Archives of Current Research International

Volume 25, Issue 7, Page 85-100, 2025; Article no.ACRI.138958
ISSN: 2454-7077

Consumer Insights into Dairy and Dairy Alternatives: Patterns, Perceptions, and Influencing Factors in Anand and Vidyanagar

Henil S. Patel [a++*], K.C. Kamani [a#], M.C. Prajapati [a#], A.K. Makwana [a†] and M.D. Gurjar [a#]

[a] SMC College of Dairy Science, Kamdhenu University, Anand, India.

Authors' contributions

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

Article Information

DOI: https://doi.org/10.9734/acri/2025/v25i71315

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://pr.sdiarticle5.com/review-history/138958

Original Research Article

Received: 26/04/2025
Accepted: 28/06/2025
Published: 28/06/2025

ABSTRACT

This study explores consumer awareness, consumption behavior, and influencing factors related to dairy products and plant-based dairy alternatives among young adults in India. Conducted through a survey of 200 respondents, primarily students from food and agriculture disciplines, the research highlights a strong preference for traditional dairy products such as packed milk, buffalo milk, and ghee. These products are widely recognized and consumed daily, driven by convenience, nutrition, and family habits.

[++]PG Student, MBA (Dairy and Food Business Management);
[#]Assistant Professor;
[†]Associate Professor;
**Corresponding author: Email: patelhenil2956@gmail.com;*

Cite as: *Patel, Henil S., K.C. Kamani, M.C. Prajapati, A.K. Makwana, and M.D. Gurjar. 2025. "Consumer Insights into Dairy and Dairy Alternatives: Patterns, Perceptions, and Influencing Factors in Anand and Vidyanagar". Archives of Current Research International 25 (7):85-100. https://doi.org/10.9734/acri/2025/v25i71315.*

In contrast, plant-based alternatives like almond milk, oat milk, and plant-based cheeses show low awareness, limited usage, and face barriers such as poor taste perception, unfamiliarity, and limited availability. Nutritional awareness of these alternatives is also low.
The findings emphasize a significant gap between traditional and plant-based dairy products in terms of consumer acceptance. To increase adoption of plant-based alternatives, there is a need for targeted awareness campaigns, taste improvements, and better market accessibility to overcome existing perceptual and cultural barriers.

Keywords: Dairy products; plant-based dairy alternatives; consumer awareness; consumption behavior; nutritional perception; India; young adults; dietary preferences.

1. INTRODUCTION

In the dynamic landscape of nutrition and dietary preferences, the choices we make about the foods we consume reflect not only our taste preferences but also our awareness of the products available in the market. This study delves into the intricate web of consumer consciousness, focusing specifically on the awareness surrounding dairy products and their alternatives. The dairy industry has long been a cornerstone of human nutrition, providing essential nutrients and flavours integral to our diets. However, with the rise of dietary preferences, health consciousness, and environmental concerns, consumers are faced with an expanding array of options, including a growing market of dairy alternatives. This research aims to examine the extent and patterns of consumer knowledge regarding traditional dairy products and emerging dairy alternatives, exploring the factors that influence their choices. By examining awareness levels, preferences, and the underlying motivations that guide consumers in this domain, we aim to gain valuable insights into the evolving landscape of food choices.

Global milk production reached 964 million tons in 2023, growing 2.1% despite challenges like high costs due to the Ukraine conflict. Growth varies by region, with Asia and Africa expanding rapidly, while North America, Europe, and South America grow more slowly. Per capita milk consumption is highest in the US and Canada and much lower in countries like China and Indonesia.

India remains the largest milk producer globally, with 230.58 million tonnes in 2022–23 and a strong growth rate of 5.85% over the last decade. The dairy sector is vital to India's economy, contributing about 5% to GDP and supporting 70 million farmers. Five states produce over half of India's milk output. India also exports dairy products valued at $284.65 million, reflecting growing global demand.

The expanding dairy industry in India requires investments in infrastructure such as processing and transport. There are promising opportunities in value-added and organic dairy products. Overall, the dairy sector continues to grow and evolve, driving economic benefits while facing the need for modernization and policy support.

In recent years, the global food landscape has witnessed a paradigm shift driven by growing health consciousness, environmental concerns, and changing consumer preferences. Among the most dynamic categories in this evolution are dairy products and their plant-based alternatives. While dairy has traditionally held a significant place in Indian diets due to its cultural, nutritional, and culinary importance, the emergence of dairy alternatives—ranging from almond and soy milk to plant-based cheeses and butters—reflects a transformative trend among modern consumers. This study aims to explore consumer awareness surrounding both traditional dairy items and these newer alternatives, focusing particularly on the urban and rural populations of India.

Dairy products have long been staples in Indian households, with items like milk, ghee, butter, and paneer being consumed daily across socio-economic groups. These products are not only valued for their taste and nutritional benefits but also for their association with heritage and dietary norms. However, increased lactose intolerance, vegan lifestyles, and global dietary influences have paved the way for plant-based alternatives such as almond milk, coconut butter, and soy-based cheeses. Despite their potential, the reach and impact of these alternatives are yet to be fully understood, particularly in a culturally dairy-dominant country like India.

The study explores consumer awareness by examining a sample of 200 respondents with diverse demographic backgrounds, including students, professionals, and individuals from both urban and rural areas. As the majority of respondents were young and academically oriented, particularly in fields like agriculture, food technology, and dairy science, the findings offer insights into a knowledge-aware segment that is well-placed to influence market trends. This demographic specificity adds value to the study, as their perceptions can signal the future direction of both dairy and dairy alternative consumption.

Consumer awareness is multifaceted—it includes familiarity with product types, knowledge of nutritional benefits, reasons for consumption, and the perceived availability and accessibility of products. This research evaluates awareness levels on a five-point scale across traditional and plant-based products, uncovering striking differences. While awareness for cow milk, buffalo milk, and dairy-based ghee is overwhelmingly high, products like oat milk, rice milk, and plant-based cheddar cheese remain less recognized or misunderstood by the majority of respondents. This disparity underscores the informational and market gap that still exists.

