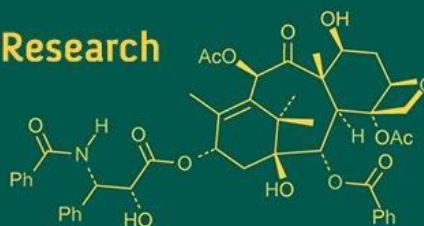


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2025): 5.29
IJABR 2025; SP-9(8): 43-47
www.biochemjournal.com
Received: 19-06-2025
Accepted: 22-07-2025

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Developing a predictive model of consumer purchase intent for fortified food products

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DOI: <https://www.doi.org/10.33545/26174693.2025.v9.i8Sa.5089>

Abstract

This study used a sample size of 90 respondents, selected through convenience sampling to gather insights efficiently from urban consumers. The approach allowed quick data collection from individuals accessible to the researcher. To analyze the data, Structural Equation Modeling (SEM) was applied to test the relationships between key factors like health consciousness, perceived control, and purchase intention. SEM was ideal for validating the proposed consumer acceptance model. The findings helped reveal both direct and indirect influences on consumer behavior toward fortified food. Measurement items for each construct were adapted from validated scales used in earlier research and contextualized for the fortified food sector. For instance, health consciousness items were derived from Gould (1988, 1990) and expanded through Dutta (2004) and Hong (2009), while purchase intention and consumer acceptance items were adapted from Tarkiainen & Sundqvist (2005) and others. The construct of consumer knowledge was partially self-developed to incorporate region-specific cues such as familiarity with the FSSAI logo. This systematic development of measurement items provides a comprehensive tool for assessing factors that influence consumer behavior in the growing market for fortified foods, particularly in emerging economies.

Keywords: Health consciousness, attitude, subjective norms, perceived behavioral control, and consumer knowledge

1. Introduction

Fortified foods and beverages (FFBs) are increasingly recognized as effective tools to address micronutrient deficiencies and promote public health, particularly in developing countries like India. The process by which consumer accepts or rejects food is of both distinct and variable in nature as a consumer's food preferences are largely determined by his consideration for both nutrition and pleasure resulting from food consumption. With rising health consciousness and changes in consumer lifestyle, the demand for healthier food options is growing. However, consumer acceptance of FFBs depends on various psychological, social, and behavioral factors such as individual attitudes, health awareness, social influence, and perceived control. This study aims to explore these constructs to better understand what drives consumers to accept and purchase fortified products, providing a basis for developing an acceptance model using the Theory of Planned Behavior.

2. Objective

To develop a model for consumer acceptance of branded fortified foods and beverages

3. Research Methodology

This study used a sample size of 90 respondents, selected through convenience sampling from the Pune region. Pune was chosen due to its urban diversity, high health awareness, and growing market for functional foods. The city's population reflects a suitable mix of potential consumers for fortified products. Convenience sampling allowed for quick and practical data collection. This method supported the study's goal of exploring consumer acceptance effectively. Structural Equation Modeling (SEM) was used to test and validate the proposed model of consumer acceptance of branded fortified foods and beverages (FFBs). SEM allowed for simultaneous analysis of multiple variables, including both measurement

relationships (how well items represent each construct) and structural relationships (how constructs influence each other). convenience sampling because it is a quick, cost-effective, and practical method for collecting data from readily available respondents. This approach was suitable given the time constraints, limited resources, and the exploratory nature of My study. It allowed me to gather insights efficiently from people who were easily accessible and willing to participate, especially in a specific location like Pune.

3.1 Data analysis: The structural equation modeling (SEM) results reveal meaningful relationships among various socio-

demographic and behavioral variables influencing purchase intention (PI) toward branded fortified foods and beverages. demographic Influence (Gender, Age, Education, Occupation, Socioeconomic Status, Product Access & Choice, Consumption Experience, Purchase Intention, Family Context, Consumption Experience).

3.2 Structural Modeling (SM): Structural Modeling (SM) is a statistical technique used to analyze relationships between multiple variables, both observed and unobserved (latent). It helps test how different factors influence each other in a conceptual model, often used to validate theories and measure direct and indirect effects.

