**Consumer Preferences for Ice Pops in Rural and Urban Areas of Pune District, India**

**ABSTRACT:**

The Indian frozen dessert industry has been expanding due to evolving lifestyles, increasing health consciousness, and changing consumer preferences. Ice pops, a value-priced and popular frozen dessert, are becoming increasingly popular, particularly among young people. Consumer preferences for ice pops in the Pune district, both rural and urban talukas, are the focus of this study. Drawing from a descriptive cross-sectional survey of 140 respondents, this study measured awareness, consumption frequency, flavor preferences, brand perception, and product expectations. Results show a trend towards fruit-based, natural, and health-focused ice pops with higher awareness and accessibility in urban areas. The article mentions differences in preference patterns between urban and rural areas, preferences, and opportunities for tailored, region-specific, and health-focused products. The study can be helpful to brands and entrepreneurs looking to develop consumer-friendly ice pop products for the Pune market.

**KEYWORDS**: ice pops, consumer preference, fruit-based frozen dessert, rural vs urban market.

**INTRODUCTION:**

The Indian food and beverage industry is transforming at a rapid rate, fueled by urbanization, lifestyle shifts, and increasing disposable incomes [1,2]. Of the various frozen dessert segments, ice pops, a frozen water-based dessert traditionally made with fruit flavoring, sweeteners, and colorants, have gained popularity over time because they are affordable, convenient, and have wide appeal, especially among kids and teens [3,4]. Unlike traditional ice creams, ice pops tend to be water-based and can be produced at a lower cost, thus being more widely available in semi-urban and rural areas [5,6].

India's frozen dessert market was worth INR 6,000 crore in 2022 and is expanding at a CAGR of about 17%, reflecting a high consumer pull in all income groups and geographies [7]. Pune district, which is a dynamic blend of urban, semi-urban, and rural pockets, provides a distinct consumer profile marked by varied preferences shaped by climate, education, income, and food culture habits [8,9]. With average summer temperatures often exceeding 38°C, frozen products like ice pops become an attractive option for consumers seeking quick and affordable refreshment [10,11].

Consumer attitudes are influenced by several product attributes, including taste, appearance, texture, packaging, nutrition, price, and brand recognition [12,13]. Moreover, rising concern regarding health and well-being has triggered rising demand for clean-label food, natural ingredients, and low-sugar variants—even in indulgent foods like frozen desserts [14,15]. Based on a national survey, over 60% of Indian consumers increasingly look for food and beverages described as "natural" or "healthy" [16].

New local and regional brands are being launched targeting traditional flavor bases and creating new variants like raw mango-chili, lemon-mint, and, jamun appealing to the local palate and seasonal tastes [17,18]. The trend is particularly critical in Pune and other such places with cultural diversity, allowing for hyper-local tailoring of frozen product development [19].

Understanding the drivers of consumer choice at a micro-regional level is vital for businesses aiming to thrive in India’s competitive frozen food sector [20]. Food entrepreneurs, marketers, and product developers can use such research to tailor offerings that meet regional demands while keeping pace with national trends in affordability, health consciousness, and experiential flavors [21,22].

**METHODOLOGY:**

A cross-sectional survey was done using offline structured questionnaires with 10 respondents each from all 14 talukas of Pune district—Pune City, Pimpri-Chinchwad, Haveli, Mulshi, Maval, Khed, Shirur, Junnar, Ambegaon, Baramati, Daund, Indapur, Bhor, and Velhe—studying ice pop consumer preferences by stratified random sampling and simple Excel-based data analysis.

**Research Design:**

- A descriptive cross-sectional survey was used to evaluate consumer preferences towards ice pops in the Pune district.

- The research sought to capture direct information on what consumers know, like, and expect about ice pops.

**Study Area:**

The study was done in 14 talukas of Pune district, covering both urban (e.g., Pune City, Pimpri-Chinchwad) and rural (e.g., Velhe, Bhor) regions.