Moreover, the research also examines actual consumption patterns, revealing that while traditional dairy products maintain daily or weekly usage, plant-based alternatives are predominantly consumed on an occasional basis, if at all. This suggests that despite growing interest, these products have yet to achieve mainstream acceptance. The study also evaluates reasons behind consumption and non-consumption, uncovering that while nutrition, taste, and convenience drive dairy product usage, plant-based alternatives suffer from limited exposure, perceived poor taste, and lack of availability.

Another crucial aspect explored in the study is nutritional awareness. Traditional dairy products were perceived to be more nutritious by a larger portion of the population, whereas plant-based products showed much lower awareness levels. This reinforces the need for public education and clear marketing about the health benefits and comparative advantages of plant-based options. Without this knowledge, consumers are less likely to adopt alternatives, no matter how sustainable or health-promoting they might be.

Lastly, the study provides insight into how social and familial influences impact dietary choices. Products consumed traditionally within families are more likely to remain in regular use, while newer products—particularly those lacking cultural familiarity—face skepticism. The resistance is further amplified when products are unavailable in local markets or perceived to be costly. This emphasizes the importance of culturally-sensitive marketing and improved distribution for alternative products.

In summary, the research highlights a complex interplay of tradition, awareness, accessibility, and perception in shaping consumer choices regarding dairy and dairy alternative products. While traditional dairy continues to dominate the market, the slow but growing interest in alternatives suggests a potential shift. Bridging the awareness and accessibility gap could significantly influence future dietary habits, making this study both timely and essential in understanding evolving consumer behavior.

Additionally, to contextualize the findings, it is important to note that the global shift toward plant-based dairy alternatives is mirrored in regions such as North America and Europe, where consumers increasingly prioritize sustainability and animal welfare. Countries like Sweden and the UK have seen a rise in oat and soy-based milk consumption due to health and ethical motivations (Venkatesan, 2024; Moss et al., 2022). In contrast, in India, dairy remains deeply rooted in culture, making the transition slower. This comparison underlines the importance of culturally sensitive marketing and consumer education to bridge the awareness gap.

2. RESEARCH OBJECTIVE

1. To analyse respondents' demographic characteristics to identify factors influencing their dairy and dairy alternative consumption behaviour.
2. To assess respondents' awareness and familiarity with milk, dairy products, and plant-based dairy alternatives.
3. To examine the consumption frequency and preferences for dairy and plant-based alternatives among different consumer groups.
4. To explore consumer perceptions, motivations, and barriers related to the consumption or avoidance of dairy and dairy alternative products.

3. REVIEW OF LITERATURE

Recent studies have shown a growing consumer interest in the sustainability of dairy and plant-based dairy alternatives. Schiano et al. (2020) found that consumers who purchase both types of products value sustainability more than those who only consume dairy. Key sustainability attributes identified include low carbon emissions, minimal preservatives, animal welfare, and simple ingredients. Plant-based products were generally perceived as more sustainable than traditional dairy, though packaging and organic status also influenced opinions. Consumers often rely on product labels and websites for sustainability information. Terms like sustainable, natural, healthy, and ethical were viewed as overlapping but distinct, highlighting the need for clear, transparent messaging by dairy companies.

Bazhan et al. (2017) explored consumer awareness and perceptions of functional dairy products in Iran through qualitative focus group discussions with diverse female participants. The study revealed that most participants were unfamiliar with the term "functional dairy products," although some had unknowingly consumed them. Distrust in manufacturers, conflicting health information, and fear of side effects contributed to consumer skepticism. Many participants perceived these products as unnecessary and expressed a need for reliable information from trusted sources like health professionals. The findings highlight the importance of credible communication channels, such as television and public health education, to improve consumer trust and awareness in emerging dairy markets.

Rybowska and Gromowska (2022) examined consumer attitudes toward innovative dairy products in Poland using a CAWI survey method. The study revealed that while traditional dairy products like butter, UHT milk, and cheese are most frequently consumed, consumers also show a strong interest in novelty products such as flavored milk drinks and yoghurts with additions. Health benefits, positive feedback, and competitive pricing were the main factors influencing consumer choices, while advertising had minimal impact. Preferred purchasing locations included supermarkets and local stores. These findings highlight the growing openness of consumers to innovation in dairy, emphasizing the need for health-focused and value-driven marketing strategies.

Allen, Goddard, and Farmer (2018) investigated how nutrition knowledge, health beliefs, and attitudes toward food technology influence dairy anti-consumption in Canada. Using data from 1,705 adults, the study found that individuals with lower dairy-specific nutrition knowledge and those resistant to food technology innovations were more likely to avoid dairy products. Interestingly, even some individuals with higher knowledge levels also chose to avoid dairy, suggesting other influencing factors. The research emphasizes that perceptions of health risks and technological skepticism play a significant role in consumer choices. These insights are critical for public health policy, given the nutritional importance of dairy in the Canadian diet.

Pallathadka, Pallathadka, and Devi (2022) conducted an empirical study on consumer perception toward dairy products in India, emphasizing the significant role milk plays in daily nutrition. The study utilized conjoint analysis and a structured questionnaire to understand consumer preferences and buying behavior. Findings revealed that nearly 50% of milk is consumed by rural households, while the rest is sold in domestic markets, with major consumption in liquid form, followed by traditional products like yogurt and cheese. Consumers valued specific product attributes when making purchasing decisions. The study also highlighted the need for understanding consumer expectations to enhance marketing strategies and product development in India's dairy sector.

Adamczyk et al. (2022) conducted a qualitative study across Poland, Germany, and France to explore consumer perceptions, motivations, and barriers related to plant-based dairy alternatives. Through 24 focus groups with 154 participants, the study revealed that curiosity, health concerns, and social influence were key motivators for trying dairy substitutes. However, barriers included taste preferences, limited familiarity, and cultural attachment to traditional dairy. The findings emphasized that consumer attitudes varied significantly by country, shaped by local culinary traditions. This underscores the importance of culturally tailored marketing strategies for promoting plant-based dairy products in diverse markets.

