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Exploring consumer perception and preference factors influencing carbonated beverage purchase decisions: A comprehensive study

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Abstract: Carbonated soft drinks (CSDs) have long been a mainstay of the beverage business but changing consumer tastes and rising health awareness have necessitated a thorough study of the variables impacting consumer choices. This study intends to explore the complex web of customer preferences, purchasing behaviour, and perceptions related to carbonated soft drinks. This research analyses how numerous variables, including gender, affect these preferences and choices via careful examination. The purpose of the present research is to determine the perception of consumer influencing customer choice preferences for the consumption of carbonated soft drinks, influence of gender and the role of advertisement in finalizing the choice. It would be helpful to do further research to better understand how these highlighted variables affect purchasing choices, especially gender-based variances. The important influence of gender on consumer behaviour has been acknowledged. For this study, a structured questionnaire was distributed through online social media to individuals of 12–45 years of age from the period of April–May 2023. For analysis of the data collected, SPSS 22.0 was used. The study has confirmed that consumption of Coca-Cola is higher than any other soft drink in almost the entire country. The factors like youthfulness, tradition, status symbol and level of carbonation have different influences on the buying behavior of male and female consumers.

Keywords: carbonated soft drinks; consumer perceptions; correspondence analysis; multi-dimensional scaling analysis; adverstisement; gender perception

1. Introduction

The modern era has undergone a profound shift in dietary habits and beverage consumption patterns, driven by the relentless advancements in technology, globalization, and urbanization (Behera et al., 2023). Amidst the abundance of choices available to consumers, carbonated drinks have emerged as a pivotal component of contemporary lifestyles, not only serving as a source of refreshment but also embodying a cultural phenomenon (Ferris, 2023).

India, according to the International Monetary Fund (IMF), stands as the world's fifth-largest economy, witnessing a notable surge in its nominal GDP to approximately US$3.75 trillion in 2023 from around $2 trillion in 2014. India's economic prowess extends to its ranking as the third largest economy in terms of purchasing power parity (PPP), boasting a staggering US$13.033 trillion, thus positioning it as one of the globe's largest markets. With its substantial role as both a producer and importer of carbonated drinks, India's carbonated drink industry continues to burgeon, with liquid consumption reaching significant levels throughout the year. The revenue within the

Carbonated drinks segment has reached US$8.85 billion in 2023, with an anticipated annual growth rate of 5.40% (CAGR 2023–2027). By 2027, the volume in the Carbonated drinks segment is forecasted to reach 7.82 billion liters, reflecting a growth rate of 3.9% in 2024. On average, an individual is expected to consume 4.89 liters of carbonated drinks in 2023.

Consumer perceptions hold significant sway in shaping dietary behaviors and influencing consumption patterns (Aitken, 2020). The allure of carbonated drinks extends beyond their taste and fizz; it encompasses psychological, cultural, and social dimensions that mold individual attitudes and behaviors (Gabardo et al., 2022).

Given the multifaceted nature of consumer-based perception, it is imperative to conduct a comprehensive exploration of the factors underpinning these perceptions. The combination of effervescence, flavors, and sweeteners creates a multisensory encounter that shapes consumer preferences (Pal et al., 2023; Vartanian et al., 2007). Furthermore, marketing campaigns and packaging design play pivotal roles in shaping perceptions and influencing purchase decisions (Kararia, 2023; Story and French, 2004). The strategic placement of advertisements and endorsements by prominent figures contributes to the establishment of brand loyalty and emotional connections with consumers (Modi and Rajai, 2023), crafting an appealing narrative that transcends mere consumption.

Carbonated drinks have become synonymous with celebrations, gatherings, and emotional comfort (Kuncoro and Kusumawati, 2021; Grier and Kumanyika, 2008). Their presence intertwines with cherished memories, rituals, and traditions, enhancing their appeal beyond a mere beverage choice (Tucker, 2017). The social acceptance and normalization of consuming carbonated drinks further reinforce consumer perceptions and validate their choices within the realm of social interactions (Sharif et al., 2023).

In light of these dynamics, this research paper aims to delve deep into the intricate web of consumer-based perceptions surrounding the consumption of carbonated drinks. By conducting a comprehensive analysis of existing literature and empirical research, this study endeavors to unravel the multidimensional aspects of consumer behaviors and perceptions related to carbonated beverages. Through the exploration of the factors influencing these perceptions, this research seeks to contribute to a deeper understanding of consumer behavior.

2. Review of literature

Brands evolved from a sign to create value in customers' minds, with advertising serving as a major function. It informs, attracts, raises awareness, educates, and creates demands for products (Hwang et al., 2021). Branding involves considering the interaction between brand (what customers buy) and value (what sellers sell), distinguishing the perspective of the seller and that of the buyer (especially), and focusing on the relationship of both with the brand (Lee et al., 2024; Florido-Benítez, 2022; Almaqousi et al., 2021). Branding is crucial for consumer goods companies to differentiate themselves and create highly regarded products and services. Expert branding enhances the development and maintenance of distinctive attributes and values, making them legally protected and attractive to consumers.(Alenazi, and Alanazi, 2021). Brands significantly impact customer buying behavior, as they are

individuals who purchase goods and services. (Ridwan, 2022; Jarquin et al., 2019).

The carbonated drinks industry has witnessed significant growth over the years, and understanding customer perception of the various attributes associated with these beverages is crucial for manufacturers and marketers (Payini et al., 2022). This literature review aims to synthesize the existing research on customer perception regarding the attributes of carbonated drinks.

