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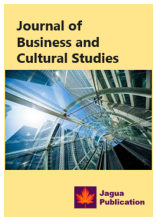

Research Article

An Empirical Study on Consumer Preferences and Influencing Factors of Potato-Based Savoury Snack Products

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Abstract

Potato based savoury snacks hold an important place in the Indian food market, particularly in Gujarat, were both traditional and packaged snack consumption is widespread. The expansion of this market has been driven by lifestyle changes, increasing urbanization, and the rising preference for convenience foods. However, consumer choices are not uniform and are shaped by a combination of demographic, economic and product related factors. This study was undertaken to identify the major factor influences on consumer preference for potato based savoury snack in Rajkot district of Gujarat. Primary data were collected from 180 respondents through a structured questionnaire that included demographic information and consumer perceptions of price, taste, freshness, packaging, branding, advertising, retailer influence and family influence. The data were analysed using descriptive statistics and factor analysis. The findings reveal six key principle components shaping consumer behaviour, highlighting that snack choices are guided by a mix of personal habits, product qualities, economic conditions, and social influence.

1. Introduction

As a vital component of the global food systems, potato (*Solanum tuberosum* l). Is produced and consumed as one of the top staple crops in the world. In india, it is a dietary staple and is also used in many processed food products. There has been a greater market for ready to eat and packed snack items due to convenience foods as a result of urbanization, changing food habits, and an increase in dual income families [1]. Within this category, potato- based savoury snacks like chips, fried potato wafers, and other traditional fried potato snacks are the most popular and consumed snacks [2, 3].

The india savoury snacks market is worth more than 700 billion right now, and it keeps growing every year because people are changing what they eat and more branded products are available [4, 5]. Western- style snacks are popular, but in many places, traditional and ethnic snacks are still the most popular choices. In gujarat, which is one of the top potato producing states, people in both cities and rural areas are eating more snacks made with potatoes. But there are more and more complicated factors that affect what people buy, such as quality, freshness, price, sensitivity, branding, packaging appeal, availability, and cultural preferences [6]. Potato-based foodstuffs are well established in the savoury snack market in india, but there is still a great deal of information to be learned regarding the various factors affecting consumer decisions. This information would be helpful for manufacturers, marketers and public policymakers to highlight opportunities to match product strategies with consumer expectations while remaining competitive in an evolving market. Consumer-behaviour with respect to food choice is not homogenized it has demographic and psychographic influences such as age, income, education, occupation and locality [7–9]. These variables influence not only general food preferences, but how people view price, freshness, and brand. Urban and rural

consumers might engage in different levels of brand loyalty and price conscious behaviour; have different access to retail outlets; engage in distinguished patterns of snack consumption behaviour.

Objective of Study

- Demographic profile of Potato based savoury snacks consumers.
- To analyse factor influencing consumer preference towards potato based savoury snacks.

2. Material and Methods

This research was carried out to analyse the determinants of consumer choice for potato based savoury snacks in Rajkot district of Gujarat. Target population was household consumers of potato based savoury snacks, and 180 respondents were chosen using random sampling to cover variation in terms of age, gender, educational level, occupation, marital status, type of family and household income. Primary data was collected from a structured questionnaire, pre tested to ensure reliability and clarity. The survey schedule had two parts: part one gathered demographic information, while part two gathered product related variable like price, taste, freshness, packaging, brand name, advertising, retailers influence. Statistical package for the social sciences (SPSS) was used to analyse the collected data. Descriptive statistics were employed in summarizing respondents demographic preference. Preceding extraction, fit of the data for factor analysis was assessed using Kaiser Mayer Olkin (KMO) measure of sampling adequacy and bartlett's test or sphericity. Principal component analysis (PCA) was subsequently employed as the extraction method, and varimax rotation with Kaiser normalization was used to increase the interpretability of factor loadings [10].

3. Results and Discussion

Table 1: Demographic profile of respondents

Sr. No.	Variables	Distribution	Frequency	Percentage (%)
1	Gender	Male	83	46.11
		Female	97	53.89
		Total	180	100
2	Age	Up to 35 year	69	38.33
		36 to 50 year	70	38.89
		More than 50 year	41	22.78
		Total	180	100
3	Education	Illiterate	11	6.11
		Primary level (1st to 8th standard)	39	21.67
		Secondary level (9th to 10th standard)	34	18.89
		Higher secondary level (11th and 12th standard)	53	29.44
		Graduate/Post-graduate	43	23.89
		Total	180	100
4	Occupation	Farming	38	21.11
		Farming + Animal husbandry	22	12.22
		Business	26	14.45
		Labour	29	16.11
		Service	38	21.11
		Pensioner	09	05.00
		Students	18	10.00
		Total	180	100
5	Marital status	Married	108	60.00
		Unmarried	53	29.44
		Widowed/widower	19	10.56
		Total	180	100
6	Type of family	Joint	25	13.89
		Nuclear	155	86.11
		Total	180	100
7	Household income	Low(less than 11,000)	25	13.89
		Medium (11,000- 35,000)	134	74.44
		High (more than 35,000)	21	11.67
		Total	180	100

