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Research paper

Dairy Consumer Behavior with The Application, Theory of Planned Behavior (TPB)

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Abstract

The study found that positive attitudes towards industrial dairy products significantly increase consumers' willingness to choose these products over traditional alternatives. Social influences, such as local community opinions and influential individuals, also play a key role in shaping consumer preferences and intentions. Environmental awareness positively influences attitudes, while health consciousness does not have a significant effect. Behavioral control significantly influences actual purchasing behavior, but social norms have no direct effect on buyer behavior, suggesting their influence is indirect through intention. Overall, attitude and subjective norms significantly influence intention to consume industrial dairy products.

Keywords: *Perceived Behavioural Control; Theory of Planned Behaviour (TPB), Social Norms.*

1. Introduction

India’s dairy industry is undergoing substantial growth, with milk production reaching 239.2 million tonnes in 2023–24—an increase of 63.56% over the past decade. As the world’s largest milk producer, India contributes approximately 25% to global milk production. Per capita milk availability has also risen by 48%, driven by factors such as population growth, rising incomes, and evolving dietary preferences. India's dairy industry has experienced significant growth over the past decade, with an average annual growth rate of 5.7%. In 2023-24, total milk production reached 239.2 million tonnes. The Indian dairy market, valued at ₹13 lakh crore in 2021, is projected to grow to ₹31 lakh crore by 2027. The sector is expected to maintain its upward trajectory, with milk production projected to reach 300 million tonnes by 2030. The demand for milk and dairy products is expected to exceed 200 million tonnes in the near future. Dairy products contribute significantly to the prevention and management of various diseases and play a vital role in promoting food security and public health. However, due to differences in production methods, the health impacts of traditional versus industrial dairy products may vary. While prior research has largely focused on consumer behavior toward dairy products as a general category, this study addresses a notable gap by distinguishing between traditional and industrial dairy products. It specifically analyses consumer behavior in the context of preference for industrial dairy products over traditional ones, offering more targeted insights into the factors influencing this choice.
Dairy product consumption was carried out continuously by various authors and highlighted various benefits. Dairy products provide a wide range of health benefits, including enhanced dental and bone health (Van Den Heuvel & Steijns, 2018), improved muscle recovery after exercise (Taïbi et al., 2020), and a reduced risk of cardiovascular diseases (Companys et al., 2020; Bruno et al., 2021). Additionally, regular dairy consumption has been associated with a lower incidence of non-communicable diseases such as hypertension (Tzelefa et al., 2021).

2. Theoretical Background of The Study

The Theory of Planned Behavior (TPB) stands out as one of the most extensively applied models for examining consumer behavior. It has been widely used to analyze changes in consumer intentions and actions across various elements, including attitudes, subjective norms, and perceived behavioral control, which together influence the likelihood of engaging in a particular behavior. TPB has been widely used to examine changes in consumer behavior across diverse food categories (Ajzen, 2015; Yazdanpanah & Forouzani, 2015; Castellini & Graffigna, 2024; Kalam et al., 2025). Notably, several studies have employed TPB to explore consumer intentions and behaviors specifically related to dairy products (Pandey et al., 2021; Zulkifli et al., 2023; Farid et al., 2023). However, there remains a significant gap in the

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literature, as no studies to date have compared consumer behavior toward industrially produced versus traditionally produced dairy products. Hojjati, Mirzaei, Hemmati, and Goodarzi Shamsabadi (2022) three additional constructs—perceived risk, self-identity, and health consciousness—were integrated into the traditional Theory of Planned Behavior (TPB) model to enhance its explanatory power. The findings confirmed Hypothesis 5, which proposed a positive and significant effect of perceived risk associated with the consumption of traditional dairy products on the intention to consume industrially produced dairy products. This suggests that consumers who perceive higher risks in traditional dairy products are more likely to shift their preference toward industrial alternatives. Evolving dietary trends and growing concerns about food safety and health are expected to significantly shape consumer purchasing behavior (Merlino et al., 2022). To understand these behavioral shifts, various theoretical frameworks have been developed (Timlin et al., 2020), among which the Theory of Planned Behavior (TPB) stands out as one of the most extensively applied models.

Moradi, Basami, Alambeigi, Zhoolideh, and Babazadeh Khameneh's (2025) study indicates that functional values associated with local dairy products—namely price value, health value, quality value, and taste value—have a significant positive impact on consumers' attitudes toward the consumption of rural dairy products. Furthermore, consumer attitude plays a mediating role by significantly influencing purchase intention, which in turn affects actual purchasing behavior. These insights highlight the importance of functional product attributes in shaping consumer decisions and offer practical implications for policymakers, planners, and stakeholders in the local dairy production and supply chain. Understanding these fundamental determinants can support more effective strategies for promoting local dairy consumption and strengthening rural development initiatives. Sedik, PHorska, Predanócyova and Grunert, Hudecova and Nagyova (2025). Consumers generally perceive dairy products as healthy food items, with older generations tending to consume them more frequently. However, there is a growing preference among younger consumers for functional dairy products—those that offer additional health benefits beyond basic nutrition. Key factors influencing the purchase and consumption of these products include freshness, quality, taste, perceived health effects, and the specific type of dairy product. These attributes play a critical role in shaping consumer behavior and are essential considerations for producers and marketers aiming to meet evolving consumer demands.

