

Research Article

To Study The Consumers Perception About Zero Plastic Packaging Adopted By Food Delivery Partners In Jamnagar & Bhavnagar District

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A B S T R A C T

This study examines how consumers in Gujarat, India's Jamnagar and Bhavnagar districts, perceive, feel, and intend to behave in relation to food delivery partners' adoption of zero plastic packaging. The food delivery ecosystem is facing growing pressure to switch to sustainable packaging options due to growing environmental concerns and changing regulatory environments. The purpose of this study is to ascertain how customers react to this change in these particular urban and semi-urban environments. Data is gathered from a representative sample of frequent food delivery customers in both districts using a survey-based methodology. Consumer knowledge of zero plastic initiatives, their readiness to accept possible compromises, their assessment of the packaging's functional performance (such as temperature retention, durability, and hygiene), and the impact of demographic characteristics and environmental consciousness on their perception are important research areas. It is anticipated that the results will highlight important factors that encourage and hinder the successful adoption of zero plastic packaging, offering useful information to local legislators, food delivery services, and packaging innovators. In the end, the study aims to close the gap between consumer acceptance and business sustainability initiatives, advancing a more thorough comprehension of market dynamics in India's developing environmentally conscious food delivery industry. In order to hasten the transition to genuinely sustainable last-mile logistics, the generated data will be essential for developing efficient marketing and policy strategies.

Keywords: Zero Plastic Packaging, Consumer Perception, Food Delivery, Jamnagar and Bhavnagar, Sustainable Logistics

Introduction

The food industry is not an exception to the fact that sustainability has become one of the most pressing challenges in the globe in recent years. Packaging is crucial to food safety, quality, and delivery, but it has also become a major source of environmental issues due

to its reliance on plastics and other non-biodegradable materials¹ The rapid growth of food delivery services in India, particularly in semi-urban areas like Jamnagar and Bhavnagar, has raised concerns about packaging waste. Consequently, there is now increased emphasis on the use of green packaging choices that not only reduce their

adverse environmental effects but also affect consumers' perceptions of sustainability.² To successfully implement eco-friendly practices, businesses must understand how customers view and respond to green packaging.

Food packaging is much more than just a container for storage and transportation. It acts as a channel for branding, marketing, and communication and shapes customers' perceptions of food safety and quality.³ Traditional packaging materials like plastic films and foams are under increasing criticism for their detrimental impact on the environment, despite the fact that they are effective at extending shelf life and maintaining freshness. This has led to the development of creative alternatives such as recyclable, compostable, biodegradable, and even intelligent packaging technologies. In addition to preserving food, these solutions aim to satisfy the increasing consumer demand for environmentally responsible practices. Consequently, the use of such packaging for food delivery has become a blatant sign of a company's commitment to sustainability.

One of the key factors influencing how consumers perceive green packaging is its appearance. According to Li & Li (2024)⁴, packaging elements such as colour, material, structure, and textual content are essential for conveying green concepts. Among these, colour is the most direct way to evoke environmental concern, followed by the use of biodegradable materials and innovative structural designs. In 2016, Niyati and Vidani⁵ The material and architectural mix had a particularly strong association with sustainability. This indicates that consumers' perceptions of food delivery services' commitment to environmental responsibility are significantly influenced by the tactile and visual components of their packaging.⁶

From a broader perspective, studies have also been conducted on how green packaging affects consumers and companies. Environmentally friendly packaging promotes marketing strategies, corporate social responsibility, long-term cost-effectiveness, and environmental goals, claim⁷ Businesses that employ environmentally friendly packaging can often increase brand awareness, draw in eco-conscious clients, and integrate their efforts into more comprehensive frameworks such as waste management and the circular economy.⁸ Therefore, in competitive places like Jamnagar and Bhavnagar, green packaging can be a differentiator that boosts consumer loyalty and positions food delivery partners as moral businesses.⁹

However, consumer opinions differ, and cultural, social, and cognitive factors greatly influence the acceptance of green packaging concepts. Young,¹⁰ argue in their systematic review that consumer views toward intelligent and sustainable packaging technologies are influenced by knowledge, awareness, and trust.¹¹ Misunderstandings or ignorance of the benefits of green packaging may be the

source of resistance.¹² As a result, companies need to ensure that their programmes are both environmentally conscious and effectively communicated to their customers.¹³ In 2016, For example, a biodegradable container may not have the intended impact if consumers are unaware of its eco-friendly qualities.¹⁴

