**CONSUMERS’ PERCEPTION AND ACCEPTANCE TOWARDS FROZEN FOODS IN GUJARAT, INDIA**

**ABSTRACT:**

**Background:** Frozen foods are gaining importance because of the its attributes like convenience, extended shelf life and minimal preparation time. Because of the faced paced life of 21st century, frozen foods have become the inclusive part of the day-to-day life of many working professionals. The Indian froze food market is expected to reach US $572.54 billion from 2025-2033 with a CAGR of 13.25 percent.

**Aim:** The present study is focused on getting consumers’ insight on this growing sector of food processing industry.

**Research Methodology and Data Collection:** The study was conducted in Vadodara city of Gujarat, involving collecting data from 200 respondents (100 consumers and 100 non-consumers) through convenience sampling technique. The data was later analyzed using statistical tools like descriptive statistics, weighted average mean and Henry Garrett’s ranking.

**Results**: The results showed dominance of age group of 31-50 years in purchasing frozen foods, majority buying on weekly basis, mainly from supermarkets. Consumers were overall satisfied with the product and its attributes such as convenience offered, time saving, easy to cook, etc. Non-consumers did not prefer frozen foods because reasons such as preference of fresh foods, taste, high price, health concerns, etc.

**Conclusion and Implications**: The study suggested to focus on taste, price, and transparency barriers to boost acceptance and trust among diverse consumers in the frozen food market segment.

**Keywords**: Frozen Food, RTE, Taste, Health

**INTRODUCTION:**

The food habits of human being have evolved over ages and accordingly the preferences. The way of processing, cooking and consumption patterns have also been transformed steadily over the years and across the globe (Saini *et al.*, 2022). The undergoing changes are observed due to economic growth, changing social dynamics, technological advancements, and media influences (Goindi et al., 2020). The economic liberalization and the introduction of instant and convenience foods just after 1980s have also impacted a lot in the changing process. As urbanization expanded, the reliance on pre-packaged food items also increased in Indian kitchens.

Frozen foods are a significant part of the Ready-to-Eat (RTE) food segment, offering convenience, extended shelf life, and minimal preparation time. The freezing process preserves the freshness, texture, and nutritional value of food by preventing microbial growth and enzymatic degradation, ensuring food remains safe without chemical preservatives. The increasing global demand for traditional Indian cuisine, such as okra, drumsticks, chapatis, and parathas, has fueled the sector's expansion. Popular frozen items include meat, seafood, baked goods, desserts, and ready-to-eat meals like frozen pizzas, which are widely available in supermarkets. The two most important product attributes that drive buyers to purchase quick meals are convenience or ease of usage and time savings (Funde and Shrivastava, 2023). Frozen foods encompass a diverse range of items, offering convenience, extended shelf life, and varying nutritional profiles (Sobhani, 2024).

According to Renub (2024), the Indian frozen food market was expected to reach US $186.84 billion in 2024 and from 2025-2033 it is expected to reach US $572.54 billion, with a CAGR of 13.25 percent. The main factors driving the market are rapid urbanization, rising disposable incomes, heightened awareness of global food trends, and easier access to products through supermarkets and online retail. The market consists of frozen vegetables, frozen fruits, frozen chicken related products, frozen mutton related products, and frozen sea foods (Sobhani, 2024). Major drivers of frozen food are convenience and time saving characteristics (Keerthana & Krishnaveni, 2023., Chauhan & Saiyad, 2024) and convenience, affordability, easy storage, and quick cooking (Keerthana & Krishnaveni, 2023). Importance of frozen food is also segmented in various demography like college students, bachelors, and working professionals, primarily due to their convenience, taste, and nutritional value (Rathod et al., 2023). The same study revealed that taste, nutrition, convenience, and product availability were the major factors influencing the purchase decisions for RTE (Ready to Eat) foods. However, only 51 percent of consumers satisfied with RTE products (Kaviya**,** 2023), might be due to negative perception of health implications in the society (Prasad, 2019).