Riswanto, Kim, Williady, Ha, and Kim (2025) reveal that character-themed packaging captures the highest level of consumer attention, with colorful illustrations and prominently featured brand names playing a pivotal role in visual engagement. Eye-tracking data indicate that brand names are the most consistently fixated-upon element across all packaging designs. Regression analysis further demonstrates that cultural familiarity significantly shapes consumer preferences; international participants showed a marked preference for packaging styles aligned with those from their native regions or familiar global brands. These results emphasize the importance of designing packaging that is both visually attractive and culturally resonant, offering strategic insights for marketers and designers seeking to enhance consumer engagement and foster brand loyalty across diverse markets. Junior et al. (2025) liquid milk is the most consumed form, with a preference for UHT carton packaging, primarily driven by custom and flavor. Consumers have also shown interest and openness to learning about new packaging technologies and storage alternatives, such as PET containers offering more diverse sizes and capacities.

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2.1. Attitude

refers to an individual's evaluation of an object, behavior, or concept based on personal thoughts, emotions, and anticipated actions (Myers, 2005). In the context of consumer behavior, particularly toward dairy products, numerous studies have identified a significant positive relationship between attitude and purchase intention (Farid et al., 2023; Zulkifli et al., 2023). These findings suggest that the more favorable a consumer's attitude toward dairy products, the greater the likelihood of their intention to purchase and consume them. The extended TPB model reveals that consumers' attitude, based on thoughts, emotions, or anticipated actions, is the primary determinant of their behavioral intention. Studies show a significant relationship between positive attitudes and intention towards dairy products, with a positive attitude increasing the likelihood of purchasing. Further investigation is needed to understand consumer attitudes towards industrial versus traditional dairy products.

H1)Attitude towards dairy products is significantly influenced by health consciousness

H2) Attitude towards dairy products significantly influences environmental awareness

H3) Attitude has a significant influence on buying intention

2.2. Subjective norms

A key component of the TPB model is a significant predictor of consumption intentions across consumer groups. These norms are perceived social pressures to perform or avoid specific behaviors, reflecting the influence of others and motivation to conform. However, the impact of subjective norms on food consumption intentions is mixed, with some studies finding significant effects and others not.
H4) Social norms have a significant influence on buying intention
H5) Social norms have a significant influence on dairy consumer buying behavior
The standard TPB model's final construct is perceived behavioral control, which indicates consumers' confidence in their ability to control their behavior. Previous studies show a significant effect of perceived behavioral control on food consumption intentions, but the impact on intentions and behavior towards industrial versus traditional dairy products has not been tested.
H6) Behavior control has a significant influence on buying intention
H7) Behavior control significant influence on the dairy consumers' buying behavior
H8) Dairy product buying intention has a significant impact on consumer behavior
H9) Willingness to pay an extra price for a dairy product has a significant influence on buying intention
H10) Willingness to pay an extra price for a dairy product has a significant influence on the buying dairy consumers buying behaviour

3. Research Methodology

Area of study
The Karur was selected as the study area due to its historical significance as a prominent center for dairy commerce, its rich cultural heritage, and its robust economic activity. As a thriving commercial hub, the valley hosts numerous dairy processing industries and is home to a diverse population representing various ethnic and cultural groups, each with distinct preferences and consumption patterns related to dairy products. Both primary and secondary data were utilized in this study. Primary data were collected through surveys administered using a structured questionnaire developed in accordance with the Theory of Planned Behavior (Ajzen, 2002). The questionnaire employed a 5-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), to measure participants' responses across various constructs. Secondary data were sourced from peer-reviewed journals, academic books, government publications, and credible online resources to provide contextual background and to supplement the primary data collected.

3.1. Sampling technique

A probability sampling random technique was employed to select participants for the study. The sample consisted of consumers residing in Kathmandu who regularly purchased dairy products such as milk, yogurt, ghee, and paneer. The sample size was determined using Cochran's formula (Cochran et al., 2004):
Where:

- n = required sample size
- p = estimated population proportion (set at 0.50)
- q = 1 - p (also 0.50)
- z = z-value corresponding to the desired confidence level (1.96 for 95%)
- e = desired margin of error (0.05 or 5%)

This formula yielded a representative sample size sufficient for drawing statistically reliable conclusions while accounting for variability in consumer behavior's study used Measured Structural Equation Modeling (MSEM) to analyze the relationships between latent constructs in the Theory of Planned Behavior framework, including attitude, subjective norms, and perceived behavioral control, and extended variables such as environment awareness.
Sample size and statistical tools. Participants were approached at various locations and online platforms, and 385 questionnaires were distributed. Data was analyzed using Microsoft Excel and SPSS software, using descriptive statistics and inferential statistical methods to examine demographic and behavioral characteristics, relationships among variables, and test hypotheses. The study used Measured Structural Equation Modeling (MSEM) to analyze the relationships between latent constructs in the Theory of Planned Behavior framework, including attitude, subjective norms, and perceived behavioral control, and extended variables like health consciousness, perceived risk, and self-identity.
Dairy consumer behavior with (Theory of Planned Behavior variables).