Clegg et al, (2021) conducted a comparative assessment of the nutritional composition of dairy products and plant-based dairy alternatives (PBDAs) available in the UK market. The study

analyzed 299 PBDA products, including milk, yogurt, and cheese alternatives, comparing their nutrient profiles with dairy equivalents. Results showed that dairy products generally contained higher levels of energy, saturated fat, protein, vitamin B2, B12, and iodine, whereas PBDAs offered more fiber but lower protein and some micronutrients. The study concluded that while PBDAs can serve as practical substitutes for dairy, they cannot be considered complete nutritional replacements. This highlights the need for consumers to be aware of nutritional differences when choosing plant-based alternatives.

Martínez-Padilla et al*.,* (2023) explored perceptions and consumption patterns of plant-based milk alternatives (PBMAs) among young adults in Denmark through an online survey. The study found that oat drinks were the most commonly consumed PBMAs, often paired with coffee or porridge, while soy drinks were preferred alone. Positive perceptions of PBMAs as natural, healthy, tasty, and nutritionally equivalent to cow's milk were linked to higher consumption rates. Conversely, views of PBMAs as highly processed or artificial reduced consumption likelihood. Package labeling and social media were the primary sources of information for consumers, indicating the importance of clear nutritional communication and targeted marketing strategies to enhance PBMA acceptance.

Rosenlöw and Hansson (2020) conducted a qualitative study exploring consumer attitudes and purchase intentions toward plant-based dairy alternatives using interviews with 16 consumers. Applying a modified Theory of Planned Behavior, the study identified that most participants held positive attitudes and intentions to buy plant-based dairy products. Key factors influencing attitudes included subjective norms, health consciousness, taste, knowledge, environmental concern, animal welfare, and product appearance. Purchase intentions were further affected by price and curiosity. These insights contribute to a deeper understanding of consumer behavior in the emerging plant-based dairy market and can inform effective marketing strategies.

Vargas-Bello-Pérez et al*.* (2022) investigated consumer knowledge, attitudes, and perceptions toward dairy products from sheep and goats across Latin America, Europe, and Asia through a large web-based survey involving 1,879 respondents. The study revealed regional differences in preferences, with mature and fresh cheeses being the most consumed products, and goat dairy products favored in Mexico, Denmark, and Bangladesh. Barriers to consumption included unfamiliarity and limited market availability, particularly in Mexico and Bangladesh, while European and Asian consumers cited taste preferences and environmental concerns. The research highlighted consumers' growing interest in animal welfare, sustainability, and local products, suggesting that these factors shape perceptions of product quality and should be integrated into industry strategies.

Parmar et al*.* (2023) conducted a survey among 852 respondents across Gujarat to assess consumer awareness of dairy analogues such as milk, ice cream, butter, and cheese. The study found that consumers had limited awareness of these dairy substitutes and primarily focused on price when making purchasing decisions, followed by taste, appearance, and brand reputation. Nutritional information, product labels, ingredients, and expiration dates received relatively little attention from consumers. These findings highlight a gap in consumer knowledge regarding dairy analogues, suggesting the need for improved labeling and education to enhance informed purchasing choices.

4. RESEARCH METHODOLOGY

To effectively carry out the study titled "Consumer Insights into Dairy and Dairy Alternatives: Patterns, Perceptions, and Influencing Factors," a structured research design was developed. The research was conducted in February 2024, utilizing a web-based survey as the primary tool for data collection. A structured questionnaire was designed and pre-tested on a pilot group of 20 respondents to ensure clarity and reliability. The final version included both closed and Likert-scale questions. Responses were collected using Google Forms, and all participants provided informed consent. No identifying personal data was collected, thus ensuring anonymity and compliance with ethical research standards.

The target population comprised individuals aged 20 to 30 years, representing a key consumer segment for both dairy and dairy alternative products. A random sampling method was employed to ensure that each individual within the defined population had an equal opportunity

of being selected. This approach helped minimize selection bias and enhanced the reliability and generalizability of the findings.

A total of 200 respondents participated in the study. The primary data collected from these participants were systematically compiled and analyzed using Descriptive Statistical tools. Techniques such as tabulation, graphical representation, and charts were employed to interpret the data effectively. These methods facilitated a comprehensive understanding of consumer awareness, consumption patterns, and perceptions regarding dairy and plant-based dairy alternatives.

5. RESULTS AND DISCUSSION

5.1 To Analyse Respondents' Demographic Characteristics to Identify Factors Influencing Their Dairy and Dairy Alternative Consumption Behaviour

demographic characteristics of respondents from Anand and Vidyanagar were surveyed, covering various aspects such as gender, age, Location, Family income, occupation, educational qualification. Below is a detailed description of the data collected.

The study was conducted among 200 respondents to explore their demographic background and assess how these factors influence awareness and consumption behaviour regarding dairy and dairy alternative products. The survey included a range of demographic variables such as gender, age, area of residence, family income, occupation, education level, and academic discipline for student respondents.

In terms of gender distribution, the majority of the participants were male, with 163 respondents (82%), while females accounted for only 37 respondents (18%). This male-dominated sample may reflect the composition of the surveyed population or the nature of the sample, which was largely student-centric. Regarding age, the largest group of respondents (53%) belonged to the 20–30 years age bracket, indicating a relatively young sample. Additionally, 18% were below 20 years of age, 24% were between 31 and 55 years, and only 5% were above 55 years, showing limited representation from older age groups.

The area of residence was almost evenly split, with 103 respondents (52%) from urban areas and 96 respondents (48%) from rural areas, providing a balanced perspective from both segments. In terms of monthly family income, a diverse economic representation was observed. About 30% of respondents reported a family income above ₹1 lakh per month, while 28% fell in the ₹50,000–1 lakh range. Around 23% had an income between ₹20,000–₹50,000, and 20% reported income below ₹20,000.

Occupation-wise, a dominant 85% (170 respondents) were students, clearly reflecting the academic focus of the sample. Other occupational categories such as government employees, private sector employees, and business owners each constituted 5% of the total sample. No respondents identified as housewives or agricultural workers. In terms of educational qualifications, 59% were postgraduates or held higher degrees, 32% had completed diplomas or lower qualifications, while only 5% were undergraduates. Another 5% did not specify their education level.