Carbonated drinks encompass a range of attributes that influence customer preferences, including taste, flavour variety, packaging, brand image, nutritional content, and price (Sharif et al., 2023; Abubakar, 2022). These attributes collectively shape consumer perceptions and purchase decisions. The taste and flavor variety of carbonated drinks have been highlighted as primary factors affecting consumer perception and choice (McBey and Nadathur, 2024). Consumers often associate specific flavours with different occasions, impacting their consumption patterns (Smith et al., 2017). Research by Johnson and Sivakumar (2019) suggests that taste preferences can vary across demographic groups, emphasizing the need for tailored marketing strategies.

Packaging and brand image play a crucial role in shaping consumer perceptions. Attractive packaging can enhance product visibility and create a sense of novelty (Harker and Kelt, 2017). Brand image, on the other hand, establishes consumer trust and loyalty, influencing their willingness to try new flavours or variants (Attila and Cakir, 2011). Increasing health awareness has led consumers to consider the nutritional content of carbonated drinks. Studies by Nathan et al. (2012) indicate that customers are more likely to choose beverages with lower sugar content and natural ingredients. Nutritional labelling and transparent communication about ingredients have gained importance in shaping customer perceptions.

Price remains a significant attribute influencing consumer choices. Research by (Garcia and Proffitt, 2022; Sikalidis et al., 2020) suggests that consumers often associate higher prices with better quality or unique attributes, leading to premiumization strategies adopted by certain carbonated drink brands. Cultural and regional factors play a role in shaping customer perception of carbonated drinks. Preferences for flavours, sweetness levels, and packaging can vary widely across different cultures and regions (Adewuyi, 2023). Manufacturers need to consider these nuances to effectively target diverse consumer segments. Effective marketing and advertising strategies can significantly influence customer perception. Petit et al., (2019) highlight the importance of sensory marketing, where multisensory experiences are leveraged to create memorable and positive associations with the product.

Today, it is crucial to maintain customers' loyalty to a company's goods, necessitating the development of effective advertising methods like brand equity to stop customers from being disloyal to the brand (Adewuvi, 2023). Generally, organizations apply digital advertisements to attract consumers of carbonated drinks products. The most used kind of digital advertisement applied by the organization in attracting consumers of Pepsi products includes display advertising. (Daniel and Viswanadham, 2022) revealed that digital marketing contributes to a large extent to influencing the buying behavior of customers. It is identifiable that the sports drinks and carbonated drinks market has been expanding over the years in Bangladesh and

to be successful in this market, influencer and celebrity endorsement can be a key strategy for gaining greater market share. But for the successful implication of the strategy, the brand must understand the factors that influence the consumers (Niloy, 2022). There exists a positive relationship between perceived advertising effort and awareness and brand association(Cheng and Jiang, 2022; Jarquin, 2019).

3. Need of the study

The carbonated beverage market in India garners significant attention due to its impact on the beverage industry and evolving consumer preferences. With India's large population and growing economy, it stands as a pivotal battleground for global beverage giants like Coca-Cola and PepsiCo. Coca-Cola commands a dominant 60% market share, while PepsiCo follows closely with 35%. This market has expanded rapidly driven by increasing disposable incomes, urbanization, and changing consumer behaviors. The landscape has diversified with the rise of local competitors alongside established players. Factors such as health consciousness and regulatory changes have altered market dynamics. Despite fluctuations, the market showed robust growth, registering a 9.78% CAGR from 2016 to 2021, reaching INR 941,749.42 Million in 2021.

Business got negatively impacted during 2020 due to lockdowns and later on companies revamped their profitable journey in later years. However, based on market research, it is believed that still carbonated soft drinks business can grow visibly in India due to the presence of huge potential customers. Considering such prospects in the Carbonated soft drink industry, researchers proposed the following research objectives:

- To identify factors affecting consumer preference towards consumption of carbonated soft drinks.
- To examine the influence of identified factors on buying decisions for carbonated soft drinks based on Gender.
- To examine the differences in the preferences of male and female consumers regarding the advertisements of carbonated soft drinks.
- To develop the perceptual map for selected carbonated soft drink brands.
- To develop an attribute-based perceptual map showing the association of various attributes with selected carbonated soft drink brands.

4. Research methodology

The study encompasses a diverse population aged between 12 to 45 years who are consumers of carbonated drinks. The choice of this age range reflects a strategic approach to capturing a broad spectrum of consumers within a significant demographic.

Utilizing a purposive sampling method, the researchers deliberately selected individuals who consume carbonated beverages. This approach acknowledges the specific focus of the study while also recognizing the prevalence of non-consumers due to factors such as health concerns and alternative beverage options. By targeting consumers, the researchers aimed to gain insights directly relevant to their research objectives. The sample size of 2000 respondents indicates a substantial effort to gather

data representative of the target population. However, the acknowledgment of incomplete questionnaires and the subsequent adjustment of the sample size to 1890 reflects transparency in reporting and addresses potential biases in the data collection process.

A combination of primary and secondary data sources enhances the comprehensiveness of the study. Primary data collected through structured questionnaires ensures direct input from the target population, while secondary data obtained from various sources enriches the analysis with broader industry insights and contextual information. The distribution of questionnaires through social media platforms demonstrates an innovative approach to data collection, leveraging modern communication channels to reach a diverse audience efficiently.

Overall, the methodology employed in the analysis of the research paper demonstrates a thoughtful and systematic approach to investigating consumer perceptions and preferences regarding carbonated beverage purchases. The combination of targeted sampling methods, comprehensive data collection strategies, and utilization of diverse data sources contributes to the robustness and reliability of the study's findings.

