bang energy drink brands, but resulted in no notable relationship with preferences for Rockstar and Monster brands. We suggest if Canada Dry were to partner with energy drink brands, that Rockstar and Monster would not be considered.

**CHAID**

An important variable in understanding soda consumption is knowing factors that play into whether people have high soda consumption or low soda consumption on a weekly basis. To help us better understand which factors play a significant role in determining low vs. high soda consumption, we ran a CHAID analysis with the dependent variable coming from weekly soda consumption and utilizing almost all of our independent variables. For this analysis parent 6 nodes and 3 child nodes, and alpha was set to 0.05 or lower level.

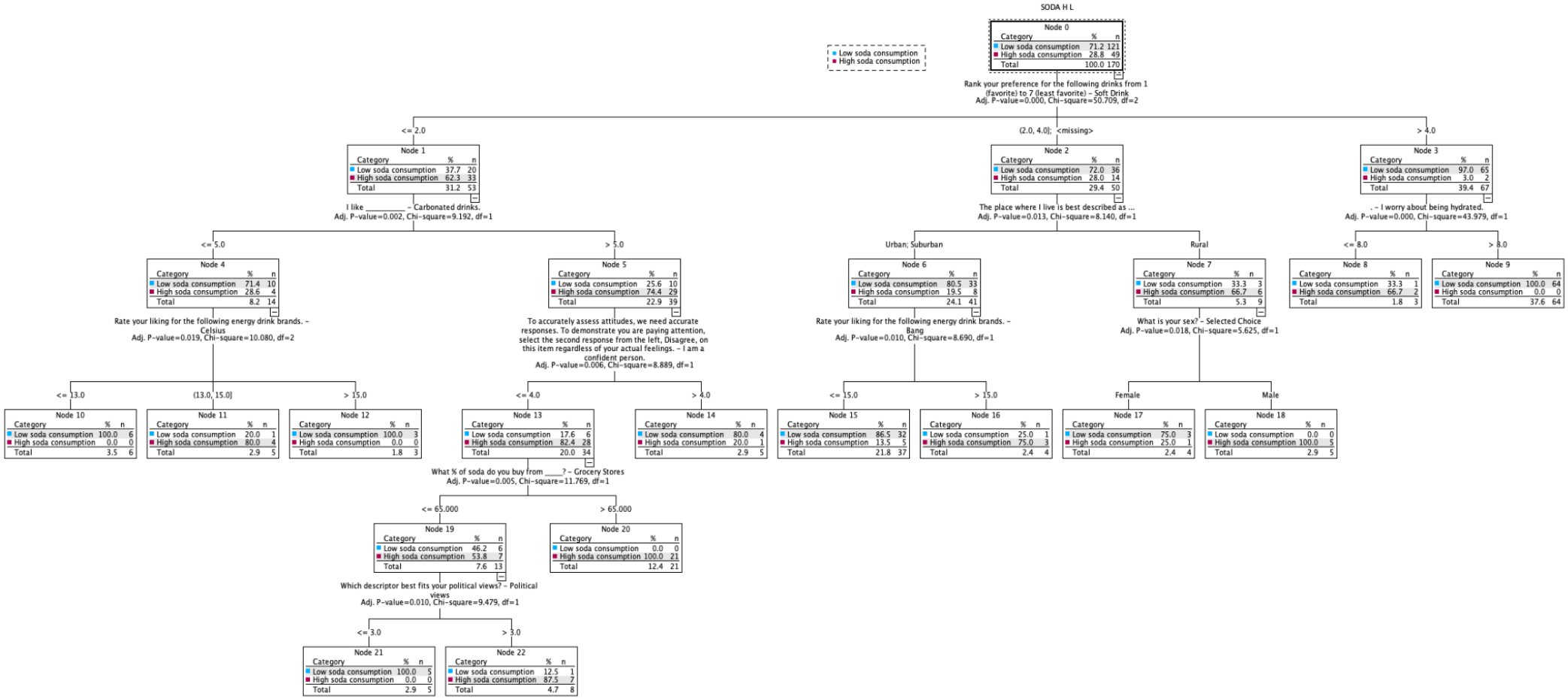
The most important predictor in high vs. low soda consumption had to do with the independent variable where users ranked their preferences of 7 different drink options from 1(favorite) to 7 (least favorite). Within this category, 28.8 people were high soda consumers who ranked soda highly as their favorite, whereas 71.2 people were low soda consumers who ranked various other drink options before soda. Since the majority of people were low soda consumers, this information is helpful for marketers to see areas of improvement so they can combat the threat of substitutes and leverage the competitive market.

