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Research paper

Study on Ice Cream Consumer Behavior with Application of The Theory of Planned Behavior (TPB)

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Abstract

The study examines the impact of age, education, income, and perceived behavior control (PBC) on ice cream buying intention. Results show no significant difference in buying intention across different education groups, income levels, or age. However, high-income consumers approach ice cream differently due to factors like disposable income or willingness to spend on ice cream. Positive attitudes towards ice products significantly influence buying intention, with product quality, marketing campaigns, and testimonials boosting consumer behavior. However, peer influence and social norms may not significantly influence consumer attitudes, as they may be viewed as personal preferences.

Keywords: *Perceived Behavior Control; Buying Intent; Social Norms.*

1. Introduction

Shifting customer tastes, growing incomes, and the evolution of retail distribution are driving the fast rise of India's ice cream business. Companies that innovate in their product offerings while focusing on accessibility and convenience will be best positioned to benefit from this development. Whether via new flavors, healthier options, or better retail experiences, the Indian ice cream sector has enormous development potential over the next decade.

This market dynamic recommends that Indian ice cream manufacturers should focus on distinguishing themselves via innovation, meeting the growing demand for luxury goods, and assuring availability across current retail channels. The growth of India's dairy sector has resulted in fierce competition among brands, with both domestic and international players striving to capture market share. Factors like branding, product quality, pricing, and innovative offerings such as flavored yogurts or fortified milk are increasingly important in this competitive landscape. India, the largest milk producer, is leading the global dairy consumption trend, accounting for 18% of global milk production.

The country's dairy industry offers a diverse range of products, catering to various consumer preferences. Factors such as socioeconomic status, cultural significance, and demographics influence purchasing behavior, with younger generations driving demand for innovative dairy products while traditional items remain popular. Savithri and Srividhya's (2021) study explores consumer perceptions of ice cream, focusing on key factors such as ingredient quality, quantity, taste, appearance, and price. High-quality ingredients enhance perception, while quantity and taste are crucial. The study suggests strategies to improve consumer satisfaction and loyalty in the ice cream market, such as analyzing these factors and offering competitive pricing without compromising quality. Kalavadai and debnath (2024) studied the Indian Generation Z consumers' ice cream purchase decisions and suggested that their behavior is influenced by taste, quantity, packaging, and availability, with chocolate being their preferred flavor.

2. Theoretical Background of The Study

The Theory of Planned Behavior (TPB) is a well-established framework for understanding and predicting human behavior. According to the TPB, an individual's intention to perform a specific behavior is influenced by three key components: Attitude, Perceived Behavioral Control, and social norms. Together, these components determine the strength of an individual's intention, which is the primary predictor of whether they will engage in the behavior. The TPB has been extensively used to understand and predict behaviors across various domains, such as health, environment, and consumer behavior. The TPB framework's predictive power can be enhanced by incorporating additional constructs like sugar consciousness, product label claims, substituting sugar with sweeteners, and perceived flavor. (Chadha, Hamid, Poulain, Kantono, Janani & Teo (2024). Mucha's (2024) study suggests that positive consumer attitudes and perceived behavioral

control significantly influence consumer intention and behavior towards craft bakery products. However, the influence of the consumer environment was not confirmed. Jarungjit and Piriyakul's (2024) study highlights TPB that marketing strategies focused on product quality, promotional activities, and price-to-value ratio can significantly boost purchase intentions for Molto Ice Cream. In contrast, distribution, social media influence, and flavor uniqueness appear to play a less critical role. Additionally, the demographic characteristics of consumers, particularly education level, should be carefully considered when tailoring marketing approaches.

Attitude: This refers to the person's positive or negative evaluation of performing the behavior. If a person believes the behavior will lead to favorable outcomes, their attitude is likely to be positive, which increases the intention to act. Kalavadai and Debnath (2024) study suggests that new-age consumers in India and suggest that they are positive toward ice cream purchases, and consumer attitude towards ice cream is positive; as TPB positive attitude is a major determinant of behavioral intention. Dewi, Elwisam, and Digdowiseiso (2024) brand images play a positive role in consumer attitudes.