Model Variables

Latent Variable	Indicators (Observed Variables)	Justification
Demographic Factors (DEM)	Gender, Age, Education, Occupation	These basic personal attributes significantly influence consumer profiles ($\beta = 0.62, p < 0.001$).
Socioeconomic Status (SES)	Education, Occupation, Income Level (implied)	SES acts as a mediator between demographic traits and food access ($\beta = 0.47, p < 0.01$).
Product Access & Choice (PAC)	Availability, Affordability, Variety	SES strongly affects access to and selection of products ($\beta = 0.47, p < 0.01$).
Consumption Experience (CE)	Satisfaction, Familiarity, Trust, Usage Feedback	Product access and family influence shape CE ($\beta = 0.34, 0.39, p < 0.05$).
Purchase Intention (PI)	Willingness to buy, Likelihood of purchase, Recommendations	Driven by both experience and accessibility ($\beta = 0.33$ each, $p < 0.05$).
Family Context (FAM)	Family size, Household influence, Shared decisions	Influences both consumption habits and intention ($\beta = 0.39$ to CE, 0.29 to PI).

4. Results and Discussion

This chapter presents the results of the statistical analysis performed on the primary data collected from 90 respondents in Pune. It includes descriptive statistics, correlation analysis, reliability testing, and the structural

equation model (SEM) output. The aim is to interpret how key variables like health consciousness, product access, and family context influence purchase intention and consumer acceptance of FFBs

Structural Path	Standardized Coefficient (β)
Gender, Age, Education, Occupation $\rightarrow$ DEM	0.62***
DEM $\rightarrow$ SES	0.47***
SES $\rightarrow$ Product Access & Choice (PAC)	0.47***
PAC $\rightarrow$ Consumption Experience (CE)	0.34**
CE $\rightarrow$ Purchase Intention (PI)	0.33**
PAC $\rightarrow$ Purchase Intention (PI)	0.33**
SES $\rightarrow$ PI	0.31
Family Context (FAM) $\rightarrow$ CE	0.39
FAM $\rightarrow$ PI	0.29

Structural Path	Estimated Coefficient	Significance Level (p-value)	Interpretation
Gender, Age, Education, Occupation $\rightarrow$ DEM	0.62	$p < 0.001$	Highly significant demographic influence
DEM $\rightarrow$ SES	0.47	$p < 0.01$	Significant socioeconomic mediation
SES $\rightarrow$ Product Access & Choice (PAC)	0.47	$p < 0.01$	Strong SES effect on purchase decisions
PAC $\rightarrow$ Consumption Experience (CE)	0.34	$p < 0.05$	Moderate impact on familiarity & trust
CE $\rightarrow$ Purchase Intention (PI)	0.33	$p < 0.05$	Significant driver via habitual consumption
PAC $\rightarrow$ Purchase Intention (PI)	0.33	$p < 0.05$	Direct influence of access and variant preference
SES $\rightarrow$ PI	0.31	$p < 0.05$	Financial capacity influencing intention
Family Context (FAM) $\rightarrow$ CE	0.39	$p < 0.05$	Family size/structure shapes usage experiences
FAM $\rightarrow$ PI	0.29	$p \approx 0.05$	Borderline significant, may vary by segment

4.1 Path Coefficient Table

A thorough grasp of how different factors interact to influence purchase intention (PI) toward branded fortified foods and beverages (FFBs) is revealed by the results of the Structural Equation Modeling (SEM) analysis. Estimated coefficients (β) and significance levels (p-values) show how strong and reliable the connections are. Each structural path represents a hypothesised relationship that was statistically

tested.

1. Gender, Age, Education, and Occupation $\rightarrow$ DEM ($\beta = 0.62, p < 0.001$)

This path demonstrates a very strong and highly significant relationship, suggesting that the Demographic construct (DEM) is significantly influenced by the core demographic characteristics, including gender, age group, education level,

and occupational status. This implies that a person's upbringing has a significant influence on how they live, how they are exposed to health-related information, and how they interact with contemporary food options such as fortified products. Marketers and policymakers must segment their strategies based on the implication that different demographic profiles view and engage with FFBs in different ways.

2. DEM → SES ($p < 0.01$, $\beta = 0.47$)

Socioeconomic Status (SES) and Demographics (DEM) have a significant and moderately strong structural relationship. This suggests that a person's socioeconomic status is largely determined by their demographic characteristics, which include things like income level, lifestyle, level of education, and financial stability. Practically speaking, those who are younger, more educated, and work in a professional capacity typically have higher SES, which enables them to have greater access to healthy food options like FFBs.