The demographic profile of the respondents (N=180) reveals that there were a greater number of females (53.89%), than males (46.11%). In age distribution, amounts up to 35 years of age (38.33%) between 36-50 years (38.89%) above 50 years (22.78%) with regard to education attainment a large share of respondents had higher secondary (29.44%) and graduate/post-graduate (23.89%) qualifications albeit with a

smaller share being illiterate (6.11%). In terms of occupation respondents largely stated farming (21.11%) and service (21.11%), while other were fewer in occupation: labour (16.11%), business (14.45%) and others. Marital status reflects; 60% were married, 29.44% unmarried and 10.56% widowed/widow. Respondents seemed to be more in nuclear families (86.11%) rather than joint families (13.89%), while for income distribution the majority of respondents (74.44%) could be considered to have medium income (₹11,000-35,000) with some actually low income (13.89%) and others, high income (11.67%) as shown in above Table 1.

3.1. Factor Analysis

Before applying factor analysis, it is desirable to check the underlying hypothesis of factor analysis. The first hypothesis is sampling adequacy or data sufficiency, that is, whether the sample data was adequate to run factor analysis or not. Kaiser-Mayer-Olkin Measure or KMO value of more than 0.5 indicates that the sample is adequate to apply factor analysis [11]. The Table 2 gives result of KMO and Bartlett's test for variance among factors influencing consumers preference for potato based savoury snacks.

The recommended value of 0.5 is exceeded by the KMO value of 0.517. therefore, factor analysis hypothesis. Put differently, multicollinearity is preferred in factor analysis [12]. As a prerequisite for factor analysis, the table shows that the results of Bartlett's test of sphericity are significant (p-value<0.05) (chi square = 130.035, df-66), confirming that the variables are significantly correlated.

Table 2: KMO and Bartlett's test for variance among factors influencing consumers preference for potato based savoury snacks

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.517**
Bartlett's Test of Sphericity	Approx. Chi-Square	130.035**
	Degree of freedom	66
	Significance level	0.000

Communalities show how much variation there is in variance that is explained by the factor solution for each variable. It is the variance that is present in a variable. It is the variance that is common to a variable [12]. Table 3 shows that the commonalities value for all the variables are higher than the threshold values of 0.5 [12]. Also, the factor solution from the principal component analysis is rotated with varimax rotation, and the eigen value criterion is used to find the most likely factors. The rotated factors solution gives us six factors that together explain 63.78% of the total variance Table 3.

Table 3: Total variance explained

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	1.815	15.127	15.127	1.815	15.127	15.127	1.699	14.155	14.155
2	1.347	11.227	26.354	1.347	11.227	26.354	1.309	10.910	25.064
3	1.283	10.692	37.046	1.283	10.692	37.046	1.268	10.565	35.629
4	1.112	9.267	46.312	1.112	9.267	46.312	1.176	9.797	45.426
5	1.061	8.844	55.157	1.061	8.844	55.157	1.147	9.560	54.987
6	1.036	8.630	63.787	1.036	8.63	63.787	1.056	8.800	63.787
7	0.936	7.798	71.585						
8	0.859	7.158	78.744						
9	0.804	6.697	85.440						
10	0.67	5.585	91.025						
11	0.606	5.046	96.071						
12	0.471	3.929	100.000						

Note: Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalization

Table 4 presents the rotated component matrix derived from a principal component analysis (PCA), using the varimax rotation method with Kaiser normalization. The objective of this analysis was to reduce the number of variables and identify key underlying factor that influence consumer preferences for potato based savoury snacks.

Based on the eigenvalues and factor loadings six principal components (PCs) were extracted. Each component groups together variables that share strong inter-correlation, indicating a common underlying dimension in consumer decision making.

Component 1: Marketing and habitual influence

This component is strongly influenced by Retailers' influence (0.747) and food habit (0.567), with notable negative loading for advertisement (-0.787). this pattern suggests that, they are more influenced by the retailers suggestions and their own habitual consumption patterns. Therefore, this factor is best labelled as "Point of Sale and Habitual Influence."

Component 2: Brand and Freshness Orientation

Component 2 shows a high positive loading on brand name (0.745) and a strong negative loading on freshness (-0.824). this indicates a possible trade-off in consumer perception between brand identity and product freshness. Consumers may prioritize brand recognition over freshness or associate branded products with lower freshness because consumers may associate branded products with lower freshness due to their packaged nature and extended shelf life. Hence, this dimension can be termed "Brand Consciousness vs. Freshness Preference."