5. Data analysis and discussion

Reliability analysis was conducted to assess the internal consistency or reliability of the measurement instrument used in the study. The Cronbach's alpha value came to more than 0.7 confirming the reliability of the scale used in the questionnaire. Firstly, based on demographic variables like gender, age, etc. the population surveyed in the consumer category was segmented and profiling of each segment was done concerning their soft drink consumption behavior. As the number of variables used in this research was quite extensive; Factor analysis was used to simplify the interpretation of the variables and to identify factors affecting consumers' preferences and perception of soft drinks in the market. T-Test was used to identify the gender-wise differences in the preferences and perceptions of different population segments of the cities towards the consumption of soft drinks. A perceptual map and an attribute-based preferential map were drawn by researchers to know the positioning of the most consumable carbonated soft drinks of Coca-Cola and PepsiCo available in the market in the minds of customers.

Table 1. Demographics.

	Frequency	Percent		Frequency	Percent
Age			Qualification		
Less than 20	692	36.6	Up to 10th	159	8.4
21–25	841	44.5	12th	678	35.9
26–30	208	11.0	Bachelors	739	39.1
More than 30	140	7.9	Masters	230	12.2
Total	1890	100.0	Doctorate	14	0.7
			Others	70	3.7

Source: Researchers' Survey.

Table 1 depicts the demographic characteristics of the respondents surveyed for fulfilling the study's objectives.

5.1. 1st objective

Factor analysis

The data collected regarding the influence of selected variables (Anderson et al., 2006) on the consumer's carbonated soft drink-buying decision was subjected to factor analysis and the outputs obtained are given as under:

Table 2. KMO and Bartlett's Test on factors affecting consumer buying behaviour.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.913
Bartlett's Test of Sphericity	Approx. Chi-Square	6253.736
	Df	78
	Sig.	0.000

Source: SPSS output.

Table 2 shows the results of Kaiser-Meyer-Olkin and Bartlett's Test that are applied to check the adequacy of data. It is found that the KMO value is 0.913 which is more than the ideal value of 0.6. Hence, the data under study is adequate and the significance level is 0.000 which is less than 0.5 confirming the validity of the test so that we can proceed to the next step.

Table 3. Rotated component matrix on factors affecting consumer buying behaviour.

Rotated component matrix[a]	Component	
	1	2
Advertisement	0.710	0.181
Brand ambassador	0.691	0.238
Brand image	0.685	0.111
Colour of the drink	0.684	0.201
Design of bottle	0.642	0.187
Packaging	0.635	0.313
Level of carbonation (strength)	0.529	0.195
Status symbol	0.505	0.502
Tradition	0.150	0.704
Price	0.195	0.696
Availability	0.206	0.651
Flavors	0.140	0.597
Youthful	0.282	0.583

Extraction method: Principal component analysis.
Rotation method: Varimax with kaiser normalization.

a. Rotation converged in 3 iterations.

Source: SPSS output.

Table 3 exhibits the the Rotated Component Matrix that is generated through factor analysis and two factors are derived. Varimax rotation with Kaiser Normalization is chosen to get the percentage of variance for the influential factors under study.

Table 4. Resultant factors from factor analysis.

Brand awareness and packaging	Price and availability
Factor 1	**Factor 2**
Advertisement	Tradition
Brand ambassador	Price
Brand Image	Availability
Colour of the drink	Flavor
Design of the bottle	Youthful
Packaging	
Level of carbonation	
Status Symbol	

Source: Researchers' study.

Table 4 describes the variables that are forming the two derived factors.

Factor 1, refers to 'Brand Awareness and Packaging' and contributes to 37.8% variance in the data. The various variables in this factor are Advertisements, Brand Ambassador, Brand Image, Colour of Drink, Design of Bottle, Packaging, level of carbonation and Status Symbol.

Factor 2, describes the 'Price and Availability' and contributes to 9.3% variance. This factor constitutes the variables like Price, Tradition, Availability, Flavor, and Youthful.

5.2. 2nd and 3rd objective

T-Tests

Since the sample size of the study was more than 1000, the Kolmogorov-Smirnov test was used to check the normality of the data. As per the Kolmogorov-Smirnov test statistics, the significance value for all the variables involved was 0.000, i.e., less than 0.05, so it could be concluded that the data under consideration was not normally distributed. Thus, the non-parametric test t-Test, i.e., Man Whitney's test was used to check the following research hypotheses to achieve the second and third objectives of the study.

H01: There is no significant difference in the influence of the identified factors on buying decisions among male and female consumers in the case of carbonated soft drinks.

Ha1: There is a significant difference in the influence of the identified factors on buying decisions among male and female consumers in the case of carbonated soft drinks.

H02: There is no significant difference in the preferences of male and female consumers regarding the advertisements of carbonated soft drinks.

Ha2: There is a significant difference in the preferences of male and female

consumers regarding the advertisements of carbonated soft drinks.

Table 5. T-test on the factors affecting consumer buying behaviour on the Gender basis (Test Statistics[a]).

	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Youthful	312,430.000	870,526.000	−3.479	0.001
Tradition	311,641.500	869,737.500	−3.429	0.001
Flavors	332,305.000	544,531.000	−1.107	0.268
Availability	326,032.000	882,017.000	−1.892	0.058
Price	329,221.000	889,432.000	−1.778	0.075
Status symbol	324,127.000	881,167.000	−2.206	0.027
Packaging	340,901.000	555,741.500	−0.576	0.564
Brand Image	337,456.000	552,296.000	−0.971	0.331
Brand Ambassador	344,000.000	904,211.000	−0.203	0.839
Advertisement	345,105.000	905,316.000	−0.089	0.029
Color of the Drink	340,635.000	555,475.000	−0.602	0.547
Level of Carbonation (Strength)	326,290.500	886,501.500	−2.084	0.037
Design of Bottle	340,494.000	554,679.000	−0.629	0.529

a. Grouping Variable: Gender.
Source: SPSS output.