With this backdrop, the present research paper is an attempt to analyze consumer perceptions of frozen foods, identify key factors influencing their purchase decisions, and assess their satisfaction levels. Additionally, it seeks to explore the barriers hindering wider acceptance of frozen foods. These insights will help understand consumer behavior and improve marketing strategies in the frozen food sector.

**MATERIALS & METHODS:**

Gujarat is known for its home driven food and socially binding culture. However, the state is also known for growing cosmopolitan culture in some of the districts from Ahmedabad, Anand, Vadodara, & Surat in which diverse consumers are growing majorly due to interstate connectivity and world class infrastructure in different categories; like health, education and tourism. As a result, frozen food preferences especially RTE categories were observed at an increasing rate. That’s tempted the researcher to consider Vadodara district for the study purpose looking in to its location, connectivity and cultural diversity.

Vadodara ranks among the top three cities in Gujarat for the number of frozen food stores, accounting for 18.92 percent of the state's total. The city hosts a diverse mix of consumers – from students and working professionals to nuclear families – who are increasingly opting for time-saving meal solutions. This indicates a robust consumer base and a thriving market for frozen food products (**Rentech Digital, 2025**). Vadodara is home to several frozen food manufacturers and distributors, including reputed names like JK Frozen Food, Jindal Agro Processing Pvt. Ltd., Global Gourmet Pvt. Ltd. and Agrofun Foods LLP, which play a crucial role in meeting the rising demand for frozen vegetables, snacks, and full meals. The presence of multiple retail chains such as MagSon, Maples Food Store, Reliance Retails, Max Fresh and Frozen, and Freshway Services reflects the strong retail penetration of frozen and RTE foods in the city. Many companies related to export of frozen foods or ready-to-eat foods are also located in Vadodara like Port-Ex Exports, Shah Exports. Manufacturing units of leading companies like Balaji is also located in Vadodara making it an ideal study area. In a nut shell, the district is the hub of perfect business ecosystem to be considered as the representative sample for the state in frozen food categories.

The study used convenience sampling method to identify respondents which included both consumers and non-consumers of frozen foods. Convenient sampling is a right strategy in sample collection when respondents are connected to a particular place or institutions. Even, the sampling method is rightly taken here looking in to cost and precision part of the research in the particular kind of study. Data were collected using structured schedule from 100 consumers and 100 non-consumers of frozen foods making the total sample size 200. Both consumers and non-consumers were selected as sample to get clear insights on both positive and negative views on frozen foods. These respondents were identified from stores in Vadodara like DMart, Reliance Retail, Magsons, and Maple foods. The non-consumers were mainly selected from DMart and Reliance Retail and consumers were selected from all these four stores.

The variables taken in the study were identified from various studies outputs on frozen foods, ready-to-eat foods, attributes and negative perception of frozen foods mentioned in many articles. The data gathered were analyzed using analytical tools like descriptive statistics, Weighted Arithmetic Mean, and Henry Garrett’s ranking method.

***Garrett Ranking Technique***

 Percent position = 100 (𝑅𝑖𝑗−0.5)

 𝑁𝑗

Where,

 Rij= Rank given for the ith variable by jth respondents

 Nj = Number of variables ranked by jth respondents

**RESULTS AND DISCUSSION:**

Table 1 indicates that majority of the respondents belonged to the age group of 31-50 years contributing to 70 percent of the total sample size. Individuals in this age group are mainly working professionals, earning for their family and have less time to be involved in kitchen because of the fast-paced lifestyle and frozen foods offer a great time saving for such individuals. A study conducted by Singh and Bhatia (2023) found that majority of the respondents selected for identifying frozen food consumers belonged to the age bracket of 31-40 years. Majority of the respondents were women (56%) buying groceries and other food items based on the choice of their family. In cities like Vadodara with urban settings, women often assume the role of primary decision-makers for household purchases especially grocery.

