

Exploring Consumer Awareness and Adoption of Eco-Friendly Packaging Solutions in India

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Abstract

As environmental concerns increase, companies and consumers are looking for more sustainable ways to cut down on pollution and waste. Despite being a significant substitute for conventional materials, eco-friendly packaging has not yet gained general acceptance. This study examines how consumers perceive, adopt, and are aware of eco-friendly packaging options while examining the variables that affect their choices. The study uses surveys and case studies to pinpoint important factors such as perceived product quality, cost considerations, and environmental awareness. The study also looks at adoption hurdles including price sensitivity and limited availability. Businesses and legislators can use the data to improve consumer education and encourage environmentally friendly packaging. Ecofriendly packaging is becoming a viable substitute for traditional packaging considering growing environmental concerns and the pressing need for sustainable development. To clarify the elements impacting consumer decision-making, this research study uses a mixed methods approach to examine customer knowledge, attitudes, and the eventual adoption of eco-friendly packaging. To obtain detailed information on consumer views and behaviours, a quantitative survey with 70 participants from a range of demographic backgrounds was carried out in addition to qualitative focus group talks. The research indicates a notable discrepancy between real purchase behaviour and environmental consciousness. Notwithstanding the fact that most customers value sustainability and have a favourable opinion of eco-friendly packaging, real-world obstacles including increased prices, restricted supply, and worries about the convenience and quality of the products prevent widespread adoption. Clear labelling, business openness, and social impact were also found to be important determinants of customer trust and willingness to invest in sustainable alternatives. The results highlight how important it is for companies and legislators to create focused plans that not only inform customers but also deal with the financial and practical difficulties involved in switching to environmentally friendly packaging. The gap between market reality and environmental aspirations can be reduced by improving customer communication, enacting pricing incentives, and guaranteeing the steady availability of sustainable products. By providing a thorough framework that identifies the factors that encourage and hinder the adoption of eco-friendly packaging, this paper adds to the expanding corpus of research on sustainable consumption. Future study directions are also outlined, including assessments of new technologies in packaging sustainability.

and longitudinal studies to monitor behavioural changes over time. Eco-friendly packaging has become a keyway to cut waste and lessen ecological footprints in a time when environmental issues are getting worse and there is a growing need for sustainable practices. The intricate relationship between environmental principles, economic considerations, and product performance expectations is shown by this study, which looks at customer awareness, attitudes, and adoption behaviours regarding eco-friendly packaging.

Keywords: Eco-friendly packaging, consumer awareness, sustainable consumption, adoption behaviour, environmental impact.

1. Introduction

A sustainable alternative to conventional plastic wrap, biodegradable plastic tackles environmental problems associated with plastic waste. This executive brief covers the key aspects of biodegradable plastic wrap production, advantages, challenges, and market potential. To manufacture biodegradable plastic wrap, organic materials such as maize starch, sugarcane, or other renewable resources are utilized. After processing, these materials are turned into a flexible, durable film with properties akin to those of regular plastic wrap. Regulations encouraging sustainable practices and growing environmental concerns are driving the market for biodegradable plastics to grow rapidly on a global basis.

21st-century environmental problems have made people more conscious of the harm that conventional packaging materials especially plastics due to ecosystems and human health. The use of eco-friendly packaging has become increasingly important in reducing environmental deterioration because of the notable trend towards sustainable practices. This movement is fuelled by a significant shift in consumer preferences as well as regulatory pressures. Many consumers are willing to change their buying patterns to prefer sustainable solutions, according to recent surveys. According to research, about 75% of consumers are amenable to altering their behaviour, highlighting the potential market for environmentally friendly packaging. Biodegradable plastic wrap is made from ingredients that are organic, such as corn starch, sugarcane, or other renewable resources. These materials are treated to create a long-lasting, flexible film with properties akin to those of regular plastic wrap. Utilizing renewable resources reduces dependency on fossil fuels and promotes sustainable practices. Environmentally conscious products and growing customer awareness are driving the market for biodegradable alternatives. The switch to environmentally friendly packaging is not without its difficulties, despite this encouraging trend. Barriers for consumers can include increased prices, restricted availability, and doubts about the practicality and efficacy of sustainable packaging options. Furthermore, there is a general lack of knowledge on the most sustainable packaging types, which causes misunderstanding and uneven adoption patterns. By examining consumer awareness of eco-friendly packaging, their opinions of its advantages and disadvantages, and the variables influencing their choice to accept or reject such solutions, this study seeks to

better understand these dynamics. The goal of this study is to give a thorough grasp of the factors that influence consumer behaviour in the context of sustainable packaging by using a mixed-methods approach.

Businesses looking to match their packaging strategy with customer expectations and politicians working to encourage sustainable consumption habits can both greatly benefit from the insights gathered from this study. Stakeholders can create focused interventions to promote a more seamless shift to sustainable packaging practices by understanding the main factors influencing and impeding consumer acceptance of eco-friendly packaging. Typically made of recycled or renewable paper, this type is meant to be recycled curb side. Both unbleached and bleached varieties are available, and it can be applied to both food and nonfood items. An environmental wrap made of paper with a honeycomb bubble structure for added cushioning is an excellent alternative to bubble wrap. Due to its approved compostable polymer composition, this substitute can break down in commercial composting facilities. It is widely used where traditional plastic stretch wrap is usually used.