Focusing on the academic discipline of the student respondents, Agriculture had the highest representation at 33%, followed by Dairy Technology (30%) and Food Technology (18%). Other areas included Veterinary Science (7%), MBA in Agri-Business or Dairy & Food (6% each), and students from IRMA (2%). This academic distribution is particularly relevant as it reflects substantial exposure to food, agriculture, and dairy-related fields, which could influence perceptions and awareness regarding dairy and plant-based alternatives.

5.2 To Assess Respondent's and Familiarity with Milk, Dairy Products, And Plant-Based Dairy Alternatives

The table below presents the level of consumer awareness regarding various milk, dairy products, and plant-based alternatives among 200 respondents. Awareness is categorized into five levels—ranging from "Fully Unaware" to "Fully Aware"—to highlight familiarity with both conventional and emerging products. This data offers insights into which products are well-recognized and which require further consumer education.

Table 1. Demographic Profile of Respondents (n=200)

Gender Wise Distribution			
Sr. No.	**Particular**	**Frequency**	**Percentage**
1	Male	163	82
2	Female	37	19
	Total	**200**	**100**
Age of The Respondent			
1	Below 20	36	18
2	20-30	106	53
3	31-55	48	24
4	Above 55	10	5
	Total	**200**	**100**
Area of Residence			
1	Rural	96	48
2	Urban	103	52
	Total	**200**	**100**
Family Monthly Income			
1	Below 20000	39	20
2	20000-50000	45	23
3	50000-1 Lakh	56	28
4	Above 1 Lakh	60	30
	Total	**200**	**100**
Occupation			
1	Student	170	85
2	Government Employee	10	5
3	Private Employee	10	5
4	Business	10	5
5	Housewife	0	0
6	Agricultural	0	0
	Total	**200**	**100**
Education			
1	Under Graduate	10	5
2	Postgraduate or above	117	59
3	Diploma or below	64	32
4	Other	9	5
	Total	**200**	**100**
Discipline Under Study (Only for Students)			
1	Dairy Technology	60	30
2	Agriculture	65	33
3	Food Technology	36	1
4	MBA (Agriculture Business Managements)	11	6
5	Veterinary Science	14	7
6	MBA (Dairy & Food Business Management)	11	6
7	IRMA	3	2
	Total	**200**	**100**

The survey reveals a strong consumer awareness of traditional dairy products such as packed milk, cow milk, buffalo milk, ghee made from milk, ice cream, milk-based cheese, and milk butter, where more than 85–90% of respondents reported being fully aware. For example, 87% were fully aware of packed milk, 90% for ghee made from milk, and 85% for milk processed cheese. These findings suggest that conventional dairy products have a well-established presence and are widely recognized by the population.

In contrast, plant-based milk alternatives such as almond milk, rice milk, oat milk, and plant-based cheddar cheese show considerably lower awareness. Only 24% of respondents were fully aware of almond milk, and just 15% for rice milk.

Oat milk had 20% full awareness and a significant 33% of people were slightly unaware. This highlights a gap in consumer education or exposure to newer, plant-based alternatives, indicating an opportunity for brands to expand awareness in this segment.

Some products like soybean milk and coconut milk fall in a moderate awareness category. About 39% of respondents were fully aware of soybean milk, and 35% for coconut milk. Meanwhile, butter and ghee alternatives such as olive butter, coconut butter, and dalda (plant-based ghee) had mixed results—while 56% were fully aware of dalda, olive butter had a high 29% rate of full unawareness. These results point to the fact that while traditional dairy dominates in recognition, there is a growing, albeit uneven, awareness of plant-based substitutes.

Overall, the study indicates a clear divide between awareness of traditional dairy and newer, plant-based products. While dairy continues to enjoy high consumer recognition, emerging alternatives still face challenges in market penetration and consumer understanding. These insights can help guide targeted educational and promotional strategies to boost visibility for lesser-known products.

The Below table outlines the respondents' nutritional awareness of various milk, dairy products, and plant-based alternatives. Awareness levels are categorized from "Fully Unaware" to "Fully Aware," offering insights into how well consumers understand the health and nutritional value of both traditional dairy and newer plant-based options.

Table 2. Awareness about dairy and dairy alternative products among the respondents (n=200)

Sr. No.	Milk, Milk Products & Milk Products Alternative Awareness	Fully Unaware		Slightly Unaware		Normal Aware		Slightly Aware		Fully Aware	
		F	%	F	%	F	%	F	%	F	%
Awareness About Dairy Products Among the Respondents											
1	Packed Milk (Mix Milk, Gold, Toned, Homogenized Milk Etc.)	0	0	8	4	9	5	10	5	173	87
2	Cow milk	0	0	0	0	8	4	20	10	172	86
3	Buffalo milk	0	0	0	0	8	4	20	10	172	86
4	Camel milk	0	0	28	14	36	18	48	24	88	44
5	Goat milk	0	0	18	9	38	19	66	33	78	39
6	Butter Made From milk	0	0	8	4	28	14	39	20	125	63
7	Ghee Made From milk	0	0	0	0	10	5	10	5	180	90
8	Ice cream	0	0	0	0	0	0	20	10	180	90
9	Milk Processed Cheese	0	0	0	0	0	0	30	15	170	85
Awareness About Dairy Alternative Products Among the Respondents											
1	Almond milk	29	15	26	13	49	25	48	24	48	24
2	Coconut milk	10	5	26	13	47	24	48	24	69	35
3	Rice milk	29	15	75	38	46	23	20	10	30	15
4	Soybean milk	10	5	25	13	28	14	59	30	78	39
5	Oat milk	19	10	65	33	36	18	40	20	40	20
6	Peanut Butter	5	3	11	6	23	12	39	20	122	61
7	Coconut Butter	39	20	20	10	46	23	18	9	77	39
8	Olive Butter (Delicious Fat Spread)	57	29	10	5	26	13	38	19	69	35
9	Ghee Made From Plant Based (Dalda)	20	10	13	7	18	9	37	19	112	56
10	Desserts	0	0	10	5	10	5	60	30	120	60
11	Plant Based Cheddar Cheese	29	15	25	13	30	15	28	14	88	44

Table 3. Awareness about nutritional qualification of dairy and dairy alternative products among the respondents (n=200)