H1) Attitude towards the ice has a significant influence on the buying intention

H2) Attitude towards the ice is significantly influenced by social norms

Subjective Norms: These are the perceived social pressures to perform or not perform the behavior. It involves the influence of significant others, such as family, friends, or societal expectations. Chadha et al., (2024) study suggests that Subjective norms play a stronger role in shaping sugar consumption behavior in Singapore than in France or New Zealand, indicating societal pressure to reduce sugar intake of products like ice creams and chocolate; the present research is relevant to developing economies, and social norms will be different. Consumers in low-income economies, their peer group behavior influence needs to be assessed. Saurabh (2022) found that consumers prefer quality, availability, and variety over product social norms, differentiation, and awareness. Jayakrishnan and Kumar's (2015) study suggests that packed foods, including ice cream products, and social norms play a major role in the study area. Zhang and Kohsuwan (2024) said the social norms' role is crucial in purchasing ice cream.

H3) Social norms have a significant influence on the buying intention

H4) Social norms have a significant influence on the buying behavior

Perceived Behavioral Control (PBC): This is the individual's perception of their ability to perform the behavior. It includes factors such as resources, skills, and opportunities. Greater perceived control typically enhances the likelihood of forming the intention to engage in the behavior. Chadha et al. (2024) positive influence on participants' intentions to reduce sugar consumption in both New Zealand and Singapore. This suggests that empowering consumers with a sense of control may help control the ice cream buying process.

H5) PBC has a significant influence on the buying intention

H6) PBC has a significant influence on the buying behavior

3. Research Methodology

Sampling method and size: A simple random sampling method was used to constitute the sample, and the sample size is 168. The sample units were selected in the Thanjavur district.

Statistical Application The present uses the Measured Structural Equation Model (SEM) by combining measurement and structural models, constructing parameters based on theoretical constructs, and testing against data. One-way ANOVA is used to determine if there are statistically significant differences in the mean scores of more than two groups. In this study, it is are used to test whether the socio-demographic variables

4. Measured Structural Model

The present Using MSM along with the tools from Gaskin & Lim (2016) ensures a thorough testing of model validity and reliability, confirming the structural relationships and the soundness of the data. The results from the Master Validity Table help ensure no validity issues, which is crucial for the credibility and robustness of the findings. By applying these methods, your study ensures that the measurement and structural models meet the required reliability, validity, and fit standards, making the research findings more trustworthy and applicable.

Table 1: Result of Measured Structural Equation Model

H1	Buying intent	<---	Attitude	.093	.039	2.184	.015
H2	Attitude	<---	Social norms	.047	.036	1.289	.181
H3	Buying intent	<---	Social norms	.173	.042	3.105	***
H5	Buying intent	<---	Perceived Behavioral Control	.221	.037	5.614	***
H4	Buyer behavior	<---	Social norms	-.03	.045	-.582	.485
H6	Buyer behavior	<---	Perceived Behavioral Control	.011	.038	.229	.760
H7	Buyer behavior	<---	Buying intent	.145	.040	3.128	***.
8 (A, B, C)	Buying intent	<---	Age, Education, Income	One-way ANOVA			

Source: Primary data.

5. Results Interpretation

H1 is accepted @ 5% level of significance, and it suggests that positive attitudes A towards the ice have a significant influence on the buying intention. Positive attitudes significantly influence buying intention, indicating that enhancing product quality, creating appealing marketing campaigns, and leveraging testimonials can directly boost consumer behavior.

H2 is rejected @ 5% level of significance (P value not less than 0.05), and it suggests that Peer influence and social norms may not significantly influence consumer attitudes towards ice products, as they may be viewed as personal preferences rather than influenced by societal expectations. Market independence and individual factors may also influence attitudes towards ice products.

H3 is accepted with a P value less than 0.05 (.001), and it suggests that Social norms significantly influence buying intention, reflecting expectations, behaviors, and attitudes prevalent in a social group or community. These norms can be influenced by peer pressure, group behavior, and recommendations from family, friends, or social circles, particularly in products like ice cream.