Table 5 clearly shows that the significance level of factors like youthfulness, tradition, status symbol, advertisement and level of carbonation is less than 0.05 with values of 0.001, 0.001, 0.027 and 0.037, respectively. Therefore, the null hypothesis is rejected for these factors manifesting that there is a significant difference in the influence level of the factors youthfulness, tradition, status symbol and level of carbonation on the buying behavior of male and female consumers.

The significance level of the rest of the factors like flavours, availability, price, packaging, brand image, brand ambassador, advertisement, the colour of the drink and design of the bottle is more than 0.05 which accepts the null hypothesis in their case. This means that there is no significant difference in the influence of these factors on the buying decision of soft drinks among male and female consumers.

Table 6 depicts the output of non-parametric t-test, i.e., Mann-Whitney test yielded from the data obtained from the respondents about their advertisement preferences.

As per the output table obtained above, the significance level of all the factors except humor is less than 0.05 which rejects the null hypothesis for all these cases except humor. This means that there is a significant difference in the preferences of male and female consumers regarding the advertisements. Humorous advertisement is the only category which generates the same response from both male and female respondents as the significance level of the humor category is 0.768, i.e., greater than 0.05 thereby accepting the null hypothesis.

Table 6. T-test on the preferences of consumers regarding advertisements on the Gender basis (Test Statistics[a]).

	Mann-Whitney U	**Wilcoxon W**	**Z**	**Asymp. Sig. (2-tailed)**
Humor	340,456.500	552,031.500	−0.294	0.768
Creativity	315,217.500	525,493.500	−2.984	0.003
Brand Ambassador	320,961.000	878,001.000	−2.371	0.018
Informative	311,520.000	521,796.000	−3.270	0.001
Emotional	318,180.000	875,220.000	−2.305	0.021
Adventurous	318,847.500	878,000.500	−2.546	0.011
Sexual Appeal	249,227.500	808,490.000	−9.705	0.000
Animation	284,881.000	495,806.000	−6.110	0.000
Musical	309,663.000	519,939.000	−3.497	0.000

a. Grouping Variable: Gender.
Source: SPSS output.

So, it can be concluded that the humorous category of advertisements is liked by both the male and female respondents equally but for all the other mentioned categories, the advertisement preferences of the male and female consumers differ from one another.

5.3. 4th objective

Multi-Dimensional scaling analysis

The data collected through the MDS-specific questions, for a rating based on dissimilarity among brands, is organized into a final MDS matrix in SPSS to run the analysis. This analysis is carried out to get a perceptual map of various brands from the customer's point of view. The various outputs obtained from the analysis are given as under:

Table 7. Stress and fit measures of MDS.

Stress and Fit Measures	
Normalized Raw Stress	0.00185
Stress-I	0.04299[a]
Stress-II	0.10697[a]
S-Stress	0.00420[b]
Dispersion Accounted For (D.A.F.)	0.99815
Tucker's Coefficient of Congruence	0.99908

PROXSCAL minimizes Normalized Raw Stress.
a. Optimal scaling factor = 1.002.
b. Optimal scaling factor = 0.999.
Source: SPSS output.

Table 7 shows the various stress values which depict the degree of correspondence between the distances among points implied by the MDS map and the matrix input by the researchers. The rule of thumb is that for the S-stress value, anything under 0.1 is excellent and anything over 0.15 for the stress values is

unacceptable. For the Dispersion Accounted For (DAF) and Tucker's Coefficient of Congruence (TCC), the value should be closer to 1. Since, the S-stress value is 0.004 which is less than the conventional limit of 0.15 and the values of both DAF and TCC are closer to 1 having 0.998 and 0.999 values, respectively, the data output is confirmed to be valid for MDS mapping and the MDS map obtained is considered to be the true representation of the actual data. The map obtained from the SPSS output shows the association or relatedness of various brands among one another in the minds of the consumers. It gives the degree of similarity and dissimilarity among various brands from the consumers' point of view. The map obtained for this study is shown as under:
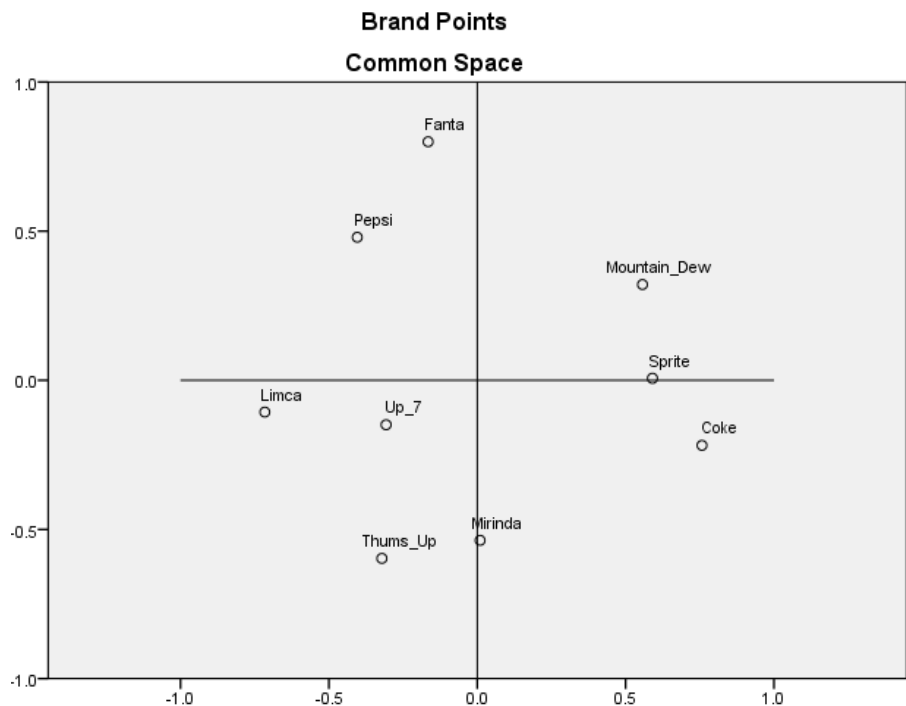