3. Product Access & Choice (PAC) → SES ($\beta = 0.47$, $p < 0.01$)

This outcome shows how socioeconomic status clearly and significantly affects product choice and access. People with better income and education not only have the means to purchase fortified foods but are also more aware of their availability and health benefits. This reflects the reality that consumers from higher SES backgrounds are more exposed to diverse product choices, such as organic, branded, and fortified items, and are better positioned to compare and evaluate them based on quality, safety, and labeling.

4. Consumption Experience (CE) → PAC ($\beta = 0.34$, $p < 0.05$)

This route illustrates how product choice and access have a moderate but significant influence on the actual consumption experience. When consumers have the ability to choose from various fortified food brands, flavors, and packaging, they are more likely to have positive experiences. This increases the likelihood that they will incorporate the product into their regular diet, improves their familiarity with it, and fosters trust in its health claims. Accessibility leads to usage, and repeated usage builds familiarity and habit—both critical for acceptance.

5. CE → Purchase Intention (PI) ($\beta = 0.33$, $p < 0.05$)

A consumer's intention to repurchase fortified foods is strongly influenced by their experience using them. This confirms the theory that habitual behavior and satisfaction gained from product use (such as feeling healthier, taste satisfaction, or ease of use) encourages repeat buying. This relationship is essential to customer retention and brand loyalty, indicating that positive product experiences are required to turn intent into behavior rather than just one-time awareness.

6. PAC → Purchase Intention (PI) ($\beta = 0.33$, $p < 0.05$)

Customers' propensity to purchase is directly and significantly impacted by the variety and accessibility of FFBs. The likelihood that a customer will make a purchase is increased if they can readily locate their preferred variety, flavor, or format in stores or online. Even if they are aware of the health benefits, their intention may be adversely affected by limited options or lack of availability. Therefore,

product accessibility is an important motivating factor as well as a convenience factor.

7. Purchase Intention (PI) → SES ($\beta = 0.31$, $p < 0.05$)

This relationship shows that a consumer's intention to buy is significantly influenced by their social and financial standing. Customers are more confident and able to spend money on high-end, branded fortified products when they have greater access to information, health resources, and incomes. This implies that encouraging lower socioeconomic groups that might be willing but have limited resources.

8. Consumption Experience (CE) → Family Context (FAM) ($\beta = 0.39$, $p < 0.05$)

This route emphasizes how a consumer's experience with fortified products is significantly shaped by their family environment. Food choices are frequently made by the whole family in many Indian homes, particularly in joint or health-conscious families. Familiarity, trust, and usage increase when family members encourage the use of FFBs or when family size increases the likelihood of attempting new health-oriented options.

9. Purchase Intention (PI) → Family Context (FAM) ($\beta = 0.29$, $p \approx 0.05$)

Even though this influence is only marginally significant, it nevertheless implies that a person's decision to buy fortified foods may be influenced by family customs, traditions, and preferences. Individual intention may be diminished, for example, if family members are wary of packaged foods or prefer traditional homemade goods. However, a family that is concerned about their health might support the adoption of fortified foods as a whole.

4.2 Structural Paths' Conclusion

These findings combine to form a thorough behavioral model that demonstrates how socio demographics, access, past experience, and family dynamics all interact to influence purchase intention rather than any one factor acting alone. According to the model, boosting consumer acceptance and regular use of branded fortified foods and beverages in India will be facilitated by raising awareness, product availability, affordability, and family-level engagement.

