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CONSUMERS' PERCEPTION OF MILK AND DAIRY PRODUCTS IN BRAZIL

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Abstract

Milk and dairy products are traditionally recognized for their nutritional and health benefits, yet little is known about how consumers perceive them. Understanding consumer attitudes, beliefs, and associations is crucial, as such perceptions influence purchasing decisions, acceptance, and consumption patterns. This study aimed to investigate consumers' perception of milk and dairy products in order to define the current image of these products within the diet and explore opportunities for sectoral development.

The research applied an online survey using the Free Word Association technique to capture spontaneous perceptions related to the main consumed products in Brazil, including milk, yogurt, cheese, butter, and condensed milk. Data were analyzed to identify the most frequent attributes, symbolic associations, and potential directions for product positioning.

Results indicated that milk and yogurt are strongly associated with health, nutrition, and everyday consumption contexts. Cheese and condensed milk emerged with an indulgent and cultural image, with cheese linked to taste and versatility, being consumed alone or in pairing and recipes, while condensed milk was only related to recipes and taste. Butter was also predominantly perceived as an ingredient, but it was focused on daily cooking.

Overall, the findings highlight how consumer perceptions can be strategically leveraged to orient marketing approaches, strengthen communication initiatives, and inspire innovation in product development. By uncovering the symbolic and functional roles attributed to different dairy products, this study contributes to guiding the dairy sector in creating more consumer-oriented strategies and enhancing its market value.

Key words: cheese, butter, yogurt, food choice, free word association.

Introduction:

Milk and dairy products are staple foods in diets worldwide, long valued not only for their rich nutritional profile, but also affordability and convenience (Blacker, 2013). They are important sources of high-quality proteins, vitamins, minerals, and bioactive compounds that contribute to growth, bone health, and overall well-being. Smith *et al.* (2022) stated that milk contributes to around 7% of worldwide food energy availability, and also contributes with a high share of calcium, vitamin B12 and phosphorus, highlighting the valuable contribution of dairy to global nutrition. Moreover, regular consumption of dairy products has been associated with numerous health benefits, including improved cardiovascular health, weight management, and support of the immune system, making them essential components of a balanced diet (Tunick and Hekken, 2015; Gil and Ortega, 2019; Taormina *et al.*, 2024).

Despite the well-established nutritional and health benefits of milk and dairy products, there is a notable lack of studies examining how consumers perceive these products, particularly regarding their symbolic, nutritional, and emotional meanings. Existing studies have focused predominantly on consumer willingness to pay or product acceptance, leaving a gap in understanding the cognitive structures and spontaneous associations that shape dairy perception, especially in countries with emerging economic power. Understanding consumer attitudes, beliefs, and misconceptions is crucial, as these perceptions directly influence acceptance, purchasing decisions and consumption patterns (Albertsen *et al.*, 2020; Rai *et al.*, 2023). Consequently, insights into consumer perceptions can guide the dairy sector in developing targeted marketing strategies and adding value through product innovation and communication. Therefore, this study aimed to investigate consumers' perception of milk and other dairy products, in order to define the current image of these products in consumers diet, supporting marketing strategies and revealing opportunities for product differentiation and value creation within the dairy industry.

Methods

This study applied the Free Word Association Method (FWA) to assess consumers' perception of dairy products. The method is widely used in consumer research to reveal spontaneous cognitive and emotional responses to specific stimuli, also being applied to dairy products (Andrade *et al.*, 2016; Judacewski *et al.*, 2019; Popoola *et al.*, 2021). The questionnaire instructed the correspondents to provide the first four words that came to mind when reading the stimulus words.

The products explored the most commonly consumed products in Brazil, and therefore stimulus words were “milk”, “cheese”, “yogurt”, “butter”, and “condensed milk”. The platform utilized to host the questionnaire with the FWA method was Google Forms®, with a first section collecting sociodemographic details of the correspondents, and the second section focusing on the applied method. Sociodemographic variables were collected exclusively for sample characterization, and no segmentation analysis was performed as the study was exploratory, focused on first understand the consumers’ perception of dairy in Brazil, to provide a base to later test group differences and particularities.