In the second row of the CHAID tree there were multiple other powerful predictors worth noting. For one, worrying about being hydrated had a large effect with only 3% being high soda consumers and 97% being low soda consumers. This is a rational result because for those who are worried about staying hydrated, drinking soda is not an appropriate solution. Soda marketers could highlight the importance of balancing staying hydrated and could focus their own product promotion on beverages meant for times of celebration, a treat with meals, or times of enjoyment, being sure to focus on how it is balanced with hydration.

Something else interesting to note from the CHAID tree was based on respondents location and differing soda consumption habits within these areas. People who best described where they lived as Urban or Suburban had a majority of low soda consumption habits at 80.5% whereas rural residents had 66.7% high soda consumption. This result can be attributed to the fact that in more densely populated areas there are more options for other drinks as opposed to rural areas where their drink options may be more limited and soda can be seen as a large commodity. It was even more interesting that the rural population was broken into gender, where females had 75% low soda consumption and males had an astonishing 100% high soda consumption. This could present a niche consumer segment of rural men for marketers, however, additional research would need to be performed to see the reasons behind this result.

The last part of the CHAID tree that is worth looking at is the variable asking respondents what % of soda that they consume is bought from grocery stores. Respondents who said over 65% were bought from the stores, were 100% high soda consumers. Purchasing from the grocery store most likely means it was in the consumers home frequently and easily able to be consumed. This result could also be due to the fact that many grocery stores sell soda products in bulk. Respondents who said under 65% of the time their sodas were bought from grocery stores were only 52.2% high soda consumers. This could likely be based on the fact that purchasing soda from other places may not allow it to be in bulk and could be less convenient, and more expensive. Marketers should take this into consideration when marketing to grocery stores on how they can create deals for people to buy more of it as these are the people consuming it most frequently.

## CHAID TREE


SODA H L
Low soda consumption
High soda consumption
Node 0
Category % n
Low soda consumption 71.2 121
High soda consumption 28.8 49
Total 100.0 170
Rank your preference for the following drinks from 1 (favorite) to 7 (least favorite) - Soft Drink
Adj. P-value=0.000, Chi-square=50.709, df=2
<= 2.0
(2.0, 4.0]; <missing>
> 4.0
Node 1
Category % n
Low soda consumption 37.7 20
High soda consumption 62.3 33
Total 31.2 53
I like _____ - Carbonated drinks.
Adj. P-value=0.002, Chi-square=9.192, df=1
Node 2
Category % n
Low soda consumption 72.0 36
High soda consumption 28.0 14
Total 29.4 50
The place where I live is best described as ...
Adj. P-value=0.013, Chi-square=8.140, df=1
Node 3
Category % n
Low soda consumption 97.0 65
High soda consumption 3.0 2
Total 39.4 67
. - I worry about being hydrated.
Adj. P-value=0.000, Chi-square=43.979, df=1
<= 5.0
> 5.0
Urban; Suburban
Rural
<= 8.0
> 8.0
Node 4
Category % n
Low soda consumption 71.4 10
High soda consumption 28.6 4
Total 8.2 14
Rate your liking for the following energy drink brands. - Celsius
Adj. P-value=0.019, Chi-square=10.080, df=2
Node 5
Category % n
Low soda consumption 25.6 10
High soda consumption 74.4 29
Total 22.9 39
To accurately assess attitudes, we need accurate responses. To demonstrate you are paying attention, select the second response from the left, Disagree, on this item regardless of your actual feelings. - I am a confident person.
Adj. P-value=0.006, Chi-square=8.889, df=1
Node 6
Category % n
Low soda consumption 80.5 33
High soda consumption 19.5 8
Total 24.1 41
Rate your liking for the following energy drink brands. - Bang
Adj. P-value=0.010, Chi-square=8.690, df=1
Node 7
Category % n
Low soda consumption 33.3 3
High soda consumption 66.7 6
Total 5.3 9
What is your sex? - Selected Choice
Adj. P-value=0.018, Chi-square=5.625, df=1
Node 8
Category % n
Low soda consumption 33.3 1
High soda consumption 66.7 2
Total 1.8 3
Node 9
Category % n
Low soda consumption 100.0 64
High soda consumption 0.0 0
Total 37.6 64
<= 13.0
(13.0, 15.0]
> 15.0
<= 4.0
> 4.0
<= 15.0
> 15.0
Female
Male
Node 10
Category % n
Low soda consumption 100.0 6
High soda consumption 0.0 0
Total 3.5 6
Node 11
Category % n
Low soda consumption 20.0 1
High soda consumption 80.0 4
Total 2.9 5
Node 12
Category % n
Low soda consumption 100.0 3
High soda consumption 0.0 0
Total 1.8 3
Node 13
Category % n
Low soda consumption 17.6 6
High soda consumption 82.4 28
Total 20.0 34
Node 14
Category % n
Low soda consumption 80.0 4
High soda consumption 20.0 1
Total 2.9 5
Node 15
Category % n
Low soda consumption 86.5 32
High soda consumption 13.5 5
Total 21.8 37
Node 16
Category % n
Low soda consumption 25.0 1
High soda consumption 75.0 3
Total 2.4 4
Node 17
Category % n
Low soda consumption 75.0 3
High soda consumption 25.0 1
Total 2.4 4
Node 18
Category % n
Low soda consumption 0.0 0
High soda consumption 100.0 5
Total 2.9 5
What % of soda do you buy from ____? - Grocery Stores
Adj. P-value=0.005, Chi-square=11.769, df=1
<= 65.000
> 65.000
Node 19
Category % n
Low soda consumption 46.2 6
High soda consumption 53.8 7
Total 7.6 13
Node 20
Category % n
Low soda consumption 0.0 0
High soda consumption 100.0 21
Total 12.4 21
Which descriptor best fits your political views? - Political views
Adj. P-value=0.010, Chi-square=9.479, df=1
<= 3.0
> 3.0
Node 21
Category % n
Low soda consumption 100.0 5
High soda consumption 0.0 0
Total 2.9 5
Node 22
Category % n
Low soda consumption 12.5 1
High soda consumption 87.5 7
Total 4.7 8