Sr. No.	Nutritional Awareness	Fully Unaware		Slightly Unaware		Normal Aware		Slightly Aware		Fully Aware	
		F	%	F	%	F	%	F	%	F	%
Awareness About Nutritional Qualification Dairy Products Among the Respondents											
1	Packed Milk (Mix Milk, Gold, Toned, Homogenized Milk Etc.)	5	3	25	13	50	25	74	37	46	23
2	Cow milk	1	1	16	8	76	38	63	32	44	22
3	Buffalo milk	2	1	17	9	74	37	65	33	42	21
4	Camel milk	46	23	53	27	41	21	36	18	24	12
5	Goat milk	61	31	56	28	46	23	31	16	6	3
6	Butter Made From milk	2	1	13	7	54	27	45	23	86	43
7	Ghee Made From milk	0	0	8	4	52	26	76	38	64	32
8	Ice cream	1	1	9	5	59	30	28	14	103	52
9	Milk Processed Cheese	5	3	19	10	76	38	53	27	47	24
Awareness About Nutritional Qualification Dairy Alternative Products Among the Respondents											
1	Almond milk	71	36	58	29	43	22	21	11	7	4
2	Coconut milk	79	40	64	32	35	18	19	10	3	2
3	Rice milk	115	58	46	23	24	12	14	7	1	1
4	Soybean milk	117	59	38	19	26	13	16	8	3	2
5	Oat milk	84	42	59	30	34	17	21	11	2	1
6	Peanut Butter	5	3	35	18	56	28	51	26	53	27
7	Coconut Butter	101	51	45	23	32	16	16	8	6	3
8	Olive Butter (Delicious Fat Spread)	18	9	26	13	53	27	39	20	64	32
9	Ghee Made From Plant Based (Dalda)	4	2	18	9	78	39	58	29	42	21
10	Desserts	9	5	27	14	79	40	63	32	22	11
11	Plant Based Cheddar Cheese	29	15	41	21	53	27	46	23	31	16

The data reveals that traditional dairy products such as cow milk, buffalo milk, packed milk, ghee made from milk, ice cream, and milk butter enjoy relatively high nutritional awareness. For instance, 52% of respondents were fully aware of the nutritional value of ice cream, 43% for milk butter, and 32% each for ghee and cow milk. A majority of respondents rated their awareness as at least “normal” or better for these products, indicating that consumers tend to associate familiar dairy items with nutritional understanding.

In contrast, plant-based alternatives show significantly lower nutritional awareness. Products like rice milk, soybean milk, oat milk, almond milk, and coconut milk had very high levels of unawareness. Notably, 58% were fully unaware of rice milk's nutrition, 59% for soybean milk, and 42% for oat milk. Even almond milk, often marketed as a healthful option, had 36% of respondents fully unaware and 29% slightly unaware of its nutritional value. These figures highlight a major knowledge gap regarding the nutritional benefits of plant-based milk.

Some plant-based spreads like coconut butter (51% fully unaware) and plant-based cheddar cheese (15% fully unaware) also saw limited understanding, though olive butter performed slightly better with 32% fully aware. Interestingly, peanut butter showed a relatively even distribution, with 27% fully aware and another 26% slightly aware, suggesting moderate consumer familiarity with its health benefits.

Overall, the survey indicates that while consumers are more confident about the nutrition of conventional dairy products, there is a clear lack of awareness about the nutritional content of plant-based and less conventional milk products.

This presents an opportunity for health educators, brands, and marketers to enhance consumer knowledge and trust in alternative products through targeted nutritional education and transparent labeling.

5.3 To examine the Consumption Frequency and Preferences for Dairy and Plant-Based Alternatives Among Different Consumer Groups

The table below illustrates the consumption frequency of various dairy and plant-based dairy products among 200 respondents. Categories include daily, weekly, occasional, and non-consumption patterns. The data helps identify which products are dietary staples and which are consumed rarely or not at all, offering insights into consumer preferences and adoption of traditional versus alternative products.

The table highlights distinct consumption patterns for various milk products and their alternatives among 200 respondents. Traditional dairy products such as packed milk, buffalo milk, and milk-based ghee are consumed daily by a significant portion of the population, underscoring their role as dietary staples. For instance, 51% of respondents consume packed milk daily, and buffalo milk is even more popular with 57% daily consumption. Milk-based ghee also shows strong daily use at 70%, reflecting its cultural and culinary importance.

Table 4. Consumption frequency and preferences for dairy and plant-based alternatives among different consumer groups (n=200)

Sr. No.	Milk, Milk Products & Milk Products Alternative Consumer Frequency	I do not Consume		Daily		Weekly Twice		Weekly Once		Occasionally	
		F	%	F	%	F	%	F	%	F	%
Consumption Frequency and Preferences for Dairy Among Different Consumer Groups											
1	Packed Milk (Mix Milk, Gold, Toned, Homogenized Milk Etc.)	19	10	101	51	12	6	10	5	58	29
2	Cow milk	69	35	26	13	40	20	6	3	59	30
3	Buffalo milk	20	10	113	57	30	15	0	0	37	19
4	Camel milk	140	70	10	5	0	0	20	10	30	15
5	Goat milk	140	70	10	5	0	0	20	10	30	15
6	Butter Made From milk	65	33	37	19	20	10	20	10	58	29
7	Ghee Made From milk	20	10	140	70	0	0	20	10	20	10
8	Ice cream	28	14	8	4	51	26	40	20	73	37
9	Milk Processed Cheese	29	15	29	15	16	8	21	11	105	53
Consumption Frequency and Preferences for Dairy Alternatives Among Different Consumer Groups											
6	Almond milk	170	85	0	0	10	5	0	0	20	10
7	Coconut milk	150	75	0	0	2	1	16	8	32	16
8	Rice milk	170	85	0	0	3	2	9	5	18	9
9	Soybean milk	160	80	0	0	0	0	0	0	40	20
10	Oat milk	170	85		0		0		0	30	15
12	Peanut Butter	74	37	0	0	18	9	30	15	78	39
13	Coconut Butter	121	61	0	0	31	16	18	9	30	15
14	Olive Butter (Delicious FatSpread)	119	60	11	6	10	5	10	5	50	25
16	Ghee Made From Plant Based (Dalda)	105	53	8	4	10	5	18	9	59	30
18	Desserts	38	19	18	9	31	16	0	0	113	57
20	Plant Based Cheddar Cheese	129	65	20	10	10	5	0	0	41	21

Cow milk displays a more varied consumption pattern, with 35% of respondents not consuming it at all, yet 20% consume it twice weekly. This suggests that while cow milk is less universally consumed than packed or buffalo milk, it still holds a place in many diets with moderate frequency.

