

Factors Influencing the Consumption of Soft Drinks in Bengaluru Metropolitan

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ABSTRACT

Soft drink is more favourite refreshment drink compared to tea, coffee or other beverages. The total soft drinks market is estimated to be more than 280 million crates a year and the market is highly seasonal in nature with consumption varying from 25 million crates per month during peak season to 15 million during off-season. Bangalore being the fastest growing city of India, the research on consumer preference for soft drinks survey of 95 consumers was undertaken in selected diverse localities of Bengaluru Metropolitan. Factor analysis was used to define variability between observed correlated variables in terms of potentially lower number of unobserved variables called factors. The result of the study revealed that products features (factor 1) with variables like “refreshment”, “taste” and “availability of soft drinks” had Eigen value of 2.063, meaning that, “refreshment”, “taste” and “availability” were substantially loaded on factor 1, considered major influencing factor followed by factor 2 and factor 3 respectively.

Keywords- Soft drinks, Consumer Preference, Influencing factors, product features, non-alcoholic drinks.

I. INTRODUCTION

Soft drinks refer to a class of non-alcoholic beverages, that is consumed cooled or child instead of hot beverages [12]. The term soft drink was used to differentiate between flavoured drinks and distilled spirits, or hard liquor from flavoured drinks. To change the hard-drinking habits of early Americans, soft drinks were suggested as substitute products. Sugar-sweetened beverages are widely believed to be contributing to the growing prevalence of overweight and obesity around the world [2]. Due to health issues, consumers prefer those classes of soft drinks which contain low calories, sodium content, having no caffeine and contain all natural ingredients. Generally soft drinks are consumed by young generation as the study shows in India that less than 26 years aged respondents consumed more soft drinks regularly in all places [8].

Usage and accessibility for soft drinks are varying from area to area. Mineral water is commonly used in Latin America and Europe. Kava (root of the

plant) is usually consumed by the people of Pacific islands and Fiji, which is made from bushy shrub. People use carbonated cane juices in Cuba, where unrefined syrups are used as flavour agent. In areas where sufficient proteins are not available, like tropical areas, soft drinks containing flour of soybean have been marketed. Extract of *Carob* (locust bean) is used in Egypt. In Brazil *Mate* (traditional drink) is used as a base while making soft drinks. Fermented stale bread is used in some of the drinks in eastern parts of Europe. Juices prepared from orange and honey considered as popular drinks of Israel.

II. MATERIAL AND METHODS

The study was conducted in Bengaluru City. Primary data from 95 consumers were collected from different localities of Bengaluru Metropolitan namely Sahakarnagar, Judicial Layout, Yelahanka, Shivajinagar, Malleshwaram, Basaveshwar Nagar, M. G. Road and GKVK to have fair representation of different socioeconomic strata. A total of 95 consumers were interviewed from the selected areas.

The consumers were interviewed at homes, colleges campuses, departmental stores and also at modern retail formats. The schedule contained two parts, namely, general information (sex, age, nature, education, type and size of family etc) and specific information (nature of purchase decision, consumption of soft drinks, frequency of purchase, monthly expenditure etc).

Sampling procedure/design

Primary data were used in the present study. The data on factor influencing the consumption of soft drinks were collected by a pre-tested schedule. Purposive random sampling method was used to select the consumers. The data regarding the study were collected from diverse localities of Bengaluru Metropolitan, 95 consumers were interviewed from the selected area.

Nature and sources of data

The present study is confined to a detailed enquiry of consumers' preference for soft drinks in Bengaluru Metropolitan to accomplish the objectives; the required primary data regarding the study were collected from the respondents by personal interview

method, by administrating pre-tested structured schedule. The sample respondents were interviewed at modern retail formats, departmental stores, colleges' campuses and at homes.

The specific information elicited included questions regarding, consumption of soft drinks, nature of purchase decision, monthly expenditure on soft drinks, influence of brand on the consumption of soft drinks preference for different brands of soft drinks, reason for buying of soft drinks, factors influencing the consumption of soft drinks in Bengaluru Metropolitan.

Analytical tools and techniques

The data collected for the study were analyzed using factor analysis technique.

