



A Study on Consumer Buying Behaviour and Awareness of Infant Food Formula in Anand and Vidyanagar

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The infant food formula industry is witnessing notable growth, particularly in developing countries like India, due to evolving family structures, increased maternal employment, and heightened awareness of infant nutrition. This study investigates consumer awareness, usage patterns, and perception of infant food formula among residents of Anand and Vallabh Vidyanagar. Primary data were collected from 98 respondents through structured questionnaires distributed across medical

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stores, children's hospitals, and maternity homes. The results reveal that only 42% of participants were aware of infant formula products, and awareness was mainly driven by retail exposure and personal networks. Among the aware respondents, 80% had tried the product, although usage was largely occasional, suggesting its role as a supplement rather than a replacement for breastfeeding. The study highlights high consumer satisfaction regarding nutritional quality and convenience, but also identifies significant dissatisfaction with product availability. Key factors influencing purchase decisions include insufficient breast milk, medical advice, and product convenience. These insights underscore the need for improved awareness, strategic marketing, and better distribution to enhance product adoption. The findings offer valuable implications for manufacturers and healthcare stakeholders aiming to bridge the gap between consumer expectations and product offerings in the infant nutrition sector.

Keywords: *Infant food formula; consumer awareness; buying behaviour; nutritional perception; feeding practices; product satisfaction.*

1. INTRODUCTION

The global infant food formula industry is experiencing significant growth, driven by changes in consumer lifestyle, increasing urbanization, and growing awareness of child nutrition. As of 2024, the global infant food market was valued at USD 105.11 billion, and it is projected to reach USD 122.02 billion by 2030, with a CAGR of 2.52%. (www.globenewswire.com) Factors such as the rise in working parents, especially mothers, along with the need for convenient and safe feeding options, have contributed to a growing demand for infant formula products that offer nutritional adequacy and convenience.

Proper nutrition during infancy plays a pivotal role in physical growth, immune system development, and cognitive performance. While breastfeeding is recognized as the best source of nutrition, alternative feeding methods have become necessary due to various circumstances such as lactation issues, health complications, and professional commitments (Yee & Chin, 2007). Infant food formulas have emerged as a crucial alternative to fulfill these nutritional needs. Companies continue to invest in the development of specialized formulas that address lactose intolerance, allergies, and other dietary requirements to cater to the diverse needs of infants (Tambunan et al., 2013).

In India, the infant formula market is expanding steadily. In 2024, it was valued at USD 5.99 billion and is projected to reach USD 9.27 billion by 2033, with a CAGR of 4.73%. (www.openpr.com) This growth is attributed to a variety of factors including rising disposable incomes, evolving family structures, increased maternal education, and better internet and

healthcare access. The proliferation of e-commerce platforms and organized retail networks has further enhanced product accessibility and awareness, especially in urban and semi-urban areas (Qing & Wong, 2023).

One of the primary motivations behind this study is the growing importance of understanding consumer behavior in the infant nutrition segment. With increasing health awareness among parents, especially regarding early childhood nutrition, purchasing decisions are becoming more deliberate and informed. Parents today consider factors such as nutritional content, brand reputation, safety standards, price, and product availability when choosing infant formula. Medical guidance and digital information also play a crucial role in shaping consumer choices.

This study aims to examine the level of consumer awareness and analyze buying behavior surrounding infant formula. Understanding how often consumers purchase these products, what influences their brand choices, and how satisfied they are with the options available can provide valuable insights for stakeholders. Additionally, it is important to investigate whether consumers are influenced more by pediatric advice, marketing campaigns, or peer recommendations.

Barriers to adoption such as cost, lack of awareness, or misconceptions about the product may still hinder market growth. This research seeks to explore the motivations behind choosing or avoiding infant formulas and the perceptions regarding their benefits and drawbacks. Insights into these areas will help manufacturers, retailers, and healthcare professionals better address consumer needs and improve market reach.