**Sampling Technique and Sample Size:**

Stratified random sampling was adopted with 10 participants from each taluka, which made up a total of 140 respondents. This helped achieve geographic and demographic representation within the district.

**Data Collection Method:**

Structured offline questionnaires were employed, including:

* Demographic information
* Awareness and familiarity with ice pops
* Consumption habits and frequency
* Desired flavors and packaging
* Perceptions of health and hygiene
* Comments on what they would like to change

The survey included a sample size of 140 respondents, with a representative description of the multihued consumer base for ice pops. Demographic descriptions of the respondents include:

**1.Age Composition:**

Most of the respondents were between the ages of 19 and 25 years (31.43%),which is in line with the overall target audience for ice pops (youth and college students).

* 15.71% of the respondents were between 10–18 years, indicating also a strong interest in ice pops among youth.
* Respondents between 26–40 years comprised 20% of the sample, and 17.14% were between 41–60 years, showing wide interest across age groups.
* 7.14% smaller percentage of respondents belonged to the Below 10 years group, potentially suggesting that children might not be the key consumer market for ice pops in this survey, but the demand still exists.

**2.Gender:**

The sample was quite evenly balanced in gender, with 53.57% of the respondents being male and 46.43% being female. This is a common split for a general consumer good and indicates that both genders equally enjoy ice pops.

**3. Education Level:**

* A high percentage of the respondents were students, 30% having an undergraduate degree, and 21.43% having a higher secondary degree (11th–12th). This shows that the ice pops are widely used among individuals in the education system.
* 14.29% of the sample were postgraduates, demonstrating that the product can be used by individuals outside the student age group.

**Data Analysis:**

The data collected were analyzed using Microsoft Excel. Percentages and charts were employed to determine trends and compare rural and urban responses.

**CONSUMER PREFERENCE ANALYSIS**:

**Awareness and Familiarity:**

85% of respondents from urban areas knew about ice pops, as opposed to just 52% from rural areas. Several rural respondents confused ice pops with "barf ka gola," which suggests lower product awareness.

**Frequency of Consumption:**

42% of all the respondents had consumed ice pops at times (once or twice a month), and 21% had consumed them more regularly in summer. Urban children and youth had more frequent consumption, with ice pops being purchased often as an impulsive snack.

**Flavor Preferences:**

Mango (48%)

Orange (36%)

Kokum (22%)

Strawberry, dragon fruit, lemon-mint (gaining popularity)

Consumers showed increasing preference for exclusive and healthier flavors, with demand for local fruits such as kokum and dragon fruit increasing.

**Health and Hygiene Preferences:**

* 61% of respondents valued ice pops for price and flavor.
* 27% valued ice pops with natural content and without added colors.
* 44% of parents valued ice pops, appearing to be hygienic and safe for children.

**Packaging and Branding Influence:**

Urban consumers preferred hygienic, well-branded, and nicely packed products. Rural consumers paid less attention to packaging but wanted low prices. Branded products became more trusted, particularly among educated consumers.

**Preferred Purchase Points:**

* Kirana/general stores (more in rural)
* Supermarkets (urban locations)
* Ice cream parlors (both)

**FINDINGS & INSIGHTS ON CONSUMER BEHAVIOR:**

Urban consumers are brand-conscious and responsive to clean packaging and new tastes.

Rural consumers value price and availability.

Fruit-based, healthy ice pops represent an unsatisfied need across population segments.

Ice pops in most consumers equate to summertime relief, but year-round acceptance can happen if they're framed as healthful and palatable.

**SCOPE AND CHANCES FOR CONSUMER-DRIVEN ICE POPS:**

Urban Taste Innovation: Incorporating kokum, dragon fruit, jamun, or lemon-mint has the ability to appeal across urban and semi-urban areas.

Healthy Choices: There is a need for low-sugar, preservative-free, or fortified ice pops.

Customized Packaging: Attractive, eco-friendly packaging for urban markets and low-cost variants for rural areas can increase appeal.