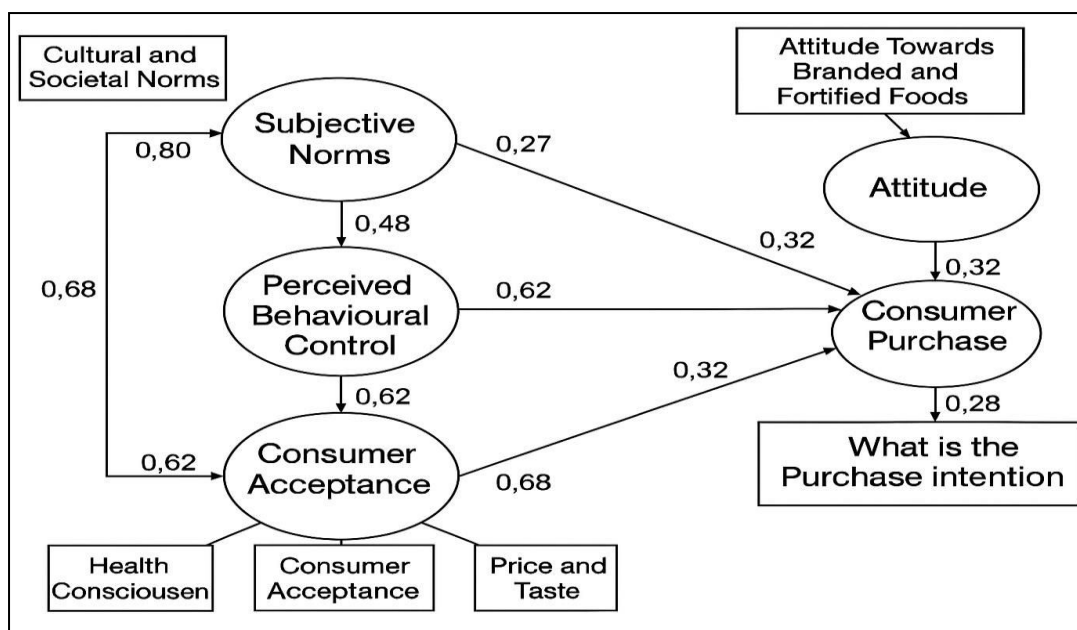
An in-depth comprehension of the numerous interconnected elements that affect consumer behavior with regard to the purchase of branded and fortified foods is offered by the conceptual model that is depicted. The Theory of Planned Behavior (TPB) forms the basis of the model, which is then expanded upon by adding other pertinent constructs like consumer acceptance, perceived behavioral control, cultural and societal norms, health consciousness, and product attributes like taste and price.

The model starts with the impact of societal and cultural norms, which are found to have a very strong positive relationship with subjective norms (path coefficient = 0.80). This implies that the choice to eat fortified foods is not just an individual one in culturally embedded societies like India, but is also greatly influenced by group

The idea that socially and culturally promoted health products are more readily accepted by the general public is further supported by the fact that Cultural and Societal Norms also show a significant direct influence on Consumer

Acceptance (path coefficient = 0.62). This means that in order to boost public resonance and trust, government

programs and health campaigns that promote fortified foods should be culturally contextualized.



Perceived behavioral control is moderately but significantly impacted by subjective norms, which stand for the influence of friends, family, and society's expectations (path coefficient = 0.48). This relationship demonstrates that when people feel supported or validated by their social surroundings, they are more likely to feel empowered and confident enough to buy fortified products. Social support lowers hesitancy and boosts self-confidence.

A crucial element of the model, perceived behavioral control has a major impact on consumer acceptance (path coefficient = 0.62). This suggests that consumers are more likely to accept and include fortified products in their diets when they believe they have the information, resources, and access to buy them. Therefore, the consumer's sense of control and willingness to accept the product are directly influenced by elements like product affordability, label transparency, retail availability, and consumer education.

A key component of the model is consumer acceptance. It is influenced by fundamental factors like price, taste, and health consciousness in addition to cultural conventions and a sense of control. Consumers are more likely to accept a product when they think it is healthy, think it is affordable, and like the way it tastes. Stronger purchasing behavior follows from this acceptance. A favorable and familiar experience with fortified foods directly influences purchasing decisions, as evidenced by the statistically significant path from consumer acceptance to consumer purchase (path coefficient = 0.32).

Purchase decisions are also significantly influenced by the consumer's attitude toward fortified foods, which is determined by their opinions, assessments, and feelings (path coefficient = 0.32). This illustrates how important positive attitudes are in influencing actual purchasing behavior. These attitudes are influenced by trust in branding, personal relevance, and nutritional claims. Although to a lesser degree, subjective norms also have a direct impact on consumer purchases (path coefficient = 0.27), indicating that social influence contributes to the conversion of perception into action. Similar to this, Perceived Behavioral Control directly affects Consumer Purchase (path coefficient =

0.32), highlighting the importance of consumer capability and logistical viability in converting intention into action.