The study will also propose potential strategies to enhance product acceptance and sales. These may include price optimization, promotional efforts, educational campaigns about nutritional benefits, and collaborations with healthcare providers. Understanding consumer expectations and closing the gap between product offerings and market needs is vital for sustainable growth in this sector.

As the infant formula industry continues to grow, particularly in developing countries like India, it becomes essential to understand consumer behavior, preferences, and awareness levels. This research provides a comprehensive view of the factors influencing the purchase and use of infant food formulas and aims to contribute both academically and practically to the field of infant nutrition and consumer studies.

1.1 Research Objective

1. To analyse awareness about infant formula products in Anand and Vallabh Vidyanagar.
2. To gain insights into customer usage patterns and their overall experience with the product.
3. To evaluate the convenience and market positioning of liquid infant formula products relative to other available options.
4. To assess the target audience's perception of the product, along with their satisfaction regarding its benefits and limitations.
5. To collect direct feedback from users to improve the product and marketing strategy.

2. REVIEW OF LITERATURE

Agrawal, S., & Ashraf, G. Y. studied consumer buying patterns for Amul milk and provided insights relevant to Amul's infant food formula business. They highlighted Amul's cooperative model as key to integrating fragmented supply chains and building both supply and demand in emerging markets like India. The study emphasizes the importance of market development, consumer education, product availability, and brand trust—critical for the infant formula sector. Amul's success is driven by cost leadership, operational efficiency, and strong rural networks, allowing it to offer affordable, high-quality nutrition. The authors Fude that sustainable growth in underserved markets requires long-term planning, supply chain integration, and a focus on affordability without sacrificing quality.

Yee, & Chin, (2007) studied parental attitudes toward infant feeding in East Malaysia among 505 respondents with children aged 0–6 years. While 86.3% initiated breastfeeding, only 8.3% exclusively breastfed for six months or more. Higher education and income levels were linked to earlier formula use, with marketing and brand perception significantly influencing purchase decisions. Despite awareness of breastfeeding benefits, social constraints like inadequate workplace support drove parents toward formula for convenience. The study highlights how socioeconomic factors, marketing, and infrastructure shape feeding choices—offering key insights for brands like Amul to build trust and boost awareness for infant food formulas.

Tambunan et al. (2013) explored Indonesian mothers' perceptions and purchasing behavior toward baby formula in a competitive market. Through qualitative and quantitative methods, they found that perceived growth benefits drove willingness to buy, while claims about boosting intelligence were met with skepticism. Mothers saw formula mainly as a basic nutritional substitute for breast milk. Despite heavy advertising, trust did not always follow. The study highlights the need for brands like Amul to align marketing with consumer expectations and scientific credibility, focusing on honest, trust-building communication to strengthen long-term consumer relationships in the infant nutrition sector.

Jordaan (2016) proposed a marketing framework to influence healthcare professionals' prescription behavior in the regulated infant formula industry. Despite advertising limits, the sector thrives by engaging professionals through trained medical reps. The study identifies a six-step value chain—from science to marketing—emphasizing each phase's role in earning professional trust. Surveying healthcare providers in Port Elizabeth, it found that prescription decisions are driven by product efficacy, company credibility, and representative quality. For brands like Amul, the study highlights the need for investment in clinical research, trust-building, and direct engagement with pediatric professionals using evidence-based strategies to boost market share.

Fekadu (2018) used a mixed-method study with 90 respondents to examine factors influencing infant formula purchases. Seven key determinants were identified: price, quality, promotion, information sources, availability,

brand popularity, and consumer perception—all significantly affecting buying decisions ($p < 0.05$). Lower-income consumers were more sensitive to price and brand, while lack of access to information reduced product perception, especially among the less educated. Price had the strongest impact, followed by quality and perception. For brands like Amul, the study highlights the need to focus on fair pricing, consistent quality, wider availability, and better information to boost consumer acceptance and market reach.