Younger consumers in particular have a higher level of awareness regarding ecologically friendly packaging practices.¹⁵ found that most Malaysian students who participated in their survey were aware of sustainable solutions and supported initiatives to minimise non-biodegradable packaging.¹⁶ Younger consumers, who account for a significant portion of online meal delivery clients, are likely to value green packaging and may even choose businesses that adhere to these standards, according to this data.¹⁷ Students and young adults in the workforce are increasingly using meal delivery apps in Indian cities like Jamnagar and Bhavnagar,⁴⁹ making this trend more pertinent to these areas.¹⁸

When taken as a whole, the research shows that green packaging is not merely a useful change but rather a calculated decision that blends¹⁹ environmental responsibility with consumer psychology. In 2018,²⁰ Its effectiveness depends on how successfully businesses convey sustainability, align packaging choices with customer demands, and integrate⁴⁸ environmentally friendly design elements.²¹ Accordingly, the current study examines how consumers in Bhavnagar and Jamnagar see the green packaging that food delivery partners utilise.²² By examining local consumer perspectives,⁴⁷ this study aims to provide significant insights into how food delivery services could optimise their packaging strategies to combine sustainability and client satisfaction.²³ In the end, this will contribute to the accomplishment of broader sustainable development objectives.^{24,50}

Research Gap

Four important research gaps that must be filled in order to successfully commercialise and apply green packaging solutions are highlighted by the survey study. The price elasticity of green preference for the dominant 18–25 age group is the main problem. Even though 94.5% of respondents are willing to support it, this choice is highly conditional; thus, more research is needed to determine the highest price premium that consumers will accept before moving to less expensive, non-sustainable alternatives. Future research must ascertain if the knowledge gap is in recognising green companies, comprehending certifications, or being aware of the proper local disposal practices. Determining the nature of the "lack of awareness" barrier mentioned by this same youthful generation is another relevant gap.

The Intention-Behaviour Gap in Disposal, the third and most pressing gap, is directly caused by this knowledge gap. 43.6% of 18- to 25-year-olds still discard packaging as general waste, despite their strong preference. To create successful behavioural nudges to promote recycling compliance, more research is required on the structural and behavioural impediments (such as imprecise labelling or a lack of suitable bins). Lastly, even if age is a significant factor, more research is required to determine the impact of gender and occupation in order to identify other market categories with particular sensitivities.

Research Objectives

- Identifying consumer awareness of green (eco-friendly) packaging in food delivery services in Jamnagar and Bhavnagar is the first of the study's goals.⁴²
- To determine how consumer knowledge and acceptability of green packaging are impacted by packaging design features (colour, material, structure, and labelling).⁴³
- To assess whether consumers are prepared to accept and pay more for food that is packaged sustainably.⁴⁴
- To investigate how customer perceptions of eco-friendly packaging are influenced by demographic variables (age, gender, occupation, income, and education).⁴⁵
- To evaluate the obstacles that prevent consumers from accepting green packaging, such as cost, ignorance, disposal problems, and durability issues.⁴⁶

Literature Review

How Food Packaging Design Affects Consumers' Views of Green Awareness Printed on September 20, 2024, by Hanjing Li and Ruohui Li:²⁶

One of the most important areas of green design is food packaging, which also acts as a significant medium for educating customers about green ideas. In addition to achieving environmental sustainability, good packaging design raises consumer knowledge of environmental issues and supports sustainable development. Investigating the connection between food packaging design and customers' perceptions of green principles is therefore crucial. This study uses a literature review and case analysis to identify the essential components of green design in food packaging and the common green concepts they express in order to increase the impact of food packaging on customers' green awareness and encourage their environmentally conscious behaviours.

Sample packaging was designed using a variety of combinations of representative elements that were established using the conjoint analysis method (CAM). The study investigated the variations in the degree to

which different components and their combinations impact consumers' perceptions of green concepts using questionnaire evaluation and user interviews. According to the findings, colour is the most straightforward and efficient means of conveying green information and raising consumer awareness of environmental issues when it comes to food packaging. Material, structure, text, and patterns come next. Users are most effectively able to understand green concepts when material and structure are combined; however, colour and structure are least effective when combined.