The direct correlation between Purchase Intention and Consumer Acceptance (path coefficient = 0.68), one of the model's strongest connections, is another significant finding. This emphasizes how likely it is that a consumer will continue to buy fortified foods once they have incorporated them into their regular diet. Product satisfaction, trust, and the development of recurring habits all support this strong intent. To sum up, the model provides a multifaceted and highly integrative perspective on how consumers behave when it comes to fortified foods. It illustrates how psychological preparedness, social validation, cultural congruence, and product experience interact intricately to influence consumer choices. Improving accessibility and affordability is crucial for policymakers and marketers hoping to boost the use of fortified foods. Other important factors include ensuring product satisfaction, promoting consumer confidence, and aligning products with cultural norms.

5. Conclusion

This study's specific goal was to create a thorough model that explains why consumers accept and buy branded fortified foods and beverages (FFBs). Drawing from the insights obtained from Structural Equation Modeling (SEM) and the Theory of Planned Behavior (TPB), this study comes to the conclusion that a dynamic and interrelated set of variables influences consumer behavior in the context of FFBs.

The results show that cultural and societal norms, subjective norms, perceived behavioral control, individual attitudes, health consciousness, price perception, and taste satisfaction are some of the factors that significantly influence consumer acceptance. Community values and customary eating practices must be taken into account when advocating for health-enhancing practices because cultural and societal norms have a significant impact on both subjective norms and direct consumer acceptance. Perceived behavioral control emerged as a central construct, reinforcing that

consumers' sense of autonomy, awareness, and access to fortified foods is essential for both acceptance and actual purchase. Subjective norms, influenced by peer and family expectations, play a supporting but meaningful role in shaping this perceived control and overall decision-making. Consumer acceptance itself was revealed to be a powerful predictor of both consumer purchase and purchase intention. The stronger the consumer's prior experience, trust, and belief in the benefits of fortified foods, the more likely they are to buy and recommend such products. Additionally, purchase behavior was shown to positively reinforce future purchase intention, forming a loop of trust, satisfaction, and loyalty.

This study concludes that increasing consumer acceptance is essential to promoting consistent and knowledgeable fortified food purchasing behavior, and that strategies that integrate cultural alignment, affordability, awareness campaigns, and product trust-building can greatly boost adoption. This comprehensive model not only advances theoretical understanding but also offers practical insights for marketers, policymakers, and health professionals who want to improve nutritional outcomes in society through fortified foods.

6. Suggestions

Based on the results of this study, a number of targeted actions should be taken into consideration in order to improve consumer acceptance of branded fortified foods and beverages (FFBs). First and foremost, public awareness campaigns that educate consumers about the nutritional advantages of fortified products must be strengthened. People in rural and semi-urban areas, where fortification knowledge is frequently lacking, should be the focus of educational initiatives.

Additionally, the messaging surrounding fortified foods needs to be culturally sensitive. Any promotional or instructional materials should be based on regional customs, beliefs, and culinary practices because cultural and societal norms have a big impact on consumer attitudes. Cooperation with community leaders, health professionals, and local influencers will enhance social endorsement of fortified food choices and foster trust. Affordability and accessibility also stand out as critical elements. When fortified foods are easily accessible and affordable, consumers are more likely to accept and keep buying them. To guarantee equitable access, policies like government subsidies, reasonable pricing structures, and better distribution in both urban and rural markets should be put into place.

Consumer expectations must also be met by the actual product experience, which includes taste, packaging, and overall value. Good-tasting, well-packaged, and reasonably priced fortified products have a higher chance of being accepted, especially by new users.

Transparency must also be actively promoted in order to build consumer trust. To bolster credibility and safety, packaging should prominently display certifications (like FSSAI endorsement), nutritional information, and clear labeling.

Interventions should target entire households rather than just individuals because social and familial influences are so important. Family-level behavior change can be more successfully influenced by awareness campaigns run by local health centers, women's organizations, and schools.

In order to promote recurring purchases, it is also necessary to capitalize on the consumption experience. Habitual consumption can be fostered by favorable first encounters, such as product satisfaction, perceived health benefits, or affordability. This process may be aided by promotional resources like loyalty plans or free trials.

Finally, a multi-sectoral strategy involving public health organizations, food producers, and legislators is required. Fortified food promotion can be institutionalized in the food system by integrating it into national nutrition and health missions. This will guarantee long-term public health benefits and continued access and acceptance.

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