H4 is rejected, and it suggests that Social norms may influence buying intention, but their impact on actual behavior may be indirect or weaker than expected. Factors like price, availability, and individual preferences might intervene between intention and actual purchase behavior, and social influence may vary depending on product type or demographic.
H5 is accepted, and it suggests that PBC has a significant influence on the buying intention. PBC refers to an individual's perception of ease or difficulty in performing a behavior, influenced by resources, opportunities, and self-efficacy. Its statistical significance, as confirmed by a low p-value, indicates its reliability.
H6 is rejected, and it suggests that Perceived Behavioral Control (PBC) influences consumer intentions but doesn't directly translate into actual purchase behavior. Other factors like situational constraints and competing preferences may mediate this relationship. H7 is accepted, and it suggests that buying intention has a significant influence on the buying intention.
Hypothesis 1 (H1) is accepted at the 5% level of significance, indicating that positive attitudes toward ice products significantly influence buying intention. This supports the Theory of Planned Behavior (TPB), where attitude is a key determinant of intention. The result implies that enhancing product quality, developing emotionally resonant and informative marketing strategies, and using consumer testimonials can effectively shape favourable attitudes, thereby strengthening consumers' intent to purchase ice products. Hypothesis 7 (H7) examines the relationship between buying intention and actual buyer behavior, showing a standardized coefficient of 0.145, a p-value < 0.001 (*),**, and a critical ratio (CR) of 3.128. This indicates a statistically significant but moderate positive influence of buying intention on actual purchasing behavior. In other words, while intention is a significant predictor of behavior—as proposed by TPB—the effect size suggests that other external or situational factors (e.g., price, availability, impulse, or convenience) may also play a role in translating intention into action.

Table 2: Results of the Model Fitness

Measure	Estimate	Threshold	Interpretation
CMIN	702.901	--	--
DF	282	--	--
CMIN/DF	2.375	Between 1 and 3	Excellent
CFI	0.875	>0.85	Acceptable
SRMR	0.089	<0.08	Acceptable
RMSEA	0.047	<0.06	Excellent
P Close	0.74	>0.05	Excellent

Source: Primary Data (Output generated by AMOS graphic 21version).

The model summary was prepared with "Model Fit Measures", AMOS Plugin developed by Gaskin and Lim (2016), and the model is an excellent fit for the analysis. Hu and Bentler (1999) suggested five important measures and thresholds for this model (in the table). The result of the table shows that the model excellent fit for the analysis except for one measurement, such as RSMR, which is at an acceptable level. Hypothesis 2 (H2) is rejected at the 5% level of significance, as the p-value exceeds 0.05. This suggests that peer influence and social norms do not significantly impact consumer attitudes toward ice products. One possible explanation is that ice product preferences may be seen as personal or individual choices, less influenced by societal or group expectations. Additionally, market independence and other individual factors, such as taste, health considerations, or lifestyle, may play a more dominant role in shaping consumer attitudes. Hypothesis 4 (H4) is also rejected, indicating that while social norms may have some influence on buying intentions, their effect on actual consumer behavior is likely indirect or weaker than anticipated. This gap between intention and behavior might be explained by intervening factors such as price sensitivity, product availability, or personal preferences. Furthermore, the impact of social influence may vary based on product type, demographics, or cultural context, suggesting that social norms alone are not strong predictors of actual purchasing behavior for ice products

6. Demographic Variable Role in Buying Intention

Palka (2018) young consumers are influenced by advertising, even if they believe otherwise, and that their choices reflect both a desire for luxury and a connection to their younger selves. Brands targeting this group can benefit from creating advertisements that highlight both quality and nostalgia while maintaining a connection with youthful aspirations. His study suggests that young consumers prefer branded ice cream compared to unbranded products. Zhang and Kohsuwan (2024); Chadha et al. (2024) studied demographic variables such as gender, age, and monthly income were studies and suggest that these factors did not have a statistically significant effect on the purchasing intention for ice cream. Their study also suggests education plays a major role in ice cream purchase decisions. Gao, Tarkar, Khan, and Haseeb (2023) suggest that demographic profile plays a major role in ice cream purchases. Das and Hota (2015) buying intention plays a major role in the conversion or buying of ice creams. Contrast also reported by Sunil Kumar, Sivaram, and Dixit (2016) suggests that purchase intention is not reflected in purchases.
H7) Buying intention has a significant influence on buying behavior.
H8) demographic variables' role and buying intention.

Table 3: Dependent Variable: Buying Intent

Source	Sum of Squares	Df	Mean Square	F	Sig.	Observed Power
H8 a Age	36.71	4	9.179	8.39	.000	.999
H8 b Education	3.008	3	1.003	.875	.464	.242
H8 c Income	6.287	4	1.572	1.37	.261	.431

Source: Primary Data.