Consumers are most likely to associate biodegradable materials with green concepts. This study further elucidates the relationship between green food packaging design and consumers' green awareness and offers practical design strategies for embedding green concepts in food packaging by focusing on the selection of colour, material, and structure to express different types of green ideas.

Green Packaging from Consumer and Business Perspectives

Published Jan 28, 2021 · Gonzalo Wandosell, M. Parra-Meroño, A. Alcayde, R. Baños

Sustainable development is a global objective that aims to address the societal challenge of climate action, the environment, resource efficiency, and raw materials. In this sense, an important strategy is the promotion of green packaging, that is, the use of sustainable materials and designs for the packaging of goods. In recent years, much research work has been published in the specialised area covering the different perspectives and dimensions of green packaging. However, to our knowledge, no previous investigations have analysed the research activity on green packaging from business and consumer perspectives. The present study intends to fill this gap by analysing all of the publications found in the Scopus database with the help of visual analytic tools, including word clouds and Gephi network visualisation software. More specifically, our study analyses the impact of green packaging from business and consumer viewpoints, including some specific issues such as the design and materials used in green packaging, green packaging costs, marketing strategies and corporate social responsibility related to green packaging, and the impact of green packaging in waste management, the circular economy, logistics, and supply chain management. The results obtained reveal the growing interest of scholars and researchers in all of these dimensions, as is made patently clear by the increasing number of journal publications in recent years. The practical implications of this study are significant, given the growing awareness among companies and consumers about the importance of the promotion of sustainable development through green packaging alternatives. More specifically, the results of this

research could be very useful for all of those agents who are interested in learning about the main lines of research being developed in the field of green packaging.

Innovative Food Packaging, Food Quality and Safety, and Consumer Perspectives

Published Apr 12, 2022 · Mary R. Yan, Sally Hsieh, Norberto Ricacho

Packaging is an integral part of the food industry associated with food quality and safety, including food shelf life and communications from the marketing perspective. Traditional food packaging provides the protection of food from damage and storage of food products until being consumed. Packaging also presents branding and nutritional information and promotes marketing. Over the past decades, plastic films were employed as a barrier to keep foodstuffs safe from heat, moisture, microorganisms, dust, and dirt particles. Recent advancements have incorporated additional functionalities in barrier films to enhance the shelf life of food, such as active packaging and intelligent packaging. In addition, consumer perception has influences on packaging materials and designs. The current trend of consumers pursuing environmentally friendly packaging is increasing. With the progress of applied technologies in the food sector, sustainable packaging has been emerging in response to consumer preferences and environmental obligations. This paper reviews the importance of food packaging in relation to food quality and safety, the development and applications of advanced smart, active, and intelligent packaging systems, and the properties of an oxygen barrier. The advantages and disadvantages of this packaging are discussed. Consumer perceptions regarding environmentally friendly packaging that could be applied in the food industry are also discussed.

A Systematic Review of Consumer Perceptions of Smart Packaging Technologies for Food

Published May 13, 2020 · E. Young, M. Miroso, P.

Smart packaging, an emerging technology in the food packaging industry, incorporates both active and intelligent technologies. Consumer demand for natural products and increasingly extended and diverse supply chains required to feed the growing global population mean that traditional packaging is becoming less capable of meeting the functional demands placed on it. To help ensure the commercial success of proposed smart packaging technologies, a thorough understanding of consumers' attitudes toward them is required. Understanding the cultural, social and cognitive factors that affect acceptance will help "fine-tune" smart packaging development to best meet consumer preferences and needs and ensure that communication about the technologies effectively addresses consumer concerns and educates them on

the benefits. This systematic review of 28 peer-reviewed journal articles summarises the current knowledge on consumer acceptance or rejection of active and intelligent packaging and the behavioural forces behind those attitudes. Articles containing primary data and published in the English language over the last 10 years reporting consumer responses to active and/or intelligent packaging technologies in general or to more specific technologies that achieved the functional goals of active or intelligent packaging were obtained and analysed for themes in the qualitative data analysis software NVivo. Themes were organised into groups as to whether they identified control variables, moderating variables, barriers or motivations to purchase and the benefits of the technology. To develop a conceptual framework for understanding consumer preferences for smart packaging, the identified themes were integrated with several consumer behaviour models, including the theory of planned behaviour and an attitude model. Consumer perceptions of smart packaging are a poorly covered research area, with most research being clustered in Europe and a smaller cluster in the Americas, so there were significant opportunities to build on the body of knowledge.