Community Awareness Drives: Particularly in rural regions, awareness about the distinction between quality ice pops and adulterated "barf ka gola" is required.

Promotions and Sampling Events: Festivals, sports events, or school tie-ups can bring brand visibility and loyalty.

**RESULTS**

The results of the consumer survey conducted across various talukas of Pune district are presented below. Each question is represented using a pie chart (indicating overall response percentage) and a bar graph (indicating responses across age groups). The findings are discussed accordingly.

**Fig 1: Awareness about Ice Pops**

 **A B**

1. The pie chart reveals that 60% of respondents were aware of what an ice pop is, while 40% were not.
2. The bar graph analysis indicates that awareness was highest among the 5-12 age group (90%), followed by children aged 13-18 (85%). Respondents aged above 40 exhibited the lowest level of awareness.

This implies that ice pops are highly familiar among younger buyers, especially kids and teens, but lower awareness among older groups (especially those aged above 40). Ad campaigns for such older groups may have to put greater emphasis on informing them about the product, while still retaining contact with existing younger buyers who are already knowledgeable about the product.

**Fig 2: Frequency of Ice Pop Consumption**

 **A B**

1. According to the pie chart, 56% of respondents consumed ice pops occasionally, 25% consumed them monthly, and 12% reported consuming them rarely and 7% daily.
2. The bar graph shows that the 5–12 and 13–18 age groups had the highest frequency of consumption, while individuals above 41+ years rarely consumed ice pops.

Regular use is more prevalent in younger age ranges, with 5-18-year-olds eating ice pops most frequently. This suggests that ice pops are essentially viewed as a treat among children and teenagers, and products may be marketed similarly as a tasty, occasional treat for these groups. Older people might require inducements to raise the frequency of use, e.g., emphasizing health advantages.

**Fig 3: Preferred Flavors in Ice Pops**

 **A B**

1. The pie chart indicates that mango (45%) and orange (27%) were the most preferred flavors among respondents. Other notable flavors included strawberry (15%) and other fruits.
2. As per the bar graph shows that mango flavor was most preferred by the 26–40 age group (60%), followed by 19–25 (55%) and 41+ (50%). Preference was relatively lower among children, indicating an increasing appeal with age.

Mango and orange flavors are the overwhelming choices of consumers, especially adults. While the 26-40 age range is the most likely to prefer mango, kids' flavor choices appear to differ more. Flavor innovation would center on these traditional flavors, with room for offering variants in mango and orange for adult consumers.

**Fig 4: Influencing Factors While Purchasing Ice Pops**

 **A B**

1. According to the pie chart, 60% of respondents prefer fruit-based ice pops, while 40% do not. This indicates a majority inclination toward healthier, natural flavor options among consumers.
2. The bar graph shows that the highest preference for fruit-based ice pops is among the 19–25 age group (70%), followed by children (5–12) at 65%. Preference declines with age, reaching the lowest (40%) in the 41+ group.

There is a very strong tendency toward fruit-flavored ice pops, with a stronger preference among younger consumers. This is a very good indication of how to position the product as a healthier, more natural choice, particularly among health-conscious young consumers. Positioning should emphasize the fruit content to appeal to these segments, and other points of differentiation to appeal to older segments.

**Fig 5: Preference for Natural vs. Artificial Ice Pops**

 **A B**

1. The pie chart reveals a split opinion among respondents, with 50% considering ice pops healthy and the other 50% disagreeing. This indicates a need to educate consumers on the nutritional value of different types of ice pops.
2. Younger age groups, especially 5–12 (70%) and 13–18 (60%), are more likely to consider ice pops healthy. The perception steadily declines with age, dropping to just 30% among those aged 41 and above.

Split response implies that while ice pops are regarded as healthy by some consumers, there is disagreement regarding their nutrition. The young segments are more positive regarding health benefits, meaning that formulations identified as natural and healthy can be promoted successfully for this demographic. Older consumers may need more persuading using nutrition labeling or consumer education programs concerning health benefits.