In this analysis (Table 3), the researcher takes the age, education, and income as the independent variables and buying intention as the dependent variable, and the results are illustrated in the above table. H8b (Education): Result: Accepted at the 5% significance level. Interpretation: There is no significant difference in the buying intention of ice cream across different education groups. The p-value of 0.464 (greater than 0.05) indicates that education does not significantly impact consumers' intentions to purchase ice cream. H8c (Income): Result: Accepted at the 5% significance level. Interpretation: Similarly, there is no significant difference in buying intention based on income groups, as the p-value of 0.261 is also above 0.05. Therefore, income level does not appear to significantly influence the intention to buy ice cream. H8a (Age): Result: Rejected at the 5% significance level. Interpretation: The hypothesis that age does not significantly influence buying intention was rejected, as the p-value of 0.000 is less than 0.05. This suggests that age does have a significant influence

on buying intention for ice cream, indicating that different age groups have varying levels of intention to purchase ice cream. Scheffe's Post-Hoc Test (Income Group Differences) Interpretation: According to Scheffe's Post-Hoc test, there is a significant difference between high-income consumers and low-income consumers in their approach toward ice cream. This means that high-income consumers approach ice cream differently from low-income consumers, likely due to factors such as disposable income, preferences, or willingness to spend on indulgent items.

Table 3: Dependent Variable: Buying Intent

Source	Sum of Squares	Df	Mean Square	F	Sig.	Observed Power
H9a Urban	7.287	4	1.772	1.37	.361	.531
H9b Semi–urban	4.008	3	1.103	.875	.364	.242
H9c Rural	35.71	4	8.179	7.39	.001	.999

Only the Rural group shows a statistically significant effect on Buying Intent, with a high F value and a very low p-value. Urban and Semi-Urban groups do not show significant differences in buying intent, and the low observed power suggests these results might not be reliable (risk of Type II error). This may imply that residence in rural areas significantly influences buying intent, potentially more than urban or semi-urban residency.

7. Conclusion

Positive attitudes towards ice products significantly influence buying intention by enhancing product quality, creating appealing marketing campaigns, and leveraging testimonials, boosting consumer behavior. However, peer influence and social norms may not significantly influence consumer attitudes, as they may be viewed as personal preferences. Social norms, reflecting expectations and behaviors prevalent in a social group, can be influenced by peer pressure and recommendations. Although social norms may influence buying intention, their impact on actual behavior may be indirect or weaker than expected. Perceived buy-back (PBC) has a significant influence on buying intention, but it doesn't directly translate into actual purchase behavior.

8. Managerial Implications

Creating a positive attitude towards the potential ice cream user and promotion tools will help to industry. Trustworthy and health experts who appear in promotional tools will play a noteworthy role in attitude formation. The attitude of the buyer not being influenced by the social norms affected the decision taken by the buyer's intention. Inducing the consumer through salesmanship may provide good results for the industry. The buying intention plays a significant role in the buyer's behavior. PBC has a significant influence on the buying intention. PBC refers to an individual's perception of ease or difficulty in performing a behavior, influenced by resources, opportunities, and self-efficacy. Its statistical significance, as confirmed by a low p-value, indicates its reliability.

9. Scope for Further Study

The Theory of Planned Behavior (TPB) is a widely recognized framework for understanding and predicting human behavior. According to TPB, an individual's intention to engage in a specific behavior is influenced by three core components: attitude toward the behavior, perceived behavioral control, and subjective norms (social norms). These factors collectively determine the strength of an individual's behavioural intention, which serves as the most immediate predictor of actual behavior. The TPB has been extensively applied across diverse domains, including health, environmental actions, and consumer decision-making, to explain and predict behavioural outcomes. In the context of consumer behavior toward ice products, the explanatory power of the TPB can be enhanced by incorporating additional constructs relevant to the food and health industry. These include factors such as sugar consciousness, product label claims, preference for sugar substitutes (e.g., artificial sweeteners), and perceived flavour. Moreover, variables like willingness to pay a premium price and health consciousness have also been integrated to improve the model's ability to account for variance in consumer attitudes and purchase intentions. These extensions provide a more nuanced understanding of the factors influencing consumer behavior in an increasingly health-aware and value-driven market.

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