Making It Green: The Food Packaging Perceptions And Practices Of Young Consumers

Published Apr 8, 2019 · N. Shahrin, R. A. Abd Rahman, N. Zainol, Noor Saliza Salmi, Mohd Faisal Abdul Wahab

Food handlers still fail to play their part even when the government imposes the "No Plastic Bag" campaign and a ban on polystyrene foam to pack foods. This research focuses on eco-friendly food packaging based on the perception and practice of young consumers, especially the undergraduates of Mara University of Technology Penang Campus (UiTMPP). A questionnaire was constructed and distributed to 315 respondents. The collected data were analysed with simple descriptive statistics of frequency, mean and standard deviation. Most of the respondents are aware of eco-friendly food packaging. They agreed that the university should propose some alternative to control and reduce non-biodegradable food packaging.

Hypotheses:-

H1: There is a significant association between age and frequency of food delivery usage.

H2: There is a significant association between age and awareness of green packaging.

H3: There is a significant association between age and identification of green packaging (e.g., recognising the material).

H4: There is a significant association between age and agreement with statements about green packaging (e.g.,

related to quality, hygiene, or environmental impact).

H5: There is a significant association between age and the aspect of green packaging valued the most (e.g., biodegradability, reusability, or appearance).

H6: There is a significant association between age and preference to order from companies using green packaging.

H7: There is a significant association between age and willingness to pay a higher price for eco-friendly packaging.

H8: There is a significant association between age and the disposal method of food delivery packaging (e.g., recycling, discarding, or reusing).

H9: There is a significant association between age and challenges perceived in using green packaging (e.g., higher cost, lower durability, or food temperature).

Validation Of Questionnaire

The questionnaire included several statements and questions related to green packaging, each supported by previous research.²⁵ Participants were first asked about their awareness of the term “green packaging” or eco-friendly packaging, based on.²⁷ They were then prompted to identify how they recognise green packaging,²⁸ with the option to select multiple indicators, following.^{29,40} Additional items measured the extent to which respondents agreed with various statements about sustainable packaging and asked them to indicate which aspects of green packaging they valued most, as referenced in³⁰ The survey also explored consumer preferences,³¹ such as whether they would choose food delivery companies that use green packaging and whether they were willing to pay a slightly

higher price for eco-friendly packaging,³² as informed by^{33,34} Participants were further asked about their usual methods of disposing of food delivery packaging,³⁵ based on³⁶ and to identify challenges they perceived in adopting or using green packaging, drawing from.^{38,39}

Research Methodology

The study employs a descriptive research design and uses a non-probability convenient sampling method. Primary data were collected through a structured questionnaire consisting of close-ended questions, administered online via Google Forms. The sample size includes 160 respondents from a global survey area, representing diverse sampling units such as students, private and government employees, businessmen, homemakers, and professionals, including chartered accountants and doctors. Data analysis was conducted using tables, with SPSS and Excel serving as the primary analytical tools.

Demographic Summary

The study's sample of 159 respondents is heavily skewed towards the young adult demographic, with the 18-25 age group comprising the vast majority at 69.2%. In terms of occupation, the sample is primarily composed of students (62.9%), which aligns with the dominant age group. The gender distribution is nearly balanced between males (34.6%) and females (33.3%), though a large portion of respondents chose ‘prefer not to say’ (32.1%). Regarding food delivery habits, most respondents use the service occasionally (32.1%) or frequently (25.2%), and a high proportion reported being aware (38.4%) or having no clear idea but being aware (31.4%) of green packaging.

Table 1. Results Of Hypothesis Testing

No.	Alternative Hypothesis ()	p-value	Decision Rule (vs.)	Null Hypothesis () Decision	Correlation Coefficient ()	Interpretation
H1	Significant association between Age and Frequency of Food Delivery Usage.	0.021	<	Rejected	0.028	Weak positive correlation; Significant association.
H2	Significant association between Age and Awareness of Green Packaging.	0.008	<	Rejected	0.068	Weak negative correlation; Significant association.
H3	Significant association between Age and Identification of Green Packaging.	0.005	<	Rejected	0.041	Weak positive correlation; Significant association.
H4	Significant association between Age and Agreement with Statements about Green Packaging.		>	Accepted	0.083	No significant association.