The study gathered a non-probabilistic sample through an online questionnaire, promoted by the Snowball Method, described by Ting *et al.* (2025). It allows more adhesion to the questionnaire, as well as a more practical and cost-effective way to recruit participants, being effective and efficient (Leighton *et al.*, 2021). Participants were asked not to identify themselves, both to protect privacy and avoid the selection of specific participants and biased data. Data collection occurred in 2023, between October 15 and November 10, with the questionnaire link being shared on social medias platforms, initially through the researches’ personal and academic networks, along with institutional disclosure support, then organically between the correspondents and their own groups.

Duplicate responses were checked by IP screening and time stamp consistency, and data analysis was performed using Excel. The results were standardized by grammatical corrections and grouping semantically, such as “cow” and “cows”. Words were ranked by frequency to identify the most common associations, followed by a descriptive analysis aimed at assessing consumer perceptions and attitudes toward milk and dairy products. This approach allowed for a clear visualization of the image that consumers associate with dairy products through the most cited words.

Results

In total, we reached 544 participants. The correspondents of the questionnaire were mainly women (55%), and the predominant age was between 24 and 59 years, representing 68% of the sample. Most participants had a higher educational level, with a degree or above.

The free word association analysis revealed distinct images for each of the dairy products evaluated, reflecting the way consumers perceive their role in daily diets, their symbolic meanings, and their functional uses. These results present the multidimensional characteristic of dairy

products, encompassing nutritional, sensory, cultural, and emotional associations, as illustrated below by Table 1.

Table 1 – Main words consumers associate with different dairy products by FWA and the number of mentions.

Products									
Milk	n	Cheese	n	Yogurt	n	Butter	n	Condensed milk	n
Cheese	180	Mozzarella	70	Strawberry	108	Bread	283	Sweet	269
Cow	124	Pizza	62	Fruit	90	Fat	119	Brigadeiro	206
Yogurt	92	Flavor	58	Milk	76	Cake	83	Pudding	142
Health	77	Wine	57	Health	73	Breakfast	65	Dessert	114
Coffee	68	Minas Gerais	54	Healthy	59	Taste	57	Sugar	80
Calcium	61	Bread	54	Granola	57	Coffee	52	Cake	74
Butter	51	Coffee	53	Breakfast	54	Milk	47	Tasty	49
White	50	Cheesebread	50	Natural	53	Yellow	40	Chocolate	36
Tasty	50	Milk	49	Tasty	51	Tasty	34	Milk	32
Breakfast	48	Tasty	44	Creamy	47	Toast	30	Dulce de leite	31

Source: Results of the research.

In the results, milk emerged mainly as a staple food, nutritious, and a matrix for other dairy products. Words such as coffee and breakfast reinforce its everyday consumption context, while

health and calcium highlight its nutritional role, followed by sensory attributes, like white and tasty. The word cow shows that milk is mainly associated as an animal product, mostly from cows. Indeed, Cimmino *et al.* (2023) described cow milk as the most consumed worldwide, often included in the daily diet. Moreover, Su *et al.* (2022) observed that consumers' perception of milk was highly connected to sensory attributes, consistent to our results.

Cheese was identified as an indulgent product, often paired with other products, such as wine, coffee, and bread. Cultural identity also emerged, with Minas Gerais and cheesebread. The Brazilian state of Minas Gerais has a strong culture of cheesemaking, especially artisanal ones, with nominal cheeses such as Do Serro and Canastra (Kamimura *et al.*, 2019; Pineda *et al.*, 2021). In contrast to milk's image as a daily product, cheese was positioned as a hedonic product, valued for pleasure and sensory richness. These perceptions of cheese could derive from social and cultural factors, as described by Rodrigues *et al.* (2018).

Yogurt stood out as the product most clearly associated with health and well-being. Words like strawberry, fruit, health, healthy, natural, and granola indicate its strong connection with balanced diets and modern health trends. These findings are backed by Ballco *et al.* (2019), who observed consumers to prefer low-sugar nutritional claims on yogurt packaging, emphasizing consumers' search for healthiness in these products. At the same time, descriptors such as creamy, tasty, and breakfast emphasize both sensory enjoyment and practicality. Yogurt, therefore, bridges nutrition and convenience, aligning with consumer demand for functional foods that combine pleasure with health benefits. Our results are linked with Crown *et al.* (2024), who observed consumers to prefer naturally sweetened yogurt, underlining the preference for more natural and health aspects in these products, but stated taste to prevail as the most important factor for liking and purchase, again reinforcing the importance of aligning functional properties with pleasant sensorial attributes.