Table 4: Rotated component matrix derived from a principal component analysis (PCA)

Sr. No.	Variables	Principal components					
		PC1	PC2	PC3	PC4	PC5	PC6
1	Advertisement	-0.787	0.080	0.036	0.027	-0.027	0.119
2	Retailers influence	0.747	0.067	-0.185	-0.002	0.051	0.136
3	Food habit	0.567	-0.005	0.067	0.413	-0.214	0.002
4	Freshness	-0.076	-0.824	-0.011	0.256	0.129	-0.123
5	Brand name	-0.128	0.745	-0.057	0.321	0.134	-0.169
6	Taste	0.166	0.106	0.640	-0.021	-0.128	-0.301
7	Colour	0.135	0.213	-0.587	0.101	-0.021	-0.032
8	Attractive packing	-0.210	0.085	0.563	0.132	0.099	0.170
9	Price of product	0.052	-0.002	-0.017	0.895	-0.044	0.018
10	Flavour	0.194	-0.002	0.281	-0.011	0.764	0.133
11	Income	-0.215	-0.014	-0.272	-0.084	0.671	-0.151
12	Influence of family	0.016	-0.009	-0.002	0.005	-0.018	0.905

Component 3: Aesthetic and Taste Appeal

This component is shaped by high loading on Taste (0.640) and Attractive packing (0.563), along with a strong negative loading on Colour (-0.587). These variables relate to the sensory and visual appeal of the product. Therefore, this component is labelled as "Sensory and Aesthetic Appeal."

Component 4: Price Sensitivity

The Price of the Product (0.895) loads very strongly on this component while the remaining variables contribute minimally. This demonstrates that price operates as an independent and significant factor in consumer choice, justifying the label "Price Sensitivity."

Component 5: Flavour and Economic Status

This component is characterized by high positive loadings for Flavour (0.764) and Income (0.671). this may suggest that flavour preferences very across income levels, or that higher income individuals tend to place more emphasis on product quality features such as flavour. Thus, this factor is defined as "Flavour Preference and Income Influence."

Component 6: Social Influence

A single variable Influence of Family (0.905). dominates this component. The strength and isolation of this loading imply that social factors, particularly family opinion, play an important and independent role in shaping consumer behaviour. This component is aptly termed "Familial Influence."

Major Findings and Suggestions

The study carried out in Rajkot district of Gujarat shows that consumer preference for potato-based savoury snacks in influenced by a mix of demographic, economic, product related and social factors. Most respondents belonged to medium-income nuclear families with moderate educational backgrounds, suggesting that snack consumption is common across different sections of society. The factor analysis identified six major components explaining 63.78 percent of total variance, including point of sale and habitual influence, brand consciousness versus freshness preference, sensory and aesthetic appeal, price sensitivity, flavour preference linked with income and family influence. The results indicate that consumers are largely influenced by retailer suggestions and their own eating habits, while also showing a tendency to trade off freshness for branded products. Taste and packaging play an important role in attracting consumers and price remains a key deciding factor. Family influence also significantly shapes buying decisions. Based on these findings, it is suggested that companies should focus on improving freshness perception along with branding, enhance taste and packaging, keep prices reasonable, involve retailers in promotions and adopt family-oriented marketing strategies to better match consumer expectations.

Managerial and Social Implications

The findings suggest that snack manufacturing should focus on improving freshness perception along with branding, enhance taste and packaging, adopt competitive pricing and involve retailer and family-oriented marketing strategies to better match consumer preferences. From a social perspective, there is a need to promote and encourage consumption as snack intake continues to increase.

4. Conclusion

The study analysed consumer preference for potato based savoury snack in Rajkot district of Gujarat using responses from 180 consumers. The demographic profile revealed that a majority of respondents were female (53.89%), belong to the age group (38.89%), had attained higher secondary or graduate level education (53.33%) and were largely engaged to nuclear families (86.11%) and were concentrated in the medium income category (74.44%). Factor analysis of twelve consumer related variables confirmed sampling adequacy (KMO= 0.517) and yielded six principal components that together explained 63.78 per cent of the total variance. These factors were identified as point of sale

and habitual influence, brand consciousness versus freshness preference, sensory and aesthetic appeal, price sensitivity, flavour preference associated with income, and familial influence. The result demonstrates that consumer decision making in this segment is multidimensional driven by a combination of behavioural habits, product attributes, socio economic conditions and social dynamics thereby providing an – in depth understanding of purchasing behaviour in the potato based snack market.

Article Information

Disclaimer (Artificial Intelligence): The author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.), and text-to-image generators have been used during writing or editing of manuscripts.

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