As educated women are more confident and autonomous in making purchase decisions and are working professionals tends to prefer frozen and ready-to-eat foods (Juyaland Singh, 2009). The study conducted by Sarkaret al. (2021) in Kolkata to know food consumption pattern between genders found that 57.3 percent of the 110 participants were female. The respondents had higher educational qualifications, with majority (89%) having graduation or above qualifications, which indicated that respondents were well aware of the new technologies used in the food processing industry and before buying any product they like to get all the information regarding the product. The study conducted by Sreeya (2019**)**, to explore customer perceptions of frozen foods, revealed that respondents with higher education level tend to have more favorable opinion about frozen foods. The contribution of self-employed individuals also remained high (30%) among the total respondents indicating a significant portion of independent earners who may value flexibility and convenience in their shopping choices. The study also observed a significant portion of individuals in the income bracket of 5-10 lakhs (44%) suggesting as disposable income increases, people tend to shift towards convenience and luxury items. Immediately followed by this were the respondents earning above ₹10 lakhs (28%). Law *et al.* (2019) highlighted that higher-income households are more inclined towards purchasing processed and frozen foods because of more disposable incomes and urbanization.

Table 1 Socio-economic profile of the respondents (n=200)

|  |  |  |  |
| --- | --- | --- | --- |
| **Demographic factors** | **Variables** | **Frequency** | **Percentage (%)** |
| **Age** | <30 years | 50 | 25.00 |
| 31-40 years | 86 | 43.00 |
| 41-50 years | 54 | 27.00 |
| >51 years | 10 | 5.00 |
| Total  | 200 | 100.00 |
| **Gender** | Male | 88 | 44.00 |
| Female | 112 | 56.00 |
| Total  | 200 | 100.00 |
| **Education** | SSC | 6 | 3.00 |
| HSC | 16 | 8.00 |
| Graduation & above | 178 | 89.00 |
| Total  | 200 | 100.00 |
| **Occupation** | Student | 32 | 16.00 |
| Govt. Employee | 30 | 15.00 |
| Private Employee | 44 | 22.00 |
| Self-employed | 60 | 30.00 |
| Homemaker | 34 | 17.00 |
| Total  | 200 | 100.00 |
| **Annual income** | <₹1 lakh | 14 | 7.00 |
| ₹1-5 lakhs | 42 | 21.00 |
| ₹5-10 lakhs | 88 | 44.00 |
| >₹10 lakhs | 56 | 28.00 |
| Total  | 200 | 100.00 |

Table 2 revealed distinct patterns in consumer purchase behavior, with a significant portion of the consumers (41%) purchasing frozen foods on a weekly basis, immediately followed by the ones who purchase bi-weekly indicating a moderate but steady demand. A study conducted by Keerthana and Krishnaveni (2023) found that a significant portion of consumers in Tirupur city, purchase frozen foods on a weekly basis. Monthly buyer (18%) may tend to buy in bulk or may have limited storage capacity. Meanwhile, only 8 percent purchase frozen foods occasionally. The frequency of monthly and occasionally buyers contributes to 26 percent of the respondents, suggesting scope of potential buyers that might be converted into regular buyers in the span of time.

Table 2 Purchase frequency of frozen foods (n=100)

|  |  |  |  |
| --- | --- | --- | --- |
| **Particulars** | **Variables** | **Frequency** | **Percentage (%)** |
| Frequency of purchase | Weekly | 41 | 41.00 |
| Bi-weekly | 33 | 33.00 |
| Monthly | 18 | 18.00 |
| Occasionally | 8 | 8.00 |
| Total | 100 | 100.00 |
| Source of purchase | Supermarkets | 44 | 44.00 |
| Local stores | 28 | 28.00 |
| Online platforms | 28 | 28.00 |
| Total | 100 | 100.00 |