Factors analysis

Factor analysis is a statistical method used in psychology and social sciences [6] [7] [5]. It define variability between observed correlated variables in terms of potentially lower number of unobserved variables called factors. Factor analysis searches for joint variations in response to unobserved latent variables [1]. The observed variables are modeled as linear combinations of the potential factors, plus error terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset.

Factor analysis model

$$X_i = a_{i1}F_1 + a_{i2}F_2 + a_{i3}F_3 + \dots + a_{im}F_m + V_iU_i$$

Where,

X_i = i^{th} Standardized variable

a_{ij} = Standardized multiple regression co-efficient of the variable on common factor j

F = Common factor

V_i = Standardized regression co-efficient of variable i on the unique factor

U_i = Unique factor for variable i

m = Number of common factors

The unique factors are uncorrelated with each other and with common factors. The common factors themselves can be a linear combination of the observed variables.

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \dots + W_{ik}X_k$$

Where,

F_i = Estimate of the i^{th} factor

W_i = Weight or score of the co-efficient

k = Number of variables

Total variance explained:

It is the percentage of the total variance of the variables explained. I explain the difference between the total variance and the Allan variance and what is gained

for estimating frequency stability especially at long term [3]. this is calculated by adding all the communality values of each variable and diving it by the number of variables.

Factor variance explained:

It is the percentage of total variance explained by the factors. A method for examining common factor variance in multiple-component [10]. It is added by calculated by adding the squared factor loadings of all the variables and diving it by the number of variables.

Scree plot:

It is a graph of Eigen values or singular values that demonstrates the portion of total variance represented by the principle components or it is the Most dimension reduction techniques produce ordered coordinates so that only the first few coordinates need be considered in subsequent analyses [15].

List of preference statements towards factors influencing consumption of soft drinks' consumption:

1. **Health;** I think about health related issues often.
2. **Taste;** I use soft drinks because of good taste
3. **Nutrient contents;** Soft drink doesn't have nutritional value
4. **Packaging;** I buy soft drinks with attractive packaging
5. **Price;** I am not price sensitive for soft drinks.
6. **Refreshment;** we use soft drinks just for refreshment purposes.
7. **Availability of the products;** I don't use soft drinks, because it is not easily available
8. **Income;** I consume less soft drinks because of low income
9. **Family tradition;** I use soft drinks because, it is of our family tradition
10. **Trying new things;** I use soft drinks to try something different

III. RESULTS

Factor analysis was used to identify the factors influencing consumption of soft drinks in Bengaluru city. Factor analysis was used to define variability between observed correlated variables in terms of potentially lower number of unobserved variables called factors. The result of the study revealed that, In the case factors influencing the consumption, products features known as (factor 1) with variables like "refreshment ", "taste" and "availability of soft drinks" had Eigen value of 2.063, meaning that, "refreshment ", "taste" and "availability" were substantially loaded on factor 1, considered major influencing factor while "packaging of soft drinks", "price of soft drinks" and "Education of the consumers" were significantly loaded on factor 2. "Trying new things" and "family tradition" were loaded on factor 3. Factor one, two and three are considered influencing factors respectively.

IV. DISCUSSION

As the result of the previous study shows that older adults consumed fewer fresh fruits and vegetables (FV) than younger adults ($p < 0.01$) [1][14] as the study shows indicated that 67.40 per cent purchased peach juice because of the satisfaction[4] and here we are trying to find the factors influencing the consumption. The first step in factor analysis is to check the adequacy of data with the help of Kaiser-Meyer-Olkin (KMO) Measure and Bartlett’s Test (Table 1). The KMO measure was found to be 0.545 which shows that the factors extracted would account for fair amount of variance. The overall significance of correlation matrix was tested with Bartlett’s test of Sphericity. The Chi-square value for Bartlett’s Test was statistically significant at $p \leq 0.01$, thus rejecting the null hypothesis of independence among the variables.

Eigen values-greater than one were considered for determining the number of factors influencing the consumption of soft drinks in Bengaluru Metropolitan. With the help of Cattell’s scree plot the factors were determined. Four factors had Eigen values greater than one, thus these factors were considered Table.3.