2. Literature Review

Consumer awareness and adoption of eco-friendly packaging solutions in India have gained significant attention due to increasing environmental concerns and regulatory measures. Various studies have examined the factors influencing consumer perception, behavior, and willingness to pay for sustainable packaging options. This literature review explores key scholarly works addressing these aspects.

- Magnier and Schoormans (2015) explored how consumers react to sustainable packaging based on visual appearance, verbal claims, and environmental concern. Their study found that aesthetically appealing packaging positively influences consumer perception, while clear sustainability claims enhance trust. However, the effectiveness of these factors depends on consumers' environmental awareness, highlighting the need for strategic design and communication to increase acceptance of eco-friendly packaging.
- Singh and Pandey (2018) examined factors influencing consumers' willingness to pay a premium for green packaging. They found that environmental awareness, perceived quality, and brand trust significantly impact purchase decisions. Consumers are more likely to pay extra when packaging aligns with sustainability values, emphasizing the need for effective eco-friendly marketing strategies.
- Nayyar, Pahuja, and Dogra (2014) explored factors influencing Indian consumers' perceptions of sustainable packaging. Their study found that urban youth are more inclined toward eco-friendly packaging due to higher awareness and accessibility. Education, attitude, and interest significantly

impact green purchasing behavior, emphasizing the need for better consumer awareness and stricter regulations to promote sustainable packaging adoption in India.

- Sukhmani, Ashima, and Nayyar (2013) examined sustainable packaging in Indian FMCG companies, highlighting the growing industry pressure to adopt eco-friendly solutions. Their study found that while sustainability enhances brand image and consumer trust, challenges like cost, regulatory compliance, and supply chain adaptation hinder adoption. Companies must balance profitability with environmental responsibility to implement sustainable packaging effectively.
- James, Kurian, and Forbes (2021) conducted a quantitative analysis revealing that Indian consumers exhibit a favourable attitude toward eco-friendly packaging solutions. Their research underscores the importance of understanding consumer psychology to effectively implement sustainable practices in the e-commerce industry.
- Aravkar (2023) emphasized the necessity for brands to minimize plastic usage and adopt circular economy models. This approach not only addresses environmental concerns but also aligns with the growing consumer demand for responsible packaging.
- Sunita (2023) investigated consumer perceptions of sustainable packaging in e-commerce platforms using a factor analytic approach. The study identified key factors influencing consumer attitudes, such as environmental impact, convenience, and brand image. Findings suggest that consumers are increasingly aware of and prefer eco-friendly packaging solutions.
- Kozik (2020) discusses sustainable packaging as an approach integrating environmental, economic, and social considerations to minimize ecological impact while maintaining functionality. Research highlights consumer awareness, corporate responsibility, and regulatory frameworks as key drivers. Innovations in biodegradable materials, recycling, and eco-friendly designs enhance adoption, aligning with circular economy principles for long-term sustainability.

3. Methodology

This study follows a quantitative research approach, utilizing a Google Forms-based questionnaire to assess consumer awareness and adoption of eco-friendly packaging solutions and questionnaire-based survey to assess consumer awareness and adoption of eco-friendly packaging solutions. It provides insights into how much people know about sustainable packing, it's usage and access to services.

Research Design Data Collection Method

- A structured questionnaire is created in Google Forms and distributed through online channels such as: Social media platforms (Facebook, Whatsapp, Instagram) Email campaigns

- The questionnaire was self-administered, allowing respondents to complete it at their convenience.

Questionnaire Design in Google Forms

The questions were asked based on the 4 segments as given below

- Demographics (Age, Gender, Income Level, Location)
- Awareness of Eco-Friendly Packaging (Knowledge, Sources of Information)
- Attitudes and Preferences (Willingness to pay more, environmental concerns, perception of sustainable packaging)
- Adoption Behaviour (Past purchases, frequency of choosing sustainable packaging, factors influencing decisions)
- The questionnaire comprised of Likert scale and open ended.

Sampling Technique

- Target Population: Consumers aged 18 and above, across different demographic backgrounds.
- Sample Size: 70 respondents
- Sampling Method: stratified random sampling, as the Google Form was shared online with voluntary participants.

Data Analysis Techniques

The data has been analysed using descriptive analytical technique using graphical and tabular representation.

4. Results and Findings

This research presents the findings of the study based on the responses collected through the Google Forms questionnaire. The results are analysed to understand consumer awareness, attitudes, and adoption behaviour toward eco-friendly packaging solutions. The results indicate the level of consumer awareness regarding eco-friendly packaging solutions.