Table 2 reveals significant contribution of supermarkets (44%) as a source of purchase for frozen foods, serving as a one-stop solution for all the daily necessities of a households where one, while buying day-to-day items can also shift towards purchasing convenience options. A study conducted by Khatri (2021) found that supermarkets and hypermarkets account for approximately 75 percent of the value of sales in the Indian frozen food markets as these stores have dedicated freezer sections that allow the storage to these items. Next to supermarkets, local stores (28%) and online platforms (28%) were preferred by consumers. Local stores are located closer to residential areas and are very convenient for last-minute or urgent purchases. Online platform, though in the result showed a similar percentage with local stores, were not that popular for items like frozen foods because frozen food transportation requires advanced logistic chain which is very difficult to maintain for small quantities and is very expensive too. Also, in such advanced logistic chain, there is need of careful handling of the atmosphere of the transportation vehicles, which might result in spoilage of the product if not managed carefully. Additionally, consumers believe to have visual appearance of products like frozen foods before buying to know the ingredients and nutritional benefits which might be difficult in case of online as direct visual appearance is not possible with online platforms.

Table 3 Perception towards frozen foods (n=100)

|  |  |  |
| --- | --- | --- |
| **Variables** | **Mean Score** | **Interpretation** |
| Convenient to use | 4.30 | Strongly agree |
| High quality | 3.08 | Neutral |
| Very expensive to purchase | 4.28 | Strongly agree |
| Negative impact on health | 3.30 | Neutral |
| Safe and hygienic | 3.20 | Neutral |
| Nutritional benefits | 3.20 | Neutral |
| Easy to cook | 4.60 | Strongly agree |

Table 3 represents the perception of consumers towards frozen foods. Consumers agreed that frozen foods are easy to cook, highlighting the appeal of quick and hassle-free meal preparation. They also strongly agreed that frozen foods are convenient to use in these fast-paced, modern lifestyles. Consumers also had perception that frozen foods were very expensive to purchase. On the other hand, consumers had a neutral perception about quality of frozen foods, negative impact on health, safe and hygiene and nutritional benefits. The neutral responses suggested that while consumers may not perceive frozen foods as harmful or lacking, they also did not strongly associate them with health advantages or superior quality. A study conducted by Funde and Shrivastava (2023) emphasized that convenience is a primary driver for consumers choosing frozen foods, along with ease of preparation and time-saving aspects significantly influencing purchase intentions. The research conducted by **Priyadharshini *et al.* (2025)** highlighted concerns of consumers about the nutritional benefits of frozen foods.

 Table 4 Factors influencing purchase decisions for frozen foods

 (n=100)

|  |  |  |
| --- | --- | --- |
| **Factors** | **Garrett Score** | **Rank** |
| Saves time | 67.38 | I |
| Longer shelf-life | 60.76 | II |
| Wide range of varieties | 50.40 | III |
| Availability during off-seasons | 44.86 | IV |
| Quality (SCM) | 24.60 | V |

Table 4 indicates that the primary driver for purchasing frozen foods is the attribute of frozen foods that it saves time. The second most important factor was the longer shelf life of frozen products, indicating that consumers value the ability to store food for extended periods without worrying about spoilage. A wide range of available varieties ranked third, showing that diversity in product choices was also an appealing aspect. The availability of certain foods during off-seasons was another relevant factor, reflecting consumer appreciation for year-round access to items that may not be seasonally available in fresh form. Lastly, quality, while still considered, held the lowest rank among the factors, implying that although important, it was secondary to convenience, longevity, and variety in the decision-making process.

Table 5 Satisfaction level towards frozen foods (n=100)

|  |  |  |
| --- | --- | --- |
| **Factors** | **Mean Score** | **Interpretation** |
| Overall satisfaction | 4.10 | Agree |
| Quality of the product | 3.56 | Agree |
| Taste of the product | 3.52 | Agree |
| Price of the product | 3.18 | Neutral |
| Packaging of the product | 4.12 | Agree |
| Variety | 4.64 | Strongly agree |
| Convenient to use | 4.68 | Strongly agree |