The rotated component matrix for factors influencing the consumption of soft drinks in Bengaluru city is presented in Table 3. As the study in Tamil Nadu indicated that, quality of the product was ranked first, followed by retail price [9][13][11], but here it can be observed from the table that “refreshment”, “taste” and

“availability” were substantially loaded on factor 1, considered major influencing factor while “packaging of soft drinks”, “price of soft drinks” and “Education of the consumers” were significantly loaded on factor 2. “Trying new things” and “family tradition” were loaded on factor 3. “Nutrient” and “health” were loaded on factor 4 (health related). Banel *et al* (2009) conducted a study of Effects of walnut consumption on blood lipids and they found that family education, family size and disposable income of the family were the major factors influencing the consumption.

Thus, it can be inferred from table that, factor 1 labelled as “products features”, with variables like “refreshment”, “taste” and “availability of soft drinks”, reveals that consumers preferred soft drinks due to the perception of refreshment of soft drinks, taste and flavour of soft drinks and availability of the preferred brand. Similarly, factor 2 related to the packaging of soft drinks, price of soft drinks, and education of the consumers. Therefore, this factor is labelled as “Income dimension” factor.

The third factor labelled as consumers-oriented was leaded high on variables such as Trying new things and family tradition, where in consumers are influenced by trying new things and sometimes, they buy because of family tradition. The fourth factor related to the nutrient and health, was labelled as health related, where consumers are influenced by nutrient content of the product or even health related issues pertaining to some of the soft drinks available in the market (Table 2).

Table 1: KMO and Bartlett’s Test for variance of the factors

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.545
Bartlett's Test of Sphericity	Approx. Chi-Square	112.621
	Degrees of freedom	45.00
	Significance	0.000

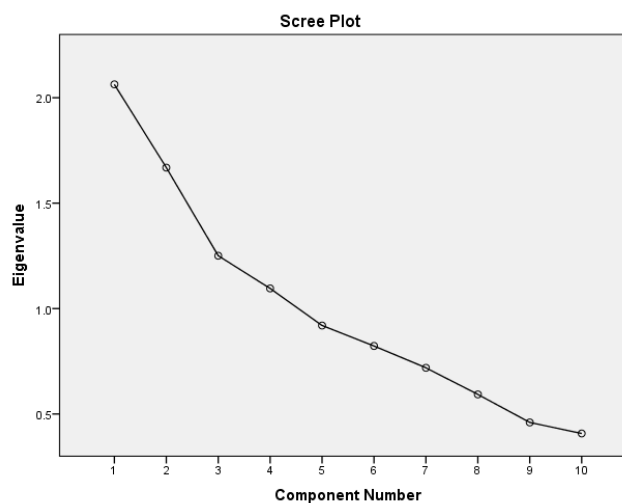


Fig 1: Cattell’s scree plot for number of factors influencing the consumption of soft Drinks in Bengaluru metropolitan

Table 2: Rotated components matrix for factors influencing the consumption of soft drinks in Bengaluru Metropolitan
(n=95)

Rotated Component Matrix					
SL.NO.	Variables	Factors			
		1	2	3	4
		Product features	Education dimension	Consumer Oriented	Health related
1.	Refreshment	0.826	0.086	0.036	0.061
2.	Taste	0.726	0.096	0.254	0.079
3.	Availability	0.647	-0.026	-0.051	-0.446
4.	Packaging	0.078	0.747	0.078	0.152
5.	Price	-0.093	-0.691	-0.073	0.297
6.	Education	0.007	0.578	-0.336	0.233
7.	Trying new things	0.019	0.183	0.835	-0.204
8.	Family tradition	0.256	-0.216	0.745	0.205
9.	Nutrient	-0.006	0.097	0.069	-0.746
10.	Health	-0.007	0.358	0.031	0.550

Explanation of the total variance

Table 3 clearly shows that there are four factors with Eigen values greater than one (2.063, 1.668, 1.25, and 1.095). The first factor (the product feature) explained 20 per cent of the variation of the total variables, followed by income dimension, which explained 16.6 per cent of the variation, cumulatively

contributed (37.31%). The next factor is consumer oriented explained 12.5 per cent of the variation which cumulatively contributed (49.82%) followed by fourth factor (health related) explained 10.9 per cent of the variation which cumulatively contributed (60.77%). The potential six factors, whose Eigen values were less than one were not extracted.