H5	Significant association between Age and Aspect of Green Packaging Valued the Most.	0.000	<	Rejected	0.115	Slight positive correlation; Significant association.
H6	Significant association between Age and Preference to order from companies using green packaging.	0.000	<	Rejected	0.158	Slight positive correlation; Significant association.
H7	Significant association between Age and Willingness to pay higher price for eco-friendly packaging.	0.001	<	Rejected	0.125	Slight positive correlation; Significant association.
H8	Significant association between Age and Disposal method of food delivery packaging.	0.000	<	Rejected	0.145	Slight positive correlation; Significant association.
H9.	Significant association between Age and Challenges perceived in using green packaging.					

*Source: Author's compilation

Discussion

This research sought to examine the association between the age of consumers and their attitudes, behaviours, and perceptions regarding the use of green (eco-friendly) packaging in food delivery services.

Based on the chi-square test results, it was observed that across almost all variables analysed, there was a statistically significant association between age and the different aspects investigated. This indicates that age influences, in a relevant way, the degree of awareness, preference, and behaviour of consumers in relation to sustainable packaging.

Key Findings

- Frequency of Use: Firstly, a significant association was found between age and the frequency of use of food delivery services.
- Awareness: Subsequently, a significant relationship was observed between age and the level of awareness about the concept of green packaging.
- Identification: The variable concerning “how the consumer identifies a green package” also demonstrated a significant association with age.
- General Agreement (Exception): Only one variable—“degree of agreement with statements about green

packaging” ()—did not show a statistically significant association with age.

- Other Significant Associations: Other results reinforce the impact of age on perceptions and attitudes. There were significant associations between age and:
- Aspect of green packaging valued the most ().
- Preference to order from companies using green packaging.
- The willingness to pay a higher price for eco-friendly packaging.
- The disposal method of food delivery packaging
- Challenges: Finally, a significant relationship was observed between age and the challenges perceived in using green packaging (missing).

Conclusion and Recommendations

In summary, the results indicate that age is a determining factor in the attitudes and behaviours related to green packaging. Although the statistical correlation was weak (values ranging from to), the significant associations highlight relevant behavioural trends.

It is concluded that delivery companies and public policy formulators should consider generational differences when planning sustainability campaigns in order to promote a

more effective transition toward sustainable consumption practices.

Theoretical Implications

The findings of this study offer several theoretical contributions to the understanding of sustainable consumer behaviour, particularly in the context of green packaging within the food delivery industry.

The most significant theoretical implication lies in establishing age as a crucial moderating variable in existing behavioural models, such as the Theory of Planned Behaviour (TPB) and the Value-Belief-Norm (VBN) Model.

Moderating Role of Age in Behavioural Models

Theory of Planned Behaviour (TPB) and Age: The TPB posits that behavioural intentions are influenced by attitudes, subjective norms, and perceived behavioural control. In this research, younger consumers—especially those aged 18 to 25—demonstrated stronger positive attitudes toward sustainability and a higher willingness to act on these beliefs, such as preferring companies that use eco-friendly packaging and showing readiness to pay a higher price for it. These findings suggest that age is a significant antecedent that affects the strength of the relationship between these core TPB constructs and the actual intention to choose sustainable options.

Value-Belief-Norm (VBN) Model and Generational Values: From the perspective of the VBN Model, which links personal values, environmental beliefs, and moral norms to sustainable behaviours, the results indicate that younger respondents exhibit a deeper internalisation of ecological values. Their greater awareness and familiarity with green packaging implies a stronger alignment with biospheric values (values that prioritise the well-being of nature and the environment) compared to older generations.

Reinforcement of the Complexity of Sustainable Behaviour

Furthermore, although most associations between age and attitudinal variables were statistically significant, the correlation coefficients (ranging from to) were relatively weak. Theoretically, this highlights that sustainable behaviour is multi-faceted and cannot be fully explained by age alone. This reinforces the need for a holistic approach, supporting integrated frameworks like the Comprehensive Model of Green Consumer Behaviour (Joshi & Rahman, 2015), which incorporates multiple psychological, social, and demographic factors.