Hastings et al. (2020) examined the powerful marketing tactics of the infant formula industry, showing how companies bypass global regulations like the WHA Code through emotional branding and social media promotion. They often market follow-on and specialist milks as indirect substitutes for infant formula, influencing parental choices despite health concerns. The study warns that such profit-driven strategies can undermine breastfeeding and public health. It urges stronger regulations to curb misleading promotions. For brands like Amul, the findings stress the importance of ethical, regulation-compliant marketing that responsibly promotes infant nutrition while safeguarding consumer trust.

Liu (2022) analyzed consumer behavior toward baby food and vegetables, focusing on organic products. Using hedonic pricing models and retail data, the study found that parents are willing to pay 17%–27% more for organic baby food. However, demand for organic options is more price-sensitive, with consumers more likely to switch if conventional prices rise. Sales promotions also boosted vegetable purchases, particularly among low-income buyers. For brands like Amul, these insights highlight the potential of organic positioning, strategic pricing, and targeted promotions to improve consumer acceptance and boost infant food formula sales.

Chaudhari et al. (2024) studied probiotic dairy product awareness and buying behavior among college students in Anand City, India. Most students, mainly young rural males from agricultural backgrounds, had good knowledge of probiotics—gained through books, social media, and ads. Amul was the preferred brand, with common weekly consumption of products like lassi, dahi, and buttermilk. Health benefits motivated 73% of purchases, and despite some viewing probiotics as expensive, 97% were satisfied and willing to recommend them. These

findings suggest growing consumer awareness and trust in health-focused dairy products—offering valuable insights for Amul's infant formula marketing and positioning.

3. RESEARCH METHODOLOGY

To effectively carry out the study titled “A Study on Consumer Buying Behavior and Awareness of Infant Food Formula,” a structured research design was developed. To fulfill the objectives of this study, both primary and secondary data were collected. The study objectives. The target population comprised individuals Medical store, Children hospital, Maternity home representing a key consumer segment for Infant Formula. Primary data was gathered through structured questionnaires administered to 98 respondents from Anand and Vallabh Vidyanagar, including consumers visiting medical stores, children's hospitals, and maternity homes. The sampling method used was simple random sampling, and data collection was conducted during the period from Feb 2025 to March 2025. The purpose was to understand consumer awareness, usage behavior, product perception, and satisfaction with infant formula products, along with gathering direct user feedback for improving product offerings and marketing strategies.

Secondary data was sourced from official websites, government publications, industry reports, and annual company reports to support the primary research findings. For analysis, the study utilized percentage analysis, along with tabulation and graphical representation, to identify key trends, usage patterns, and consumer opinions. This methodology provided valuable insights into the current market scenario and helped in drawing meaningful conclusions regarding consumer buying behavior and awareness related to infant food formula.

4. RESULT AND DISCUSSION

4.1 Awareness and Sources of Information

The analysis of awareness and sources of information reveals about Infant Formula, indicating a need for stronger outreach. Retail stores and personal networks are key information sources, highlighting the importance of enhancing in-store promotions and word-of-mouth strategies.

Table 1. Heard about infant formula

			n=98
Sr. no.	Awareness of Infant Formula	Frequency	Percentage
1	Aware	41	42%
2	Not Aware	57	58%
	Total	98	100%

Table 2. Initial source of information

			n=41
Sr. no.	Source of information	Frequency	Percentage
1	Doctor's recommendation	5	12%
2	Friends or family	16	39%
3	Retail store	20	49%
	Total	41	100%

Among the 98 respondents, only 42% were aware of liquid infant formula products, while 58% had no awareness. This reveals a significant gap in product familiarity. Awareness was mostly generated through retail stores (49%) and word of mouth via friends/family (39%), whereas only 12% learned about the product through doctors, reflecting regulatory restrictions on direct medical promotion of formula.

4.2 Usage Patterns and Consumer Experience

Out of those aware, 80% had used the product, indicating a high conversion rate from awareness to trial. However, usage frequency was mostly occasional, with 64% using it less than once a week and none using it daily. This suggests that formula is often used as a backup during travel or emergencies rather than as a regular feeding option.