Table 5 highlights satisfaction level of consumers towards frozen foods and the benefits of frozen foods. Overall satisfaction with frozen foods was high, reflecting a positive consumer experience. Quality of the product and its taste also received favorable feedback. The price of frozen foods was viewed less positively, indicating that some consumers find these products to be less affordable or not worth the cost when compared to other food options. On the other hand, the packaging of frozen foods was highly regarded, suggesting that consumers appreciated the practicality, appeal, and functionality of how these products were presented. In terms of product selection, variety scored exceptionally well, highlighting that a broad range of frozen food options meets the needs and preferences of consumers. Additionally, the convenience of using frozen foods was considered a significant advantage, with many valuing the ease and time-saving benefits these products offer. These factors collectively pointed to the strong appeal of frozen foods in terms of convenience, quality, and variety, while price remained an area for potential improvement. The study conducted by Vasan (2019) indicated high consumer satisfaction with product availability, variety, and packaging. Price was a common complaint among consumers, with 26.9 percent citing high costs. Funde and Shrivastava (2023) identified convenience as a primary motivator for purchasing frozen foods, while taste and quality were considered, they were not the foremost factors. Kavitha (2024) in her study highlighted quality as a concern for some consumers.

Table 6 Reasons for non-purchase of frozen foods (n=100)

|  |  |  |
| --- | --- | --- |
| **Variables** | **Garrett Score** | **Rank** |
| Preference for fresh foods | 74.68 | I |
| Taste | 62.58 | II |
| High price | 62.52 | III |
| Health risks | 59.54 | IV |
| Perceived lack of nutrition | 50.24 | V |
| Limited availability | 44.54 | VI |
| Lack of trust on brands | 36.26 | VII |
| Lack of awareness cultural issues | 28.70 | VIII |
| Cultural issues | 26.94 | IX |

Table 6 reveals the barriers perceived by non-consumers in purchasing frozen foods. The strongest deterrent was the preference for fresh foods, indicating a widespread belief that fresh items were superior in quality and better suited to daily consumption. Taste emerged as the second most influential factor, suggesting that many individuals feel frozen foods did not meet their expectations in flavor or culinary satisfaction. High price was also a major concern, showing that cost played a considerable role in influencing food choices. Health risks and the perceived lack of nutrition were additional concerns, highlighting skepticism about the overall health value and safety of frozen foods. Limited availability and lack of trust in brands further contributed to the reluctance, especially in areas where product options or reliable brands may be scarce. At the lower end of the rankings, lack of awareness and cultural issues had a comparatively smaller impact, indicating that while they do affect some consumers, they were not as prominent as the more practical and sensory-based concerns. Singh and Bhatia (2023) revealed significant preference for fresh foods among consumers which can be a reason why people are not preferring frozen foods. Mediratta and Mathur (2023) highlighted that taste, cost, and nutritive value were significant factors influencing food choices.

**CONCLUSION:**

Vadodara hosts a large potential for expanding the business of frozen foods. Valuable insights by studying consumer behavior towards frozen foods can be taken forward for expanding this business. The study revealed that consumers were well-aware about frozen foods and were increasing its inclusion in their food habits because of its benefits of saving time and convenience offered. Supermarkets came out to be the primary source of purchase for frozen foods in the city reflecting the growing demand for accessibility and time-saving shopping methods. Frozen foods were a regular part of many consumers’ meal planning and consumers were satisfied with the quality, taste, variety and packaging of the product. Long-shelf life, variety offered and seasonal availability were the key drivers of frozen foods among consumers. The study also identified several key barriers that hindered the acceptance of frozen foods among non-consumers. Preference for fresh foods, concerns about taste, perceived health risks, limited availability and lack of trust on brands were the non-deterrents for the consumption of frozen foods by non-consumers.

**SUGGESTIONS:**

It is suggested to focus on taste, price, and transparency barriers to boost acceptance and trust among diverse consumers in the frozen food market segment. Quality related consumer awareness and education from the source to destination may be focused more to grab trust leading to future footfall at the purchase site. Often frozen products get spoiled during transportation, so transportation should be carefully managed and drivers should be trained about refrigeration specific. Also, to increase share in online purchases cold chain logistics should be carefully managed.

Disclaimer (Artificial intelligence)

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1.

2.

3.

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