Table 3: Total Variance Explained for factor analysis
(n=95)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.	2.063	20.632	20.632	2.063	20.632	20.632	1.707	17.073	17.073
2.	1.668	16.684	37.317	1.668	16.684	37.317	1.604	16.037	33.111
3.	1.25	12.505	49.821	1.25	12.505	49.821	1.45	14.498	47.609
4.	1.095	10.955	60.776	1.095	10.955	60.776	1.317	13.167	60.776
5.	0.92	9.197	69.973						
6.	0.823	8.227	78.2						
7.	0.719	7.192	85.392						
8.	0.593	5.93	91.321						
9.	0.46	4.601	95.922						
10.	0.408	4.078	100						

Extraction Method: Principal Component Analysis.

V. CONCLUSION

Soft drinks refer to a class of non-alcoholic beverages, either carbonated or non-carbonated, which generally contain artificial or natural sweetening agent,

artificial or natural flavours, edible acids and juices. Natural flavours are obtained from different fruits, nuts, berries, herbs, plant roots and other plant sources. But coffee, milk, tea, cocoa and juices of undiluted vegetable and fruits cannot be considered as soft drinks.

The term soft drink was used to differentiate between flavour drinks and distilled spirits, or hard liquor from flavoured drinks. To change the hard-drinking habits of early Americans, soft drinks were suggested as substitute products. Due to health issues, consumers prefer those classes of soft drinks which contain low calories contents, low in sodium content, having no caffeine and contain all natural ingredients.

Today, soft drink is more favourite refreshment drink than tea, coffee, juice etc. The total soft drinks market is estimated at 284 million crates a year or \$1 billion and the market is highly seasonal in nature with consumption varying from 25 million crates per month during peak season to 15 million during offseason. India is considered one of the important markets for soft drinks, where Coke contributes 40 per cent market share in the branded beverage sector, India is currently Coke's sixth largest market, after the US, Mexico, Japan, Brazil and China. In this backdrop, an attempt was made to study consumer preferences for Soft drinks in Bengaluru Metropolitan.

The whole study or research explains the factors influencing the consumer preferences or factors influencing the consumption of soft drinks, Consumer preferences for soft drinks refers to subjective tastes and consumer preference, which is mainly based on product attributes which influence the consumer preference such as, price, taste, availability of the products, freshness, packaging, education level of the consumer, trying new things, family tradition of the consumer, nutrients contents and health related issues etc.

It is very interesting to note that, any business in order to attain competitive advantage compared to its competitors; it should focus on consumers' needs and wants to improve business performance. It clearly gives improvement to any organization. As the customer behaviour is dynamic (keeps changing) and there are many factors which influence that behaviour of the customer, so any organization needs to understand those factors which influence the customers' behaviour while understanding consumers' needs and wants that enables firms to determine what to produce and how to serve their customers better than competitors. In general, factors such as, packaging, availability, taste, price, family, culture, society, age *etc.* influence consumer choice process. The present and potential companies need to focus on the dynamics of consumer behaviour, which affect soft drinks consumption and help them to devise various policies related to marketing strategies.

The present study is an effort to evaluate the factors inducing consumption of soft drinks.

MAJOR FINDINGS OF THE STUDY

1. Among the various volume sizes of soft drink, 36.84 per cent consumers preferred 250-500ml size followed by >1L (23.16%), < 240ml (22.11%), and 750ml-1L (17.89%).

2. Majority of the respondent consumers (63.16%) had the habit of impulsive buying or had no proper planning while buying soft drinks.

3. Among the entire respondent, 2/3rd were not bothered about the places of purchase (where to purchase soft drinks), they bought from any neighbourhood shop or everywhere they found it easily.

4. Products features (factor 1.) with variables like "refreshment", "taste" and "availability of soft drinks", was the major factor influencing the consumer for soft drink consumption.

THE STUDY IMPLICATIONS

1. Taste and refreshment were the major factors influencing consumers purchase of soft drinks. Hence, product development of soft drinks needs to give priority to these factors.

2. Consumers have the habit of impulsive buying, so the retailers ought to make available soft drinks in such places, which are at easy reach to consumers.

3. With reference to the volume of soft drinks, majority of the consumers preferred in the range of 250-500ml, so the companies need to attach top priority to volume in branding strategy.

4. As there is a negative relation between age and expenditure on soft drinks, it shows that, the business person needs to focus on comparatively lower age segment

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