**Fig 6 : Do you buy ice pops in summer**

 **A B**

1. A majority of respondents (70%) reported buying ice pops during the summer season, indicating strong seasonal demand. Only 30% said they do not purchase them.
2. Seasonal purchasing is highest among the 5–12 age group (95%) and gradually decreases with age, dropping to 75% in the 41+ group. This indicates that younger consumers are more influenced by seasonal factors when buying ice pops.

The high seasonal demand for ice pops during the summer season indicates that marketing should emphasize this period of the year. Younger customers tend to purchase ice pops more during the summer, which aligns with their position as first-time consumers of ice pops. Seasonal campaigns or special deals during summer will increase sales.

**Fig 7: Point of Purchase for Ice Pops**

 **A B**

1. Half of the consumers prefer buying ice pops from local kirana stores (50%), followed by supermarkets (25%) and ice cream parlors (15%). Only a small portion (10%) of their purchases them from dairy shops.
2. The preference for buying ice pops from kirana stores peaks in the 19–25 age group (60%) and gradually declines with age. Children (5–12) show the lowest kirana store preference at 30%.

Kirana shops are the most favored point of purchase among young adults, followed by a lesser market share by supermarkets and ice cream parlors. Availability in local shops must be ensured through marketing efforts, which can also mean greater convenience to consumers. Tie-ups with kirana shops for special promotions or offers may also bring greater visibility and sales.

**Fig 8: Would you be willing to try new flavors**

 **A B**

1. A majority of respondents (70%) reported being willing to try new flavors of ice pops. Only 30% do not want to try new flavors.
2. The bar graph suggests that the 15–25 and 26–40 age groups were more open to trying new flavors. Children and older individuals (40+) generally preferred conventional tastes.

There is a high desire to experiment with new tastes, especially among young adults. Product innovation must be geared towards launching new, exciting tastes to appeal to this segment, while retaining old favorites for the older generation. Marketing may emphasize new flavor launches as a playful way to innovate and improve the consumer experience.

**Fig 9: Preferred price range**

 **A B**

1. The pie chart analysis indicates that 54% of respondents preferred a price range of ₹10–15, 32% favored below ₹10, and only 14% were willing to pay above ₹15.
2. The bar graph highlights that lower price points were preferred by children and teenagers, whereas working adults (26–40) were more flexible, especially when quality and packaging were satisfactory.

Customers are price-sensitive, particularly the younger generations, who prefer cheaper alternatives. For working adults, there is some room for pricing flexibility if the product quality and packaging can command a premium price. Hence, it would be advisable to have a variety of prices that suit both cost-sensitive young customers and more quality-conscious adults.

**Fig 10: Willingness to Recommend a Healthy, Natural Ice Pop**

 **A B**

1. As shown in the pie chart, 84% of respondents expressed willingness to recommend a healthy, naturally made ice pop, 11% were uncertain, and only 5% said they would not.
2. Age-wise data indicates that recommendation intent was strong across all age groups, particularly in the 5-12 range. Even older individuals (19-25) were supportive if health benefits were evident.

The high desire to recommend a healthy ice pop indicates a positive attitude towards such products, especially among young consumers. This is a good indicator for introducing a health-oriented brand. Product positioning can highlight the health aspects to drive word-of-mouth recommendations, especially in family and community environments.

**CONCLUSION:**

The research points out that awareness of ice pops is more in urban segments, whereas rural consumers tend to associate it with conventional "barf ka gola." Youth and children (5–25 years) are the key consumers, and they are the perfect targets for promotions through schools, events, and retail. Mango and orange flavors are the leading ones, but there is increased receptiveness to new, health-conscious options, particularly in urban and semi-urban regions. Urban consumers prioritize branding and packaging, while rural consumers prioritize low cost and accessibility. Price sensitivity is high, with the preferred price range being ₹10–15. Overall, there is great potential for health-oriented, region-specific ice pops. The 10–25 age group is most interested and experimental, and hence the most promising segment for marketing and innovation.