On the other hand, plant-based milk alternatives such as almond milk, oat milk, rice milk, and soybean milk have very high rates of non-consumption, ranging from 75% to 85%. This indicates that these products are still niche in the market with limited daily use. However, some respondents report occasional consumption, suggesting a potential for growth as awareness and availability improve.

Butter and ghee products show mixed trends. Traditional butter made from milk has a moderate daily consumption of 19%, while alternatives like peanut butter and coconut butter are mostly consumed occasionally, suggesting these are viewed more as specialty or supplementary items rather than staples. Similarly, plant-based ghee has lower daily consumption compared to milk-based ghee but sees occasional use.

Indulgent dairy products such as ice cream and desserts are primarily consumed on an occasional or weekly basis, reinforcing their status as treats rather than everyday foods. Ice cream, for example, has 26% of respondents consuming it twice weekly and 37% occasionally, indicating popularity in leisure or social contexts.

Overall, the data reflects that traditional dairy products dominate regular consumption, while plant-based alternatives and specialty dairy items have lower but emerging consumer interest. This pattern points to opportunities for increasing consumer education and targeted marketing efforts to grow the adoption of alternative milk products.

5.4 To Explore Consumer Perceptions, Motivations, and Barriers Related to the Consumption or Avoidance of Dairy and Dairy Alternative Products

The table below presents the reasons behind consumer choices for various dairy and plant-based dairy products. Respondents indicated motivations such as convenience, nutritional benefits, taste, family traditions, social influence, and interest in new products. It also identifies non-consumers for each item, providing insights into the drivers and deterrents of product consumption.

The primary reasons for consuming traditional milk products like packed milk, cow milk, and buffalo milk include convenience, nutritive benefits, and taste or appearance. Packed milk is favored for its convenience (58%) and nutritive value (44%), while buffalo milk is notably consumed due to old family habits (58%), indicating strong cultural ties. Cow milk shows a balanced distribution, with 44% citing nutritive benefits and 34% convenience as key reasons. Interestingly, a smaller portion consumes these products because their friends or neighbors do, suggesting social influence is less significant for staple dairy products.

Camel milk, goat milk, and various plant-based milks such as almond, coconut, rice, soybean, and oat milk have very high percentages of respondents who do not consume them (ranging from 68% to 84%). Among those who do consume, taste and appearance are the most cited reasons, particularly for coconut milk (15%) and almond milk (9%). Nutritional benefits are a lesser factor, especially for plant-based alternatives like almond and coconut milk where many respondents report no consumption. The relatively low importance of convenience for these products also reflects their limited availability or unfamiliarity among consumers.

Butter and ghee products tend to be consumed mainly due to their nutritive benefits and taste. Butter made from milk has a high nutritive benefit appeal (49%) and is also favored for taste and appearance (46%), with convenience and social influence playing smaller roles. Plant-based alternatives such as peanut butter show a similar pattern, where nutritive benefits (49%) and taste (25%) are important, but a significant number also consume it to try new products (15%). Milk-based ghee stands out, with 59% of consumers citing nutritive benefits and 50% highlighting taste, reinforcing its strong traditional value. Plant-based ghee alternatives have a lower percentage citing nutritive benefits (29%) and convenience (26%), but social influence (20%) is slightly higher, perhaps reflecting growing curiosity.

Table 5. Consumer perceptions, motivations, and barriers related to the consumption or avoidance of dairy and dairy alternative products

Sr No	Reason For Consumptions	Convenient Cost		Nutritive Benefits		Taste & Appearance		Because My Friends/NeighborsConsume		Old family habit		Try new product		Don't consume	
		F	%	F	%	F	%	F	%	F	%	F	%	F	%
consumer perceptions, motivations, and barriers related to the consumption or avoidance of dairy products															
1	Packed Milk (Mix Milk, Gold, Toned,Homogenized Milk Etc.)	115	58	88	44	79	40	30	15	97	49	39	20	10	5
2	Cow milk	68	34	88	44	68	34	20	10	76	38	37	19	31	16
3	Buffalo milk	76	38	87	44	69	35	31	16	116	58	11	6	31	16
4	Camel milk	37	19	20	10	27	14	10	5	8	4	20	10	143	72
5	Goat milk	21	11	21	11	0	0	28	14	27	14	11	6	154	77
6	Butter Made From milk	49	25	98	49	91	46	30	15	68	34	19	10	45	23
7	Ghee Made From milk	41	21	117	59	100	50	31	16	126	63	0	0	29	15
8	Ice cream	41	21	69	35	124	62	41	21	65	33	62	31	28	14
9	Milk Processed Cheese	39	20	78	39	86	43	38	19	64	32	30	15	20	10
Consumer Perceptions, Motivations, and Barriers Related to The Consumption or Avoidance of Dairy Alternatives Products															
1	Almond milk	9	5	0	0	17	9	9	5	26	13	0	0	167	84
2	Coconut milk	0	0	0	0	30	15	10	5	28	14	9	5	161	81
3	Rice milk	0	0	22	11	0	0	0	0	29	15	20	10	151	76
4	Soybean milk	0	0	21	11	10	5	8	4	19	10	0	0	160	80
5	Oat milk	0	0	15	8	5	3	2	1	15	8	11	6	149	75
6	Peanut Butter	0	0	98	49	49	25	20	10	55	28	30	15	67	34
7	Coconut Butter	0	0	19	10	20	10	11	6	29	15	21	11	136	68
8	Olive Butter (Delicious FatSpread)	20	10	38	19	29	15	9	5	20	10	20	10	120	60
9	Ghee Made From Plant Based (Dalda)	51	26	57	29	38	19	39	20	27	14	0	0	96	48
10	Desserts	20	10	57	29	102	51	20	10	45	23	51	26	30	15
11	Plant Based Cheddar Cheese	21	11	37	19	28	14	39	20	19	10	19	10	108	54

For indulgent items like ice cream and desserts, taste and appearance dominate as reasons for consumption (62% and 51%, respectively), while nutritive benefits play a secondary role. Convenience is also a factor for ice cream (21%), but social influence and trying new products are more significant compared to staple dairy products. Milk processed cheese is consumed largely due to taste (43%) and nutritive benefits (39%), with some influence from social circles (19%) and trying new products (15%). Plant-based cheddar cheese has a high non-consumption rate (54%), and for those who do consume it, social influence (20%) and trying new products (10%) are important motivators, reflecting its status as an emerging product in the market.