Regarding satisfaction, 53% of users reported being satisfied or highly satisfied, while 27%

expressed dissatisfaction, and 20% remained neutral. This indicates an overall positive experience but with room for improvement in meeting user expectations.

3.3 Convenience and Market Positioning

Consumers evaluated formula products on key attributes. For nutritional quality, a strong 98% satisfaction rate was observed. Price-to-nutrition value also received moderately positive feedback. However, availability was a concern, with nearly 47% dissatisfied, indicating issues with retail presence or distribution.

On convenience factors, over 75% of users rated the product as convenient or highly convenient for preparation time, packaging portability, and ease of clean-up. The ease of cleaning was particularly appreciated, with 54% rating it highly convenient. These results affirm that consumers value time-saving and low-effort solutions in infant feeding.

Table 3. Infant Formula Used or not?

			n=41
Sr. no.	Used of Infant Formula	Frequency	Percentage
1	Yes	33	80%
2	No	8	20%
	Total	41	100%

Table 4. Satisfaction level

			n=41
Sr. No.	Satisfaction level	Frequency	Percentage
1	Highly Satisfied	12	29%
2	Satisfied	10	24%
3	Neutral	8	20%
4	Dissatisfied	6	15%
5	Highly Dissatisfied	5	12%
	Total	41	100%

Table 5. Frequency of usage**n=33**

Sr. No.	Frequency of usage	Frequency	Percentage
1	Daily	0	0%
2	2-6 times/week	3	9%
3	Weekly	9	27%
4	Occasionally (Less than once a week)	21	64%
	Total	33	100%

Table 6. Rating of infant formula**n=41**

Sr. No.	Particulars	Highly Dissatisfied		Dissatisfied		Neutral		Satisfied		Highly Satisfied		Total
		F	%	F	%	F	%	F	%	F	%	
1	Price Value (Cost percentage nutrient unit)	2	5	5	12	10	24	11	27	13	32	41
2	Nutritional Quality (Micro & Macronutrient profile)	0	0	0	0	1	2	11	27	29	71	41
3	Availability (Is it easy to find in store)	11	27	8	20	11	27	6	15	5	12	41

Table 7. Convenience level of infant formula**n=41**

Sr. No.	Title	Highly Inconvenient		Inconvenient		Neutral		Convenient		Highly Convenient		Total
		F	%	F	%	F	%	F	%	F	%	
1	Preparation Time Efficiency (Time to make a feed)	1	2	1	2	8	20	10	24	21	51	41
2	Packaging Portability (Ease of transport/storage)	0	0	2	5	9	22	11	27	19	46	41
3	Clean-up Simplicity (Ease of cleaning feeding apparatus)	1	2	1	2	6	15	11	27	22	54	41

3.4 Perception and Feeding Preferences

When assessing feeding practices, 68% of respondents indicated some level of formula use, but only 9% relied on it exclusively. The majority preferred a mixed feeding approach or used formula only occasionally. This reinforces the notion that formula is seen as a supplement, not a replacement for breastfeeding.

Awareness of product benefits was low, with 62% of respondents not aware of its advantages, and only 13% very aware. This presents a clear

opportunity for better education and outreach. In terms of usage preference, 55% favored formula as a supplement to breastfeeding, especially in settings like childcare or during travel.

3.5 Influencing Factors and Feedback

Key decision-making drivers included:

- Insufficient breast milk (44%)
- Medical recommendations (42%)
- Convenience (34%)
- Nutritional value (21%)

Table 8. Feeding practice among the respondents for their child

		n=98	
Sr. No.	Feeding practice among the respondents for their child	F	%
1	Exclusive reliance on infant formula	9	9%
2	Predominant reliance on infant formula, with minimal supplementation	14	14%
3	Shared reliance between infant formula and other nutritional sources	30	31%
4	Minimal reliance on infant formula, primarily for supplementation	14	14%
5	No reliance on infant formula	31	32%
	Total	98	100%

(Here, F= Frequency; %= Percentage)