Figure 1. Perception map for different Carbonated drinks brands.
Source: SPSS output.

The scattered brand points in the map exhibited in **Figure 1** clearly show that the various soft drink brands have cultivated a varied perception in the minds of the consumers. Some brands are closer to one another depicting the analogy regarding them in the minds of the consumers while some brands fall far apart from one another giving a degree of dissimilarity among them as per the perception of the population surveyed.

The map shows two clusters, though the clusters are not so prominent; one comprising Mountian Dew and Sprite as light-coloured soft drinks and the other one for Limca and 7 Up as white-coloured soft drinks. The rest of the soft drinks share distinguished perceptions in the minds of the consumers as they lie far apart from the other soft drinks in their domain like Coca-Cola, Thums Up and Pepsi in dark-coloured cola drinks and Fanta and Mirinda in case of coloured flavoured soft drinks.

Focussing on the dark-coloured cola drinks, Coca-Cola, Thums Up and Pepsi lie in the three different corners of the map which shows that all these soft drinks have

cultivated distinct images in the minds of the consumers.

The white drinks Limca and 7 Up lie in the same area of the map depicting that these soft drinks have the same kind of perception in the minds of the consumers. The distance between the two brands shows that although they both lie in the same area. But one of them has a stronger perception than the other which is for Limca. Limca is the soft drink preferred by all age groups with most of the elder generation being the exclusive consumer of the soft drink.

The soft drinks Mountain Dew and Sprite lie closer to one another manifesting that the consumers share almost the same kind of perception regarding the two drinks. They are associated with similar kinds of attributes but the degree of association may differ which has resulted in the gap between the two brand points.

The coloured-flavoured soft drinks—Fanta and Mirinda lie on the opposite sides of the map manifesting that the two soft drinks are perceived altogether differently by the consumers. The map shows that the two brands are associated with different sets of attributes and share distinct images in the minds of the consumers.

5.4. 5th objective

Correspondence analysis

The data collected from the respondents of the seven cities regarding the brand-attribute relationship of various soft drinks is compiled for the correspondence analysis in SPSS. The analysis when carried out yielded the following output:

Table 8. The corresponding analysis-singular value table.

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	0.147	0.022			0.460	0.460	0.017	0.038
2	0.139	0.019			0.413	0.873	0.017	
3	0.068	0.005			0.100	0.973		
4	0.032	0.001			0.022	0.995		
5	0.016	0.000			0.005	1.000		
Total		0.047	183.997	0.000	1.000	1.000		

a. 50 degree of freedom.
Source: SPSS output.

Table 8 shows five dimensions but out of these five dimensions, only four dimensions account for a supposedly meaningful proportion of the total inertia value. The Singular Value column displays the canonical correlation between the two variables, i.e., the brands and the attributes under consideration, for each dimension. The Inertia column displays the inertia value for each dimension and the total inertia value. The total inertia value represents the amount of variance accounted for in the original correspondence table by the total model. Each dimension's inertia value thus refers to the amount of that total variance which is accounted for by each dimension or it can be said that gives the percentage by which the brand-attribute relationship is explained (Starkweather, 2018).

The table shows that the correspondence model prepared explains 4.7% of the total variance in the original correspondence table. Out of this 4.7%, dimension 1 accounts for 2.2%, i.e., 46% of the total variance explained by the model. Similarly, dimensions 2, 3 and 4 also explain 1.9%, 0.5% and 0.1% of the total 4.7% which accounts for 41.3%, 10% and 2.2%, respectively, of the total variance or the brand–attribute relationship explained by the model.

The chi-square test is testing the hypothesis that the total inertia value is/is not different than zero. Here, the significance value is less than 0.05 (a common cutoff value); so the null hypothesis, which is that the total inertia value is not different than zero, is rejected which indicates the total inertia value is significantly different than zero.