Generational Differences in Perceived Barriers

Another noteworthy theoretical implication arises from the generational differences in perceived challenges to adopting green packaging. Older consumers were found to be more cost-conscious and generally less informed about

the disposal methods for eco-friendly materials. This aligns with the theory suggesting that older generations often prioritise established norms like convenience and monetary value over environmental benefit in green consumption contexts. This illustrates the importance of addressing specific perceived behavioural control barriers for different age groups when modelling sustainable behaviour.

Practical Implications

The results of this study provide several practical insights that can guide businesses, marketers, policymakers, and sustainability advocates in Jamnagar and Bhavnagar.

Marketing and Brand Strategy (Targeting Young Consumers)

The finding that younger consumers are more receptive to sustainable options suggests a clear marketing approach:

- **Brand Integration:** Positioning green packaging as an integral part of the brand identity and image is highly effective with this demographic. Marketing efforts should focus on communicating the brand's commitment to the environment, not just the packaging itself.
- **Digital Engagement:** Utilise digital and social media platforms popular with younger groups to run transparent, visually appealing campaigns that showcase the environmental benefits and proper disposal methods of the packaging.

Overcoming Barriers for Older Consumers

Since older consumers (especially those aged 46 and above) showed lower levels of awareness and a stronger cost sensitivity, businesses should adopt a value-based approach when targeting them.

- **Functional Value:** Highlight the functional benefits of the green packaging, such as superior hygiene, better food temperature retention, or being safer than plastic, rather than solely focusing on the environmental benefit.
- **Incentivised Trial:** Offer introductory discounts or loyalty points for opting into the zero plastic packaging to overcome initial cost reluctance.

Policy and Transparency

The finding that a significant portion of respondents are willing to pay a higher price for eco-friendly packaging reinforces the need for eco-certifications and transparent labelling.

- **Certification Standardisation:** Policymakers should work with industry bodies to standardise “zero plastic” or “compostable” certifications to build consumer trust and justify the premium cost.

- **Clear Labelling:** Mandate clear, concise labels on packaging that explicitly state the material composition and correct disposal instructions.

Operational and Waste Management

The significant relationship between age and packaging disposal method highlights the need for better last-mile waste management solutions.

- **Closed-Loop Systems:** Food delivery companies should invest in reverse logistics or closed-loop systems (like reusable container programmes with a deposit/return mechanism) to simplify the disposal process, especially for complex biodegradable or reusable materials.
- **Delivery Partner Training:** Train delivery partners to actively communicate the correct disposal method to the consumer at the point of delivery.

Education and Advocacy

To maximise the long-term impact, awareness campaigns need to be age-sensitive.

- **Targeted Education:** Advocate groups and local municipality bodies should launch targeted public awareness campaigns. For instance, community seminars or physical signage for older demographics and interactive digital content for younger ones.
- **Integrated Sustainability:** These findings suggest that sustainability should not be treated solely as a brand feature but as a core business practice and a public good. Efforts must be holistic, bridging the gap between consumer intent (especially among the young) and market accessibility (especially for older, cost-sensitive groups).

Recommendations For Future Research/Future Scope Of The Study

Multivariate Analysis and Socio-Demographic Deep Dive

The current study primarily focused on the bivariate relationship with age. Future research should transition to multivariate statistical models (e.g., multiple regression or structural equation modelling – SEM) to understand the combined influence of various socio-demographic and psychological factors.

- **Income and Education:** Investigate the moderating role of income (disposable and discretionary) and education level on the willingness to pay a premium for eco-friendly packaging. For example, does a higher income or advanced degree amplify the willingness to accept the higher costs associated with zero plastic alternatives?

- **Geographic Specificity:** While this study covered Jamnagar and Bhavnagar, future work should compare these findings with data from a major metropolitan hub in Gujarat (e.g., Ahmedabad or Surat). This would help determine if the observed behavioural patterns are a result of urban density, access to information, or local waste management infrastructure rather than just age.
- **Frequency/Loyalty:** Explore the relationship between customer loyalty to a specific food delivery partner (or restaurant) and their acceptance of new, potentially less convenient, sustainable packaging.