**Regression**

While we have learned a lot about various variables predicting consumer's beverage consumption and leaning towards soda alternatives, we wanted to test specifically how the liking of carbonated drinks could compare to other factors. Carbonated drinks do not necessarily mean soda as it could entail sparkling juices, energy drinks, sparkling water, or healthy soda options. We decided to utilize an enter regression model to see what the best predictors were. Multiple variables were tested but the following were ones that were fairly significant to people who liked carbonated drinks. The variables were, "how many servings of soda do you think a week?", "I consume soda for taste", "I see myself as someone who is disorganized, careless", "I see myself as someone who is conventional, uncreative", and "how many people are there in your household".

**TABLE 22**

**Coefficients[a]**

| Model | | Unstandardized Coefficients B | Unstandardized Coefficients Std. Error | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|---|---|---|
| 1 | (Constant) | .951 | 1.005 | | .946 | .346 |
| | How many servings of _____ do you drink a week? - Soda | .056 | .012 | .332 | 4.751 | <.001 |
| | I consume soda for _____. - Taste | .360 | .087 | .283 | 4.133 | <.001 |
| | I see myself as someone who is ... - ... disorganized, careless. | -.135 | .059 | -.155 | -2.310 | .022 |
| | I see myself as someone who is ... - ... conventional, uncreative. | .144 | .054 | .177 | 2.667 | .008 |
| | How many people are there in your household? - Household | -.160 | .060 | -.182 | -2.653 | .009 |

a. Dependent Variable: I like _____ - Carbonated drinks.

By utilizing the enter regression model, we were able to create the table above. As seen in the table, all variables have low coefficients showing that these variables could be more important, however, their low significance value shows there is a strong relationship. All of the significance values are below our chosen alpha for this test, where alpha is 0.05 or lower level. The slope or "b" tells us the change in y value for each change in an x value. By looking at the "b" column in this chart, it appears that taste has the highest slope showing that for every one-unit increase in consuming soda for taste, the dependent variable "I like carbonated drinks" increases by 0.360. This is useful information to understand that people who consume soda for the taste of it, appreciate the carbonated element of the drink. This is important for marketers to continue making various options and alternatives to carbonated drinks because people enjoy this element. For example, Brisk is lemonade that is carbonated and is by Pepsi,

The next variable coefficient is 0.144 which is “I see myself as someone who is conventional, uncreative”. This result was interesting to me that the regression model found a significant enough connection between liking carbonated drinks and people associating themselves as being conventional and uncreative. Based on the coefficient, for every one-unit increase in respondents seeing themselves as someone who is conventional, and uncreative, there is a 0.144 increase in consumer’s liking for carbonated drinks. This means that people’s perception of carbonated drinks are associated with people who lack originality and are traditional.