The data under correspondence analysis has generated the following map output based on the brand–attribute relationship.
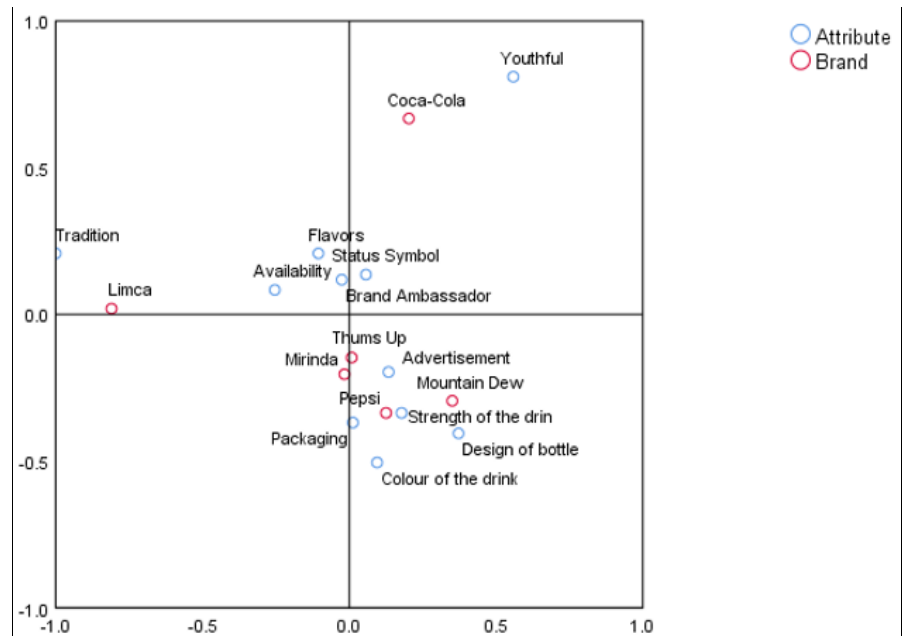

Figure 2. Correspondence analysis based on attributes of different carbonated drinks brands.
Source: SPSS output.

Figure 2 exhibits the correspondence analysis map. This map is formulated for three brands of Coca-Cola and Pepsi. The brands from the Coca-Cola portfolio are Coca-Cola, Thums Up and Limca whereas the brands from the PepsiCo portfolio are Pepsi, Mountain Dew and Mirinda.

As per the map, Coca-Cola is associated more with youthfulness, status symbol, brand ambassador and flavour in the minds of the consumers. The distance between the youthful factor and the Coca-Cola brand is lesser as compared to others depicting the association of Coca-Cola as the choice of the youth. The association with the status symbol shows that the consumers feel that taking the Coca-Cola soft drink separates them from others and helps them show off their status. Since, the Coca-Cola brand is distant from the "packaging, design of the bottle, colour of the drink and tradition" attributes, this means that Coca-Cola as a soft drink has a weaker association with these factors in the minds of the consumers.

Thums Up lies very close to packaging, advertisement, brand ambassador and strength of the drink depicting its association with these factors. This means that the people like its advertisements, brand ambassadors, the label, graphics, etc. of the offered packages. It is also related to the colour of the drink, status symbol, flavour and availability in the minds of the customers. The soft drink is, however, weaker on parameters like tradition, youthful and the design of the bottle as these attributes lie very distant from the Thums Up brand point.

Limca is a brand which is totally associated with tradition as the brand point for Limca and tradition are closest to one another. The two points are away from all the other brands and attributes depicting the stronger association of tradition towards Limca as a brand which is being preferred as a part of the tradition, or it can be said, as a traditional preference in the cities surveyed. It also lies closer to the availability attribute which means it is also associated with availability which depicts it to be considered as the most available soft drink by the consumers. The association of Limca is weakest with the youthful and design of the bottle among the identified attributes. This can be interpreted as the Limca is mostly associated with traditional preferences, so it has a weaker association with the youth of the areas surveyed.

The brand point of Pepsi lies very close to the strength of the drink, packaging, advertisement and colour of the drink. The brand point is closest to the strength of the drink depicting that the consumers like the strength of Pepsi soft drink and prefer it as it is. The brand has the least association with tradition, youthfulness and availability with tradition being the most distant attribute from Pepsi.

Mountain Dew is associated with the design of the bottle, the strength of the drink and the advertisements. The brand point for Mountain Dew is having the closest association with the design of the bottle, which refers to the plastic bottle especially. The soft drink is very distant from the attributes "youthful and availability" depicting its weak association with these two factors.

Mirinda is the soft drink which is most associated with packaging and advertisement as the brand point and the attributes are very close to one another. Association with packaging may be due to the colourful label and sleek design adopted by the soft drink. It is least associated with youthfulness as the brand point for Mirinda is very distant from the attributes.

6. Results and discussions of the study

The results and discussion section of the research paper "Exploring Consumer Perception and Preference Factors Influencing Carbonated Beverage Purchase Decisions: A Comprehensive Study" delves into the findings of the study and compares them with existing literature on consumer perception of carbonated drinks.

The carbonated drinks industry has experienced substantial growth, necessitating a deep understanding of customer perceptions regarding various attributes associated with these beverages. Existing literature highlights the significance of branding in creating value in customers' minds, with advertising playing a crucial role in informing, attracting, and creating demand for products (Hwang et al., 2021). Branding involves considering the interaction between the brand and value, distinguishing perspectives of both sellers and buyers (Lee et al., 2024; Florido-Benítez, 2022). The research

underscores the importance of branding for consumer goods companies to differentiate themselves and enhance product desirability (Almaqousi et al., 2021; Alenazi and Alanazi, 2021).

The study findings align with existing literature regarding the factors influencing consumer perceptions of carbonated drinks. Taste and flavor variety emerge as primary determinants of consumer choice, with preferences often varying across demographic groups (McBey and Nadathur, 2024; Johnson and Sivakumar, 2019). Packaging and brand image play pivotal roles in shaping consumer perceptions, with attractive packaging enhancing product visibility and brand image fostering trust and loyalty (Harker and Kelt, 2017; Attila and Cakir, 2011).

Increasing health awareness prompts consumers to consider the nutritional content of carbonated drinks, favoring beverages with lower sugar content and natural ingredients (Nathan et al., 2012). Price also influences consumer choices, with higher prices often associated with better quality or unique attributes, leading to premiumization strategies by certain brands (Garcia and Proffitt, 2022; Sikalidis et al., 2020).