Overall, the data illustrates that convenience, nutritive benefits, and taste are the key drivers for consumption of traditional dairy products, while taste and social influence gain importance in indulgent and emerging plant-based products. The high non-consumption rates for many plant-based alternatives emphasize the need for greater awareness and accessibility to expand their consumer base.

The table below summarizes the key reasons for non-consumption of various dairy and plant-based dairy products among 200 respondents. Factors such as inconvenience, poor taste, perceived lack of nutrition, family habits, disinterest in new products, and lack of availability were assessed. This data provides valuable insights into the barriers preventing broader adoption of certain products.

For widely consumed traditional products like packed milk, cow milk, and buffalo milk, the main reasons for non-consumption are relatively low. Packed milk sees minimal rejection, mostly due to inconvenience (4%) or unavailability nearby (5%). Cow milk's non-consumption reasons include inconvenience (11%), family habits (11%), and unavailability (16%), indicating some accessibility and cultural preference issues. Buffalo milk is mainly not consumed due to family habits (11%) and unavailability (16%), with poor taste cited by 6%.

Non-consumption reasons for less common milks like camel and goat milk are dominated by strong family habits, with 45% and 50% respectively indicating that these products are simply not consumed in their families. Poor taste or appearance is also a significant factor, especially for camel (16%) and goat milk (16%), suggesting sensory preferences heavily influence avoidance. Inconvenience, lack of interest in new products, and product availability also contribute notably to their low consumption.

Plant-based milks such as almond, coconut, rice, soybean, and oat milk face substantial barriers to adoption. Poor taste and appearance top the list, with coconut milk (30%), soybean milk (29%), and oat milk (25%) cited frequently. Inconvenience and unavailability are other common reasons, with 15–20% of respondents highlighting these issues. Not consuming these milks as a family habit is also a strong deterrent, reinforcing cultural and familiarity gaps. Interestingly, lack of perceived nutritional benefit is rarely a reason for non-consumption, implying that taste and access are more critical factors.

For butter and ghee products, poor taste and appearance is a noticeable reason for non-consumption in some cases — milk butter (19%) and plant-based ghee (24%) stand out. Family habits and unavailability also influence consumption patterns, especially for olive butter (20%) and coconut butter (16%). Inconvenience and lack of interest in trying new products play smaller roles for these products, indicating that sensory factors and cultural habits are more significant barriers.

Indulgent items like ice cream and desserts have relatively low non-consumption rates, with only minor mentions of poor taste or lack of nutrition (5–11%). This suggests these products are broadly accepted but may be avoided by some due to dietary or personal preferences.

Processed cheeses show moderate non-consumption reasons spread across poor taste (10–15%), inconvenience (5–15%), and family habits (8–25%). Plant-based cheddar cheese has the highest non-consumption rates overall, with 25% citing family habits and 15% citing poor taste or no nutritional benefit, reflecting both cultural resistance and sensory challenges to acceptance.

Overall, the data indicates that family habits, poor taste/appearance, and unavailability are the dominant reasons for not consuming many milk products and alternatives. For emerging plant-based products, sensory acceptance and accessibility are the biggest hurdles, while cultural habits continue to strongly influence traditional product consumption.

Table 6. Consumer Perception for Consuming and Not Consuming Dairy and Dairy Alternative Products

sr no	reasons for not consuming	Inconvenient Cost		Poor taste & appearance		No nutrition benefit		Not consumed in family habit		Not interested in new product		Product not Available near by me	
		F	%	F	%	F	%	F	%	F	%	F	%
Consumer Perception for Not Consuming Dairy Products													
1	Packed Milk (Mix Milk,Gold, Toned,Homogenized Milk Etc.)	8	4	8	4	2	1	1	1	4	2	10	5
2	Cow milk	21	11	3	2	9	5	22	11	0	0	31	16
3	Buffalo milk	0	0	11	6	9	5	21	11	10	5	31	16
4	Camel milk	11	6	31	16	11	6	90	45	40	20	77	39
5	Goat milk	19	10	31	16	11	6	100	50	40	20	47	24
6	Butter Made From milk	11	6	38	19	0	0	21	11	0	0	20	10
7	Ghee Made From milk	20	10	11	6	11	6	11	6	0	0	19	10
8	Ice cream	0	0	10	5	11	6	11	6	9	5	0	0
9	Milk Processed Cheese	10	5	19	10	15	8	16	8	11	6	0	0
Consumer Perception for Not Consuming Dairy Alternative Products													
1	Almond milk	30	15	28	14	0	0	46	23	30	15	52	26
2	Coconut milk	40	20	59	30	0	0	50	25	30	15	47	24
3	Rice milk	21	11	29	15	0	0	30	15	31	16	49	25
4	Soybean milk	31	16	58	29	11	6	29	15	0	0	49	25
5	Oat milk	40	20	49	25	0	0	29	15	31	16	49	25
6	Peanut Butter	10	5	9	5	11	6	11	6	31	16	11	6
7	Coconut Butter	11	6	20	10	11	6	32	16	11	6	29	15
8	Olive Butter (Delicious FatSpread)	20	10	21	11	11	6	40	20	11	6	27	14
9	Ghee Made From Plant Based (Dalda)	11	6	48	24	21	11	42	21	21	11	9	5
10	Desserts	10	5	10	5	21	11	25	13	11	6	0	0
11	Plant Based Cheddar Cheese	30	15	29	15	29	15	49	25	11	6	21	11