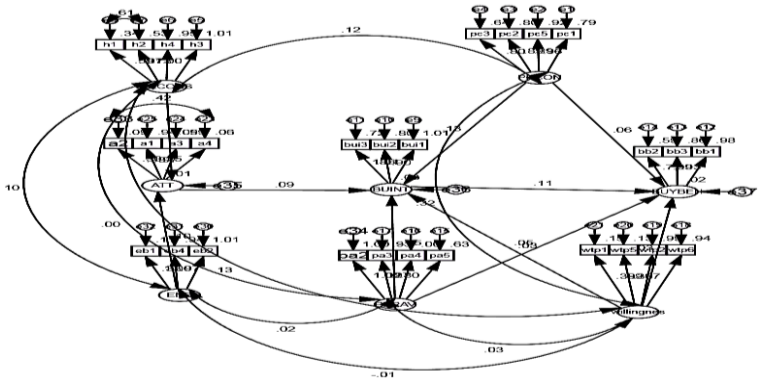

Fig. 1: Measured Structural Equation Modeling.

4. Hypothesis Result

The SEM analysis tested the hypothesized relationships between various exogenous and endogenous variables within the extended Theory of Planned Behavior framework. Below is a summary of the hypothesis testing outcomes:

Table 1: Hypothesis Result

	Endogenous Variable	Exogenous Variable	Estimate	S.E.	C.R.	P	Result
H1	Attitude towards dairy products	Health consciousness	0.131	.011	.1979	.218	Supported
H2	Attitude towards dairy products	Environment awareness	.020	.011	1.970	.037	Supported
H3	buying intention	Attitude towards dairy products	.389	.208	1.998	.042	Supported
H4	buying intention	Social norms	.144	.058	2.494	.011	Supported
H5	Buyer behaviour	Social norms	.000	.023	.019	.985	Not Supported
H7	Buyer behaviour	Behavioural control	.089	.039	2.257	.012	Not Supported
H9	Willingness to pay an extra price	Dairy consumer buying intention	0.60	.056	2.484	.010	Supported
H10	Willingness to pay an extra price	Dairy consumer behavior	0.17	.009	2.794	.006	Supported
H6	buying intention	Behavioural control	.017	.037	.440	.660	Supported
H8	Buyer behaviour	buying intention	.089	.039	2.257	.020	Supported

Source – AMOS output (version 25).

The results support the first hypothesis, which posits a positive and significant effect of attitude on the intention to consume industrial dairy products over traditional ones. This finding indicates that enhancing consumers' positive attitudes toward industrial dairy products significantly increases their willingness and intention to choose these products over traditional alternatives. The fourth hypothesis, which proposed a positive and significant effect of subjective norms on the intention to consume industrial dairy products over traditional ones, was supported by the findings. This result indicates that social influences, such as opinions from the local community and influential individuals, play a key role in shaping consumer preferences and intentions regarding dairy product consumption.

H1 and H6 should be marked Not Supported (their p-values > 0.05). H7 was wrongly marked as "Not Supported" despite $p < 0.05$ — it should be Supported. The structural equation modeling results confirmed that attitude and subjective norms significantly influence intention to consume industrial dairy products (supporting H3 and H4). While environmental awareness positively shaped attitudes (H2 supported), health consciousness did not have a significant effect (H1 not supported). Additionally, although behavioral control did not predict intention (H6 not supported), it significantly influenced actual purchasing behavior (H7 supported), alongside buying intention (H8 supported). However, social norms had no direct effect on buyer behavior (H5 not supported), suggesting their influence is indirect through intention. For buying intention, a coefficient of 0.60 indicates that a greater willingness to pay (WTP) correlates with increased intention to buy dairy products. In terms of actual behavior, the coefficient is 0.17, showing that while WTP significantly influences behavior, the effect is weaker. Both hypotheses were supported, with p-values less than 0.05 and significant t-values. This suggests that while WTP can strongly affect purchase intention, translating that into actual behavior may be hindered by factors like perceived behavioral control and price sensitivity.

5. Conclusion

The study found that environmental awareness positively influences attitudes towards dairy products, leading to increased buying intention. Social norms also play a role in shaping purchase intentions, with perceived control leading to actual behavior. However, health consciousness did not significantly shape attitudes. Social norms did not directly influence actual behavior, suggesting their influence is indirect through intention. The results support the hypothesis that attitude and subjective norms significantly influence intention to consume industrial dairy products.

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