Cultural and regional factors further influence consumer perceptions, necessitating tailored marketing strategies to effectively target diverse segments (Adewuyi, 2023). Effective advertising methods, including digital marketing and influencer endorsements, play pivotal roles in shaping consumer perceptions and maintaining brand loyalty (Adewuyi, 2023; Daniel and Viswanadham, 2022; Niloy, 2022).

The study's findings corroborate existing literature, emphasizing the multifaceted nature of consumer perception in the carbonated drinks industry and the importance of strategic marketing approaches in shaping consumer behavior and brand preferences.

6.1. Implications of the study

This research has important ramifications for marketing tactics, the carbonated soft drink sector, and our knowledge of consumer behavior in general.

Factors Affecting Consumer Preference: It is essential to determine the elements that influence consumers' preferences for carbonated soft drinks. In this study, two variables are produced from the Rotated Component Matrix in this research. "Brand Awareness and Packaging" is factor 1, which accounts for 37.8% of the data variation. Advertisements, Brand Ambassadors, Brand Images, Bottle Designs, Packing, Carbonation levels, and Status Symbols are some of the elements that make up this factor. The second factor, "Price and Availability," accounts for 9.3% of the variation. This element includes "flavour, youthful, availability, price, tradition, and flavour" as variables.

Beverage firms may utilize these insights to better match their marketing strategies and product formulations with customer preferences. It helps them to create offerings that are more enticing, sustainable, and healthful.

Gender-Based Influence on Purchasing Decisions: For customized marketing, it is important to comprehend how gender affects purchases of carbonated soft drinks. According to the study's findings, the degree to which youthfulness, tradition, status symbols, and carbonation level impact the purchasing decisions of male and female

customers differs significantly.

The other factors—price, availability, packaging, brand ambassadors, brand image, advertising, drink color, and bottle design have no impact on males' and females' decisions to purchase soft drinks. Businesses may create marketing tactics that may more successfully appeal to each gender by taking gender preferences into account. This might lead to an increase in sales and brand loyalty. To guarantee a thorough approach, it also emphasizes how crucial gender diversity is in marketing and product development teams.

Gender Differences in Ad Preferences: Gender-inclusive marketing is affected more broadly by analyzing the differences between male and female customers' preferences for carbonated soft drink commercials. There is a significant difference in the preferences of male and female consumers regarding advertisements. The current study analyzed various factors like brand ambassador, informative, emotional, adventurous, sexual appeal, animation, musical and Humor, out of which Humorous advertisement is the only category that generates the same response from both male and female respondents.

Consequently, it can be said that although respondents, both male and female, found the comical category of ads to be equally appealing, their choices for commercials in all other categories were found to be different. These observations may help create ads that appeal to a larger audience, encouraging inclusion and lowering the possibility of offending certain gender groupings. It emphasizes the need for more complex and inclusive advertising techniques.

Perceptual Mapping for Brands: Companies can understand how their brands are viewed in comparison to rivals by creating perceptual maps for certain carbonated soft drink brands. The dispersed brand dots on the map make it evident that customers have different perceptions of the different soft drink brands. Some brands are seen by consumers as being more similar to one another, indicating an analogy between them, while other brands are perceived as being more distinct among themselves, based on the opinions of the questioned population. In this study, the perpetual map created displays two, although less noticeable, clusters: one for light-coloured soft drinks, such as Sprite and Mountain Dew, and another for white-coloured soft drinks, such as Limca and 7 Up. Considering the dark-coloured cola beverages, Coca-Cola, Pepsi, and Thums Up are in three separate areas of the map, indicating that each of these soft drinks has created a completely different perception in the minds of its customers.

The white beverages Limca and 7 Up are in the same region on the map, indicating that consumers perceive these soft drinks similarly. Fanta and Mirinda, two colourful soft beverages, are located on opposing sides of the map. This knowledge may direct product development and brand positioning, giving businesses the information, they need to stand out in the marketplace and adjust to changing customer demands.

Attribute-Based Perceptual Mapping: Developing attribute-based perceptual maps that show how different qualities are associated with certain brands of carbonated soft drinks helps to better understand the advantages and disadvantages of each brand. Coca-Cola and Pepsi each have three brands that are represented in the brand attribute connection map. The brands from PepsiCo's portfolio include Pepsi, Mountain Dew, and Mirinda; the brands from the Coca-Cola portfolio are Coca-Cola,

Thums Up, and Limca.

According to the map, people link Coca-Cola mostly with flavor, status symbolism, youthfulness, and brand ambassadorship. Compared to previous images that portray Coca-Cola as the beverage of choice for young people, this one shows a closer relationship between the youthful aspect and the Coca-Cola brand. Thums Up is closely related to the drink's strength, brand ambassador, packaging, and advertising that highlight these connections. This indicates that consumers like the brand ambassador, label, images, and other aspects of the packaging that are being supplied.

Since Limca's brand point and tradition are most closely related, Limca is a brand that is completely identified with tradition. The two points show a greater relationship between tradition and Limca as a brand that is favoured as a component of tradition, and they are separated from all other brands and features.

The container design, beverage strength, and advertising all relate to Mountain Dew. Mirinda is the soft drink that is most often linked with advertisements and packaging since its qualities and brand points are extremely similar.

For businesses trying to better match their marketing and goods to the expectations of their customers, this data is priceless. This information is invaluable for companies looking to fine-tune their products and messaging, aligning them more closely with consumer expectations.