Table 9. Preference to use of infant formula

		n=33	
Sr. No.	Preference to use of Infant Formula	Frequency	Percentage
1	Primary source of infant nutrition	9	27%
2	Supplement to breastfeeding (At home, at daycare/childcare facilities, nighttime feedings, while traveling)	18	55%
3	Emergency feeding situations	6	18%
	Total	33	100%

Table 10. Factors influencing your decision

								n=98
Sr. No.	Primary factors influencing your decision	Very Important		Moderately Important		Not Important		Total
		F	%	F	%	F	%	
1	Insufficient breast milk production	43	44%	31	32%	24	24%	98
2	Medical recommendations or infant health needs	41	42%	36	37%	21	21%	98
3	Convenience and lifestyle factors	33	34%	31	32%	34	35%	98
4	Nutritional composition of formula	21	21%	37	38%	40	41%	98

Table 11. Continue using or try infant formula

		n=98	
Sr. No.	Continue using or try Infant Formula	Frequency	Percentage
1	Very likely	18	18%
2	Likely	23	23%
3	Neutral	40	41%
4	Unlikely	11	11%
5	Very unlikely	6	6%
	Total	98	100%

It is clear that biological and health-related reasons, followed by convenience, are the dominant reasons behind formula adoption. Nutritional value is considered important but not usually the primary deciding factor.

When asked about future use, 41% were likely or very likely to continue or try the product, while 41% were neutral. A smaller group (17%) expressed reluctance. This suggests that many caregivers are open to formula but need more awareness, accessibility, or reassurance about its benefits to commit fully.

The study revealed a low awareness of infant formula products, with only 42% of respondents being aware of the product and 62% unaware of its benefits. Information about the product primarily reached consumers through retail stores (49%) and friends or family (39%), while doctors played a limited role (12%) in spreading awareness, largely due to regulatory restrictions. Among those aware of the product, 80% had used it, although usage was mostly occasional (64%). User satisfaction stood at 53%, while 27% reported dissatisfaction, mainly due to issues related to product availability and overall experience. In terms of convenience, the product was rated highly for its nutritional value (98%), ease of preparation (75%), packaging (73%), and clean-up simplicity (81%). Despite this, only 9% of users relied exclusively on formula, with the majority opting for mixed or minimal use. The key factors influencing the decision to use formula were insufficient breast milk (43%), medical advice (41%), convenience (34%), and nutritional value (21%). Looking ahead, 41% of respondents showed interest in trying or continuing to use the product, while an equal percentage remained neutral, suggesting significant untapped market potential.

4. CONCLUSION

This study set out to understand consumer awareness, usage patterns, and perceptions of infant food formula in Anand and Vallabh Vidyanagar. The findings reveal low overall awareness, with only 42% of respondents familiar with the product. Primary sources of information were retail stores (49%) and personal networks (39%), while doctor recommendations (12%) played a minimal role, likely due to ethical constraints around the promotion of infant formula over breastfeeding.

Despite the low awareness, 80% of those familiar with the product had used it, indicating a high

conversion rate from awareness to usage. However, most users (64%) used the product occasionally, suggesting it is considered a supplement or emergency solution, rather than a primary source of infant nutrition.

User satisfaction levels were moderately high, with 53% satisfied or highly satisfied, while 27% reported dissatisfaction, pointing to specific areas for improvement. The product was especially appreciated for its nutritional quality (98%), convenience in preparation (75%), packaging portability (73%), and ease of clean up (81%). However, 47% expressed dissatisfaction with product availability, and price satisfaction was moderate at 59%.

When it came to feeding preferences, only 9% of respondents used formula exclusively, while the majority practiced mixed feeding or used it occasionally. The main reasons influencing formula use were insufficient breast milk (43%) and medical recommendations (41%), with convenience (34%) and nutritional value (21%) playing supporting roles.

Regarding future intent, 41% were open to continued or new use, while 41% remained neutral, reflecting a critical mass of undecided consumers who could be influenced through effective communication and outreach.

CONSENT

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

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 this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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