The next coefficient is 0.056 which is “How many servings of soda do you drink a week”. According to the results, for every extra serving of soda people have per week, their liking for carbonated drinks increases by 0.056. This makes sense that the more people drink soda, the more they appreciate the carbonation in their beverages. Marketers can take this information into account when they are advertising their sodas to avid drinkers, making sure to include words like crisp, and bubbly, and capturing the sounds of the fizz in commercials.

The next coefficient was -0.160 which is negative relating how many people are there in your household to liking carbonated drinks which was interesting as well. Since this is a negative correlation, as the number of people living in your household goes up, there is a -0.160 decrease in liking for carbonated drinks. Marketers could take this information in catering marketing to smaller households by selling more individualized versions of the product if individuals do not want to purchase the soda in bulk. To reach more family-sized households which is what the soda industry may be currently lacking to have gotten these results, brands could look at new marketing techniques such as more variety packs with alternative options to satisfy all members of the household in case not all members enjoy the same flavored soda.

Lastly, the final significant relationship was also a negative correlation between liking carbonated drinks and the respondent’s seeing themselves as someone who is disorganized and careless. This means that for every increase in an individual viewing themself as disorganized and careless, the liking for carbonated drinks goes down by -0.135. These results suggest that marketers market their beverages as tools for productivity and self-discipline. Positioning crisp sodas in productive environments would be a good way to market these drinks to people who are organized and professional. All in all, all of the variables had fairly low coefficients showing that it doesn’t play too big of a role, but have enough influence to be significant in marketers' decisions.

**Summary and Conclusion**

Soda has long been a dominant force in the beverage industry. However, with increasing health awareness among consumers and a growing recognition of the risks associated with soda consumption, the industry faces declining demand and revenue. While soda remains in demand, the rise of substitutes such as sparkling water, energy drinks, and other beverages marketed as healthier alternatives has introduced significant challenges to the industry.Our research provides valuable insights to help marketers for major soda brands navigate these challenges. It addresses strategic decisions such as whether to introduce health-focused product lines, partner with competing brands, or reposition existing offerings to align with changing consumer preferences. By analyzing consumer preferences, health perceptions, and motivations for soda consumption, our research offers actionable recommendations to help companies stay competitive. Understanding the dynamics between soda consumption and preferences for substitutes like sparkling water or energy drinks can guide product innovation, marketing campaigns, and partnerships that resonate with health-conscious consumers while retaining loyal soda drinkers.

Our analysis reveals significant insights about soda consumption patterns. Gender differences emerged as a critical factor, with females demonstrating greater weight consciousness and a higher likelihood of purchasing soda in dining settings. Females also ranked sparkling water as a healthier option compared to regular soda. Conversely, males showed a preference for on-the-go soda purchases and were more likely to perceive regular soda as healthier than sparkling water. These findings highlight the need for tailored marketing strategies that account for these gender-based differences in health perceptions and purchasing habits. Beverage consumption trends also play a significant role in shaping the soda market. The Paired Samples Test results indicate that water is the overwhelmingly preferred beverage, with significantly higher weekly consumption compared to soda, energy drinks, and coffee. Coffee emerged as the most popular alternative to water, with a higher weekly consumption rate compared to soda or energy drinks. In terms of substitutes, tea and sparkling water were favored over energy drinks, while regular soda was consistently rated as the least healthy option when compared to diet soda, zero-sugar soda, and sparkling water. These findings highlight the importance of understanding consumer preferences to strategically position soda products in a competitive market. Geographic and retail insights further inform marketing strategies for soda companies. Our research found that soda is consumed more frequently in rural areas and is primarily purchased from grocery stores. These findings suggest that marketers should focus efforts on these specific segments to sustain and grow sales, particularly by emphasizing convenience, accessibility, and value in these markets. To combat the rise in popularity of energy drinks and health conscious drinks, soda marketers can rebrand diet sodas to emphasize health benefits such as low calories and natural ingredients. Product innovation, such as offering sparkling water with added functional benefits like vitamins or flavors can also attract health-conscious consumers. Additionally, leveraging existing brand synergies with energy drinks, like Pepsi's Rockstar, can help reach consumers who enjoy both sodas and energy drinks. By adapting to these trends and recognizing what segments are most attractive, soda companies can remain competitive in the changing beverage landscape.