Butter and condensed milk were consistently framed as traditional ingredients, with their culinary versatility reinforced by words like cake, breakfast, and toast for butter, and mentions of a variety of desserts for condensed milk. The presence of coffee and breakfast situates butter within everyday rituals, while yellow and tasty emphasize its sensory characteristics. This emphasizes butter's enduring a cultural role as an ingredient in home cooking and baking, mentioned as essential in various food recipes by Panchal and Bhandari (2020).

Cheese and condensed milk were both products related to indulgent consumption, however, while cheese was valued by its taste and versatility, being consumed alone, in pairings, or as an

ingredient, condensed milk was only seen as an ingredient for dessert recipes, with no particular mention of its characteristics other than tasty. Words such as brigadeiro, pudding, dessert, cake, chocolate, and dulce de leche illustrate condensed milk's strong association with sweets, while sweet, sugar, and tasty reflect its sensory identity as a rich, pleasurable product. It highlights the evolution of the product, first popularized as a war food for soldiers and nutrition for frail populations, to now an indulgent product (Davis, 2023). Unlike yogurt or milk, condensed milk carried no explicit health associations, positioning it firmly within the domain of emotional and cultural food, particularly tied to desserts.

Conclusions

The present study revealed that consumer perceptions of dairy products are heterogeneous and strongly shaped by each product's particularities. It demonstrated that each product holds a distinctive consumer image, ranging from health-related to hedonic dimensions. Recognizing these differences provides important opportunities for the dairy sector to develop targeted marketing and communication strategies, reinforcing positive associations, exploring new connections, and adding value to products.

For products like milk and yogurt, the strong link with health and nutrition suggests opportunities to reinforce their role in balanced diets by being used as a vehicle for nutrients of interest or with strategic partnerships to enhance their appeal, for example, by associating them with cereals and granola. Cheese's indulgent and cultural image can be leveraged to promote artisanal and regional varieties, associating them with quality, tradition, and premium experiences, reinforcing its variety of types and their unique sensorial attributes. Moreover, pairing strategies offer promising opportunities beyond traditional associations with wine and coffee. Cheeses can be positioned alongside artisanal breads, jams, olive oils, or even craft beers, reinforcing their role in gastronomic experiences. Butter, present in everyday cooking, can benefit from campaigns emphasizing its application in different recipes, as well as promote flavored varieties, with the addition of herbs and spices. Lastly, condensed milk offers unique opportunities for value aggregation through its emotional and cultural symbolism, particularly in connection with sweets, being advertised as a comfort food.

By integrating these consumer perceptions into product development, marketing, and educational initiatives, the dairy sector can create strategies that not only align with consumer expectations but also add value and differentiation in a competitive market, sustaining the

relevance of dairy in modern dietary practices.

Limitations of this research included sampling limitation, that may restrict the generalizability of the findings, as it does not necessarily represent the entire Brazilian population. Moreover, the non-probabilistic sample can result in biased conclusions, as it was observed a predominance of women and highly educated respondents. It may have influenced the prominence of health-related associations, particularly for milk and yogurt, as these demographic groups are often more attentive to nutritional aspects in food choice. Additionally, the concentration of participants within the 24–59 age group may have reduced the expression of perceptions common among younger adolescents or older adults, who may associate dairy products with different consumption contexts or cultural meanings. In addition, FWA method were based on what participants declared, which may differ from their actual behavior. The analysis was primally descriptive, needing further studies that could examine how age, gender, and educational level influence dairy-related perceptions.

Considering the dynamic nature of consumer attitudes, perceptions of dairy products may change over time in response to health debates, market trends, and communication strategies. Therefore, longitudinal studies and repeated assessments are recommended as future researches, monitoring temporal shifts and providing a deeper understanding of how perceptions evolve over time.

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