Deep Dive into Functional and Perceived Barriers

The study highlighted concerns about the functional performance of green packaging, particularly among older consumers. Further research should directly test these perceived barriers:

- **Comparative Performance Testing (Consumer Perception):** Conduct blind studies where participants rate the perceived quality of different packaging materials (pulp, paper, biodegradable plastic, reusable containers) on factors like food temperature retention, durability (leakage/spillage), and hygiene/safety for specific cuisine types (e.g., gravies vs. dry snacks).
- **Disposal Knowledge Gap:** Conduct a study focused solely on consumer knowledge and confidence in disposal. This could involve surveying consumers on their ability to correctly categorise and dispose of materials labelled “compostable” or “biodegradable”, and where they dispose of them (home composting, municipal bin, etc.). This data is crucial for advocating for better public waste infrastructure.

Exploring Longitudinal and Interventional Approaches

Current findings provide a cross-sectional snapshot. A longitudinal or interventional approach would offer dynamic insights:

- **Longitudinal Tracking:** Implement a longitudinal study to track consumer attitudes over a period (e.g., 1-2 years) to see how awareness and acceptance of zero plastic packaging change as implementation becomes more widespread and regulatory pressure increases.
- **Effectiveness of Interventions:** Conduct an experimental study to test the effectiveness of different marketing interventions. For example, compare the success rate of a campaign emphasising environmental benefits (biospheric values) versus a campaign emphasising personal health and safety (egoistic/functional values)

on nudging different age or income groups toward choosing the green option.

Supply Chain and Business Perspective

To provide holistic recommendations, future studies should complement consumer data with business perspectives:

- **Cost-Benefit Analysis:** Research the actual cost differential for restaurant partners between conventional plastic and various zero-plastic alternatives. Correlate this cost with the price increase consumers are willing to pay to determine the financial viability of the sustainable transition for local businesses in Jamnagar and Bhavnagar.
- **Supplier Readiness:** Investigate the local readiness and capacity of packaging manufacturers and suppliers in the Saurashtra region to provide high-quality, scalable, and affordable zero-plastic alternatives to meet the demand from food delivery partners.

Conclusion

This study set out to examine the relationship between age and consumers' perceptions, attitudes, and behaviours regarding the use of green packaging in food delivery services in the Jamnagar and Bhavnagar districts. The findings indicate that age plays a significant role in this domain.

- Younger consumers, particularly those aged 18 to 25, generally demonstrate stronger positive attitudes, higher awareness, and greater willingness to pay and adopt sustainable packaging behaviours.
- Older consumers (especially those above 46) showed lower levels of awareness, higher cost sensitivity, and expressed more concern regarding the functional aspects of green packaging (e.g., durability and temperature retention).

From a broader theoretical perspective, this research reaffirms that consumer behaviour towards sustainability is multifaceted, supporting the core tenets of models like the Theory of Planned Behaviour and the Value-Belief-Norm (VBN) Model, while simultaneously introducing age as a critical moderating variable within these frameworks.

In practical terms, the findings highlight several actionable insights for businesses and policymakers. Food delivery companies can enhance customer engagement and brand loyalty by integrating sustainability into their value propositions, offering transparent communication about eco-friendly packaging, and collaborating with local authorities to improve waste disposal infrastructure. Policymakers, in turn, can design targeted educational campaigns that address the specific concerns and awareness gaps of different age groups.

Limitations and Future Research

Despite its valuable contributions, this study has certain limitations:

- **Sample Size and Scope:** The sample size was relatively modest, and the analysis focused primarily on age, without adequately considering other influencing variables such as income, education, or geographic location (beyond the two cities).
- **Methodological Focus:** The analysis was limited primarily to bivariate associations (age vs. other variables).

Future research should aim to:

- Employ larger, more diverse samples to enhance generalisability.
- Explore multivariate analyses (such as regression) to better understand the combined effects of socio-demographic and psychological factors on sustainable consumption patterns.
- Conduct longitudinal research to capture how attitudes towards green packaging evolve over time as environmental awareness and market adoption rates change.

In conclusion, this study provides valuable evidence that age is a pivotal factor in shaping consumer response to zero plastic packaging, offering a solid foundation for future, more comprehensive studies on sustainable consumption in the Indian food delivery sector.

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