**Survey**

**Consumer Demographics and Beverage Preferences Survey**

**Identification of Investigators & Purpose of Study**

You are being asked to participate in a research study conducted by Jenna Leedy, Abigail Sauro, Jensen Casassa, Lillian Wilson, and Leah Glass from James Madison University. The purpose of this study is to learn about how various demographic and psychographic attributes affect consumer preferences. This study will contribute to the researchers' completion of a data analysis class project. **Research Procedures** This study consists of an online survey that will be administered to individual participants through MTurk and Qualtrics (an online survey tool). You will be asked to provide answers to a series of questions related to beverages. **Time Required**

Participation in this study will require about 5 minutes of your time.

**Compensation**You will receive $8.00 per hour compensation through Prolific for participation in this study.

Participation in this study will require about 5 minutes of your time.

**Risks** The investigators do not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life). **Benefits** Potential benefits from participation in this study include compensation paid through MTurk. **Confidentiality** The results of this research will be presented in a written report that meets a class requirement. While individual responses are anonymously obtained and recorded online through MTurk and Qualtrics, data is kept in the strictest confidence. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location only accessible to the researchers. The researchers retain the right to use and publish non-identifiable data. At the end of the study, all records will be destroyed. Final aggregate results will be made available to participants upon request. **Participation & Withdrawal** Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study. **Questions about the Study** If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact: Researcher's Name: Jenna Leedy Department of Marketing James Madison University Email Address: leedy2je@dukes.jmu.edu Advisor's Name: Val Larsen Department of Marketing James Madison University Email Address: larsenwv@jmu.edu Telephone: (540) 568-3858 Questions about Your Rights as a Research Subject Dr. Lindsey Harvell-Bowman Chair, Institutional Review Board James Madison University Email Address: Harve2la@jmu.edu Telephone: (540) 568-7308

**Giving of Consent** I have been given the opportunity to ask questions about this study. I have read this consent and I understand what is being requested of me as a participant in this

study. I certify that I am at least 18 years of age. By clicking on the link below, and completing and submitting this anonymous survey, I am consenting to participate in this research. This study has been approved by the IRB, protocol # IRB-FY25-350.

- ○ I consent, begin the study (1)
- ○ I do not consent, I do not wish to participate (2)

Start of Block: SURVEY INSTRUCTION

Sex What is your sex?

- ○ Male (1)
- ○ Female (2)
- ○ Other (Please Specify) (3)

_____

Ethnicity What is your ethnicity?

- ○ Latino or Hispanic (1)
- ○ White (2)
- ○ Black or African American (3)
- ○ Asian (4)

- ○ American Indian or Alaska Native (5)
- ○ Native Hawaiian or Pacific Islander (6)
- ○ Other (please specify) (7)

_____

Age Age (in years)

18 26 34 43 51 59 67 75 84 92 100

| | |
|---|---|
| Click to write Choice 1 () | |

Marriage Marital status

- ○ Single (never married) (1)
- ○ Married (2)
- ○ Divorced (3)

- ○ Separated (4)
- ○ Widowed (5)
- ○ In a domestic partnership (6)
- ○ Other (please specify) (7)

_____

Income Total household income (in thousands of dollars) up to $175,000+

0 18 35 53 70 88 105 123 140 158 175

| | |
|---|---|
| Income () | |

Household# How many people are there in your household?

0 1 2 3 4 6 7 8 9 10 11

| | |
|---|---|
| Household () | |

Children How many children do you have? (If 0 click the slider at 0.)

0 1 2 3 4 6 7 8 9 10 11

| | |
|---|---|
| Children () | |

EdDegree What is the highest level of school you have completed or the highest degree you have received?

- ○ Less than high school (1)
- ○ High school graduate (2)
- ○ Some college (3)
- ○ 2 year degree (4)

- ○ 4 year degree (5)
- ○ Professional degree (6)
- ○ Doctorate (7)

Employment Employment status

- ○ Employed full time (1)
- ○ Employed part time (2)
- ○ Unemployed looking for work (3)
- ○ Unemployed not looking for work (4)
- ○ Retired (5)
- ○ Student (6)
- ○ Disabled (7)

Location The place where I live is best described as ...