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**REFERENCES:**

1. Zaware, Prof Dr Nitin, and Radha Jerry Louis. "Changing Consumption Pattern Leading To Growth of The ‘Food And Beverage Sector In India." *Chronicle of The Neville Wadia Institute Of Management Studied and Research, ISSN* (2017):
2. Pingali, Prabhu, et al. *Transforming food systems for a rising India*. Springer Nature, 2019.
3. Shih, Ya-hui. "Evaluation of product development techniques for a frozen fruit-based dessert." (2005).
4. Yip, Ning Xuan. "Factors affecting the quality of plant based frozen dessert." (2022).
5. Prakash, Ravi, and Menon Rekha Ravindra. "Cold thermal energy storage for milk chilling: A numerical and experimental study." *Journal of Food Engineering* 337 (2023): 111223.
6. Okoh, Anthony I. "Timothy Sibanda, Vincent N. Chigor &." *Environ Monit Assess* 185 (2013): 6579-6590.
7. Gao, Yue, et al. "Exploring the determinants of ice cream purchase intention: a case of emerging economy." *British Food Journal* 125.9 (2023): 3215-3233.
8. Maharashtra Government. (2023). Pune district socioeconomic and climate profile report. Directorate of Economics and Statistics.
9. Gawade, Priya Sanjay. *A study on dynamics of factors influencing female buying behaviour for womens branded apparels in mumbai western suburbs*. Diss. Tilak Maharashtra Vidyapeeth, 2023.
10. Arifeen, Shehla Riza. "Frozen food products marketing and distribution challenges in a developing country case study: Pakistan." *International Growth Center* (2012): 57.
11. Sipple, L. R., et al. "Consumer perception of ice cream and frozen desserts in the “better-for-you” category." *Journal of dairy science* 105.1 (2022): 154-169.
12. Kotler, P., & Keller, K. L. (2016). Marketing management (15th ed.). Pearson Education.
13. Marques da Rosa, Valentina, Charles Spence, and Leandro Miletto Tonetto. "Influences of visual attributes of food packaging on consumer preference and associations with taste and healthiness." *International Journal of Consumer Studies* 43.2 (2019): 210-217.
14. Salta, Daniel, and Xiaofen Du. "Role of Flavor in Health and Wellness Food Products." *Flavor-Associated Applications in Health and Wellness Food Products*. Cham: Springer International Publishing, 2024. 21-46.
15. Singh, Soumya, et al. "Assessment of Food Quality and Management of Food Safety: International Regulations and Consumer Preferences." *Food Microbial and Molecular Biology*. Apple Academic Press, 2023. 35-66.
16. Misra, Anoop, et al. "Nutrition transition in India: Secular trends in dietary intake and their relationship to diet‐related non‐communicable diseases."*Journal of diabetes* 3.4 (2011): 278-292.
17. Bryła, Paweł. "The role of appeals to tradition in origin food marketing. A survey among Polish consumers." *Appetite* 91 (2015): 302-310.
18. Espejel, Joel, Carmina Fandos, and Carlos Flavian. "The role of intrinsic and extrinsic quality attributes on consumer behaviour for traditional food products." *Managing Service Quality: An International Journal* 17.6 (2007): 681-701.
19. MUNDHE, DR EKNATH. "The Infinite Path: Research Across Disciplines." (2025).
20. Funde, Yogesh, and Amit Shrivastava. "Exploring Factors Driving the Choice of Frozen Food in the Indian Market." *SCMS Journal of Indian Management* 20.3 (2023): 57-69.
21. Hall, C. Michael, Richard Mitchell, and Liz Sharples. "Consuming placesthe role of food, wine and tourism in regional development: the role of food, wine and tourism in regional development." *Food tourism around the world*. Routledge, 2004. 25-59.
22. Richards, Greg. "An overview of food and tourism trends and policies." (2012): 13-46.