In general, this analysis aids in the industry's adjustment to shifting social trends and customer preferences. It emphasizes the significance of gender-sensitive marketing, ongoing product innovation, and the need for inclusion in advertising. Additionally, it highlights the importance of data-driven insights in decision-making, which support companies in thriving in a cutthroat industry while meeting the changing needs of their clientele. This research helps understand how consumer behavior and market dynamics interact and impact one another in a larger framework, in addition to being pertinent to the beverage sector."

The research paper "Exploring Consumer Perception and Preference Factors Influencing Carbonated Beverage Purchase Decisions: A Comprehensive Study" carries several implications across marketing, policy, and development domains:

6.1.1. Marketing implications

Insights into consumer perception and preference factors provide valuable guidance for marketers in the carbonated beverage industry. Understanding the significance of taste, flavor variety, packaging, brand image, nutritional content, and price allows marketers to tailor their strategies to better meet consumer expectations. The study emphasizes the importance of effective branding and advertising in shaping consumer perceptions and maintaining brand loyalty. Marketers can leverage these findings to develop innovative branding strategies and targeted advertising campaigns that resonate with consumers.

6.1.2. Policy implications

The research sheds light on consumer preferences related to health and nutrition, particularly regarding sugar content and natural ingredients in carbonated drinks. Policymakers can use these insights to advocate for regulations or guidelines that promote transparency in labeling and encourage healthier beverage choices. Understanding the impact of cultural and regional factors on consumer perceptions

underscores the need for culturally sensitive policies that consider diverse consumer preferences and behaviors. Policymakers can work towards creating frameworks that support cultural diversity in product offerings and marketing strategies.

6.1.3. Development implications

Consumer preferences for carbonated beverages reflect broader societal trends and values. Insights from the study can inform product development initiatives aimed at catering to evolving consumer demands, such as the growing preference for healthier beverage options.

By understanding the factors influencing consumer purchase decisions, stakeholders in the carbonated beverage industry can contribute to sustainable development goals by promoting responsible consumption patterns and reducing environmental impacts through packaging innovation and ingredient sourcing practices. Overall, the research paper offers actionable insights that can inform marketing strategies, policy decisions, and product development efforts in the carbonated beverage industry, ultimately contributing to more informed consumer choices and sustainable business practices.

7. Conclusion of the study

The study has confirmed that consumption of Coca-Cola is higher than any other soft drink in almost the entire country. The factors like flavor, availability, price, packaging, advertisement, etc. have a different effects on the consumer consumption pattern for soft drinks in different cities. In the case of advertisement categories, creative and animated advertisements generate the same kind of response in all of the cities while the other categories of advertisements like humorous, informative, emotional, adventurous, and musical, ads with brand ambassadors and sexual appeal generate a different response in different cities under study.

The consumption preferences of males and females differ only based on factors-flavor, level of carbonation, status symbol and youthfulness of soft drinks. The male and female consumers share the same taste for advertisements only in the case of humorous category of advertisements while their preferences differ in the case of ads like emotional, adventurous, animated, musical, etc. The main factors identified to influence the buying behavior of the consumers considering all the cities are 'brand awareness and packaging' and 'price and availability'. The health issues related to soft drinks are the main reason for the population to avoid soft drinks with 56% of males and 50% female population sticking to this reason. The same reason was highlighted by more than 50% population of each age group. Coca-Cola, Thums Up and Pepsi, as the dark-coloured cola drinks have a totally distinct image in the minds of the consumers and are associated with different sets of parameters by consumers. The same is the case with Fanta and Mirinda in coloured and flavoured domains. Mountain Dew and Sprite share a similar type of image with only the difference in the level of intensity of various parameters. The same is the case with Limca and 7 Up in the case of white-coloured soft drinks. The various parameters associated with different soft drinks in the minds of consumers are as:

- Coca-Cola-Youthfulness, brand ambassador, flavour and status symbol
- Thums Up-Strength of the drink, packaging, brand ambassador and

advertisements.

- Limca-Traditional habits of soft drink consumption and availability.
- Pepsi-The colour of the drink and the strength (taste) of the soft drink.
- Mountain Dew-Design of bottle and advertisement.
- Mirinda-Packaging and colour of the drink.

7.1. Recommendations of the study

"The Coca-Cola Company should promote its brands on a health-orientation basis. The companies can convert the non-consumers or increase the consumption level by focusing on the health issues or increasing the health orientation for their products and ensuring the proper availability of their products in the market. The main medium of promotions used by the companies should be television. The companies should focus mainly on brand awareness and the availability of soft drinks in all of the cities under consideration. The advertisements of the company should be mainly humorous, creative and animated as long as the maximum target audience is concerned. But the adventurous and advertisements with the brand ambassadors also can be directed towards the youth. The main competitor of Coca-Cola's portfolio is Mountain Dew from PepsiCo which is betting mainly on parameters like the advertisements, brand ambassador and the design and colour of the bottle and the drink. The companies should focus on their counter brands for Mountain Dew on these parameters to enhance their growing market share. The company can position the cans mainly on the age groups of 15–25 years. The company has an individual identity for each of the soft drink brands in the minds of the customers. Brands like Sprite and Limca have a moderate similarity in the minds of the consumers, respectively, with Mountain Dew and 7 Up in the minds of the consumers."

7.2. Limitations of the study

The major limitation of the study is that the data analyzed pertains to the summer season and it is already established that the season has a major role to play in the consumption level of soft drinks. So, the findings of the study are viable with the summer season only. The sample size taken in the study is around 2000 and the larger and bulky data has some inherent limitations associated with them which are present in this study also. The data used in the study is not normal in nature. The normality gets affected by the size of the sample taken into consideration, more the sample size, the lesser be tendency of the data to be normal. The data in the study does not qualify for the various parametric tests due to the lack of normality of the data."

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