- ○ Urban (1)
- ○ Suburban (2)
- ○ Rural (3)

Religion What is your religion?

- ○ None (8)
- ○ Protestant (1)
- ○ Catholic (2)
- ○ Jew (4)
- ○ Muslim (5)
- ○ Buddhist (9)
- ○ Hindu (6)
- ○ Other (please specify) (7)

_____

Religiosity Degree of religiosity

| | Very irreligious (1) | Irreligious (2) | Somewhat irreligious (3) | Neither religious nor irreligious (4) | Somewhat religious (5) | Religious (6) | Very religious (7) |
|---|---|---|---|---|---|---|---|
| Rate your degree of religiosity (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

PoliticalParty What is your political affiliation?

- ○ Republican (1)
- ○ Democrat (2)
- ○ Independent (3)
- ○ Other (please specify) (4)

_____

PoliticalInvolvment What is your degree of political involvement

| | Very Uninvolved Politically (1) | Uninvolved (2) | Somewhat Uninvolved (3) | Neither Involved nor Uninvolved (4) | Somewhat Involved (5) | Involved (6) | Very Involved Politically (7) |
|---|---|---|---|---|---|---|---|
| Political involvement (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Ideology Which descriptor best fits your political views?

| | Very Liberal (1) | Liberal (2) | Somewhat Liberal (3) | Moderate (4) | Somewhat Conservative (5) | Conservative (6) | Very Conservative (7) |
|---|---|---|---|---|---|---|---|
| Political views (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Personality:ACENO I see myself as someone who is ...

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither Agree nor Disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| ... sympathetic, warm. (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ... disorganized, careless. (2) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ... is extraverted, enthusiastic. (3) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ... anxious, easily upset. (4) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| ... conventional, uncreative. (5) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

Attention To accurately assess attitudes, we need accurate responses. To demonstrate you are paying attention, select the second response from the left, Disagree, on this item regardless of your actual feelings.

| | Strongly Disagree (1) | Disagree (2) | Somewhat Disagree (3) | Neither agree nor disagree (4) | Somewhat Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|
| I am a confident person. (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

ShopVenue Where do you most like to shop, online or in a store?

| | Strongly Prefer Online (1) | Prefer Online (2) | Somewhat Prefer Online (3) | No Preference for Online or Store (4) | Somewhat Prefer a Store (5) | Prefer a Store (6) | Strongly Prefer a Store. (7) |
|---|---|---|---|---|---|---|---|
| Shopping preference (1) | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

SocialMedia Indicate how often you use the following social media.

| | Never (1) | Less than once a day (2) | About once a day (3) | More than once a day (4) |
|---|---|---|---|---|
| YouTube (1) | ○ | ○ | ○ | ○ |
| Facebook (2) | ○ | ○ | ○ | ○ |
| Snapchat (3) | ○ | ○ | ○ | ○ |
| Instagram (4) | ○ | ○ | ○ | ○ |
| Twitter/X (5) | ○ | ○ | ○ | ○ |

End of Block: SURVEY INSTRUCTION

Start of Block: Block 2

Q20 I like _____

| | Strongly Disagree (1) | Moderately Disagree (3) | Neutral (4) | Moderately Agree (5) | Strongly Agree (6) |
|---|---|---|---|---|---|
| Carbonated drinks. (1) | ○ | ○ | ○ | ○ | ○ |
| Non-carbonated drinks. (2) | ○ | ○ | ○ | ○ | ○ |
| Caffeinated drinks. (4) | ○ | ○ | ○ | ○ | ○ |
| Flavored drinks. (5) | ○ | ○ | ○ | ○ | ○ |
| Vitamin infused drinks. (6) | ○ | ○ | ○ | ○ | ○ |
| Diet drinks. (7) | ○ | ○ | ○ | ○ | ○ |

Q21 Rank your preference for the following drinks from 1 (favorite) to 7 (least favorite)

_____ Water (1)

_____ Coffee (2)

_____ Soft Drink (3)

_____ Tea (4)

_____ Juice (5)

_____ Energy Drinks (6)

_____ Sparkling Water (7)

Q22 How many servings of _____ do you drink a week?

| | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 |
|---|---|---|---|---|---|---|---|---|
| Water () | | | | | | | | |
| Soda () | | | | | | | | |
| Energy Drinks () | | | | | | | | |
| Coffee () | | | | | | | | |
| Tea () | | | | | | | | |

Q23 .

| | Strongly disagree (8) | Somewhat disagree (9) | Neither agree nor disagree (10) | Somewhat agree (11) | Strongly agree (12) |
|---|---|---|---|---|---|
| I exercise regularly. (2) | ○ | ○ | ○ | ○ | ○ |
| I eat healthy foods. (3) | ○ | ○ | ○ | ○ | ○ |
| I drink healthy beverages. (4) | ○ | ○ | ○ | ○ | ○ |
| I read nutrition/ingredient labels. (5) | ○ | ○ | ○ | ○ | ○ |
| I worry about being hydrated. (6) | ○ | ○ | ○ | ○ | ○ |
| I am concerned about my weight. (7) | ○ | ○ | ○ | ○ | ○ |
| I live a healthy lifestyle. (1) | ○ | ○ | ○ | ○ | ○ |

Page Break

Q24 Rate your liking for the following soft drink brands.

| | Dislike a great deal (13) | Dislike somewhat (14) | Neither like nor dislike (15) | Like somewhat (16) | Like a great deal (17) |
|---|---|---|---|---|---|
| Coca-Cola (1) | ○ | ○ | ○ | ○ | ○ |
| Pepsi (2) | ○ | ○ | ○ | ○ | ○ |
| Dr Pepper (3) | ○ | ○ | ○ | ○ | ○ |
| Sprite (6) | ○ | ○ | ○ | ○ | ○ |
| Mountain Dew (7) | ○ | ○ | ○ | ○ | ○ |
| Fanta (8) | ○ | ○ | ○ | ○ | ○ |
| A&W Root Beer (9) | ○ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Canada Dry Ginger Ale (10) | ○ | ○ | ○ | ○ | ○ |

Q25 Rate your liking for the following energy drink brands.

| | Dislike a great deal (13) | Dislike somewhat (14) | Neither like nor dislike (15) | Like somewhat (16) | Like a great deal (17) |
|---|---|---|---|---|---|
| Red Bull (1) | ○ | ○ | ○ | ○ | ○ |
| Monster (2) | ○ | ○ | ○ | ○ | ○ |
| Celsius (3) | ○ | ○ | ○ | ○ | ○ |
| Bang (4) | ○ | ○ | ○ | ○ | ○ |
| Rockstar (5) | ○ | ○ | ○ | ○ | ○ |

Q26 Which kind of soda do you prefer?

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) | |
|---|---|---|---|---|---|---|---|---|
| Regular Soda | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Diet Soda |

Page Break

Q27 I normally drink soda...

| | 1 (1) | 2 (2) | 4 (4) | 5 (5) | 6 (6) | 7 (7) | 8 (8) | |
|---|---|---|---|---|---|---|---|---|
| By myself. | ○ | ○ | ○ | ○ | ○ | ○ | ○ | With others. |

Q28 Which describes you?

| | 1 (1) | 2 (2) | 3 (3) | 4 (4) | 5 (5) | 6 (6) | 7 (7) | |
|---|---|---|---|---|---|---|---|---|
| Underweight | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Overweight |

Q29 Rank the following from 1 (healthiest) to 4 (least healthy).

_____ Regular Soda (1)

_____ Diet Soda (2)

_____ Zero Sugar Soda (3)

_____ Sparkling Water (4)

Q30 I consume soda for _____.

| | Strongly disagree (8) | Somewhat disagree (9) | Neither agree nor disagree (10) | Somewhat agree (11) | Strongly agree (12) |
|---|---|---|---|---|---|
| Taste (1) | ○ | ○ | ○ | ○ | ○ |

| | | | | | |
|---|---|---|---|---|---|
| Energy boost (2) | ○ | ○ | ○ | ○ | ○ |
| To fit in with others (3) | ○ | ○ | ○ | ○ | ○ |
| Hydration (4) | ○ | ○ | ○ | ○ | ○ |

Q31 What is your Prolific ID?

_____

Q32 What % of soda do you buy from _____?

Grocery Stores : _____ (1)

Restaurants : _____ (2)

Vending Machines : _____ (3)

Convenience Stores : _____ (4)

Online : _____ (5)

Other : _____ (6)

Total : _____

End of Block: Block 2

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