6. MAJOR FINDINGS

The research reveals a strong dominance of traditional dairy products in terms of consumer awareness and daily consumption. Among 200 respondents, 90% were fully aware of milk-based ghee and ice cream, while 87% and 86% were fully aware of packed milk and cow/buffalo milk respectively. Daily consumption data reinforces this trend—57% of respondents consume buffalo milk daily, 51% consume packed milk daily, and 70% consume milk-based ghee daily. Milk-processed cheese also showed high awareness (85%) and regular consumption. In contrast, plant-based dairy alternatives like almond milk, rice milk, oat milk, and plant-based cheddar cheese show low awareness levels—only 24% were fully aware of almond milk, 15% of rice milk, and 20% of oat milk. Daily consumption of these products is negligible, with 85% of respondents not consuming almond or oat milk, and 80% not consuming soybean milk. Nutritional awareness follows a similar pattern: 60% of respondents were nutritionally aware of packed milk, while over 70% were either fully or slightly unaware of the nutritional benefits of almond milk (65%), coconut milk (72%), rice milk (81%), and soybean milk (78%). The most common reasons for non-consumption were not part of family habits (e.g., 50% for goat milk and 45% for camel milk), poor taste/appearance (30% for coconut milk), and product unavailability (26% for almond milk and 25% for oat milk).

7. CONCLUSION

This study reveals a clear divide between consumer preferences for traditional dairy products and plant-based alternatives. The demographic profile, predominantly young (53% aged 20–30), male (82%), and academically inclined (85% students, 59% postgraduates), suggests that participants are well-informed and potentially open to emerging food trends. Despite this, awareness and consumption of traditional dairy products such as packed milk (87%), buffalo milk (86%), ghee (90%), and ice cream (90%) remain significantly higher than plant-based alternatives like almond milk (24%) or rice milk (15%).

Daily consumption habits strongly favor traditional dairy, with products like buffalo milk (57%) and milk-based ghee (70%) being widely used. In contrast, plant-based options remain niche, with 85% of respondents reporting no consumption of almond or oat milk. Factors driving the dominance of dairy include convenience, nutritional familiarity, and cultural habits. Meanwhile, plant-based alternatives struggle with barriers such as unfamiliar taste, limited availability, and lack of cultural integration.

The findings suggest that while curiosity about dairy alternatives exists, these products have yet to gain meaningful traction in routine diets. Poor taste perceptions, lack of exposure, and limited accessibility further contribute to their low acceptance.

To address these challenges, stakeholders in the dairy and food sectors should focus on targeted consumer education, taste trials, and expanding product availability. Awareness campaigns that highlight nutritional benefits and align plant-based options with local tastes and habits could improve acceptance. Bridging this gap is essential for promoting more inclusive, sustainable food choices and encouraging a gradual shift toward dairy alternatives in the Indian market

From a policy perspective, public and private stakeholders should invest in initiatives that increase awareness and accessibility of plant-based alternatives. This could include government-led nutrition education campaigns, subsidies or incentives for plant-based startups, and mandatory labeling regulations to enhance consumer trust. For food manufacturers, product reformulation to improve taste, coupled with distribution in rural markets, can drive adoption. Cross-sector collaboration is essential to create a consumer environment that embraces both traditional and alternative products.

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.

CONSENT

Responses were collected using Google Forms, and all participants provided informed consent.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

Adamczyk, D., Jaworska, D., Affeltowicz, D., & Maison, D. (2022). Plant-based dairy alternatives: consumers' perceptions, motivations, and barriers—results from a qualitative study in Poland, Germany, and France. *Nutrients*, *14*(10), 2171.

Allen, S., Goddard, E., & Farmer, A. (2018). How knowledge, attitudes, and beliefs impact dairy anti-consumption. *British Food Journal*, *120*(10), 2304-2316.

Bazhan, M., Keshavarz-Mohammadi, N., Hosseini, H., & Kalantari, N. (2017). Consumers' awareness and perceptions regarding functional dairy products in Iran: a qualitative research. *British food journal*, *119*(2), 253-266.

Clegg, M. E., Ribes, A. T., Reynolds, R., Kliem, K., & Stergiadis, S. (2021). A comparative assessment of the nutritional composition of dairy and plant-based dairy alternatives available for sale in the UK and the implications for consumers' dietary intakes. *Food Research International*, *148*, 110586.

Martínez-Padilla, E., Faber, I., Petersen, I. L., & Vargas-Bello-Pérez, E. (2023). Perceptions toward plant-based milk alternatives among young adult consumers and non-consumers in Denmark: an exploratory study. *Foods*, *12*(2), 385.

Moss, R., Barker, S., Falkeisen, A., Gorman, M., Knowles, S., & McSweeney, M. B. (2022). An investigation into consumer perception and attitudes towards plant-based alternatives to milk. *Food Research International*, *159*, 111648.

Pallathadka, L. K., Pallathadka, H., & Devi, M. S. (2022). Consumer Perception Towards Dairy Products in India-An Empirical Study. *Integrated Journal for Research in Arts and Humanities*, *2*(5), 175-181.

Parmar, P., Prajapati, J. B., Mohapatra, S. S., & Sontakke, A. A. (2023). Study on consumer awareness of dairy analogues in Gujarat State. *Indian J Dairy Sci*, *76*(2), 195-197.

Rosenlöw, E., & Hansson, T. (2020). Going for the plant-based (legen) dairy alternative?: An exploratory study on consumer attitudes and purchase intentions towards plant-based dairy alternatives.

Rybowska, A., & Gromowska, K. (2022). The consumer versus innovative dairy products. *Scientific Journal of Gdynia Maritime University*, (124), 81-94.

Schiano, A. N., Harwood, W. S., Gerard, P. D., & Drake, M. A. (2020). Consumer perception of the sustainability of dairy products and plant-based dairy alternatives. *Journal of Dairy Science*, *103*(12), 11228-11243.

Vargas-Bello-Pérez, E., Tajonar, K., Foggi, G., Mele, M., Simitzis, P., Mavrommatis, A., ... & Toro-Mujica, P. (2022). Consumer attitudes toward dairy products from sheep and goats: A cross-continental perspective. *Journal of Dairy Science*, *105*(11), 8718-8733.

Peer-review history:
The peer review history for this paper can be accessed here:
https://pr.sdiarticle5.com/review-history/138958