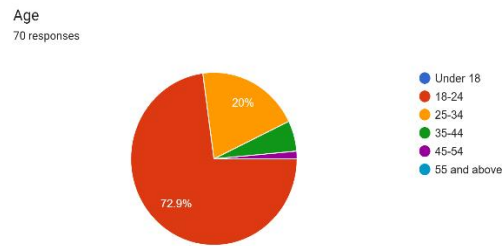


Figure 1- Age of the respondents

Following is the pie chart that tells the gender of the respondents, major of the respondents are male and moderate number of respondents are females.

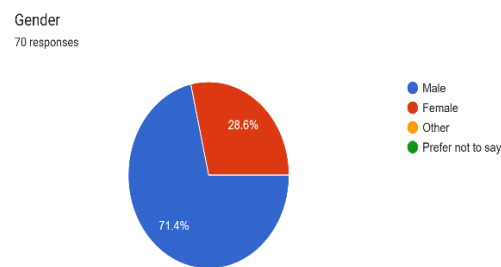


Figure 2- Gender of the respondents

The study collected responses from 70 participants across various geographic locations. The location distribution of respondents was analysed to understand regional variations in consumer awareness and adoption of eco-friendly packaging

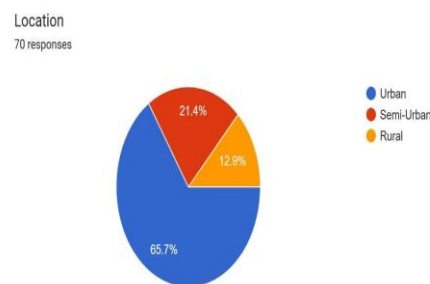


Figure 3- Location of Respondents

The analysis of annual household income distribution among the 70 respondents reveals significant insights into purchasing behavior related to eco-friendly packaging. The majority of respondents fall within the ₹3,00,000 - ₹5,99,999 income range, indicating that a considerable portion of the surveyed population belongs to the lower-middle-income group. Meanwhile, 28.6% of respondents earn less than ₹3,00,000 annually, suggesting that affordability could be a major factor influencing their purchasing decisions.

On the other hand, 21.4% of respondents have an annual income above ₹10,00,000, representing a higher-income segment that is more likely to afford and adopt sustainable packaging solutions. The remaining 18.6% fall within the ₹6,00,000 - ₹9,99,999 range, positioning them in a middle-income category with varying preferences based on their disposable income.

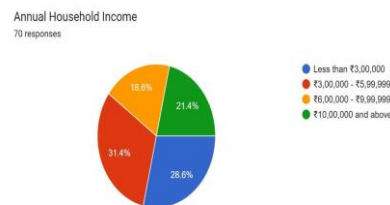


Figure 4- Annual household Income of Respondents

The analysis of respondents' familiarity with sustainability and packaging alternatives provides valuable insights into their awareness and understanding of eco-friendly options. A significant portion of the respondents demonstrate a basic awareness of sustainability concepts, largely influenced by media exposure, educational initiatives, and brand marketing. However, the depth of knowledge varies, with some individuals having a comprehensive understanding of sustainable packaging materials, while others possess only a general awareness without detailed knowledge of specific alternatives

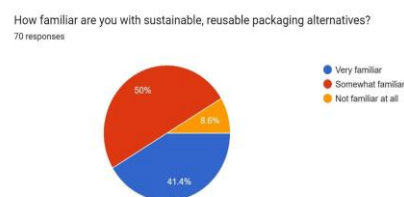


Figure 5- Knowledge of Respondents about sustainable products

The responses regarding the first point of exposure to sustainable packaging indicate that awareness is primarily driven by a combination of digital media, brand initiatives, and educational sources. A significant number of respondents reported learning about sustainable packaging through social media platforms, In-store display, Word of mouth, Online advertisements, Others, where brands and environmental organizations frequently promote eco-friendly practices. This suggests that digital outreach plays a crucial role in shaping consumer perceptions and introducing sustainability concepts.

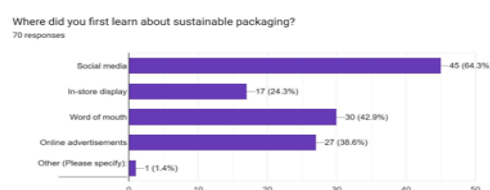


Figure 6-Chart talks about the knowledge of respondents in Sustainable packaging

This chart talks about the respondent's willingness to pay about the pricing for the alternative that they might get against traditional plastic packaging and carry bags that are harmful to nature.

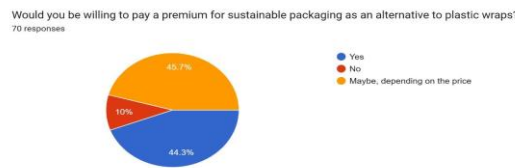


Figure 7- Chart telling willingness of respondents to pay for Sustainable packaging

The willingness to pay a premium for sustainable packaging over traditional plastic wraps varies among respondents based on 5 different pricing values. The survey results indicate that most respondents are open to paying a small premium, typically in the range of 11-20, also moderate are ok to pay 21-50 and remaining are ready to pay more than 50 for eco-friendly packaging options. This suggests that while there is a positive inclination toward sustainability, cost remains a significant consideration in purchasing decisions

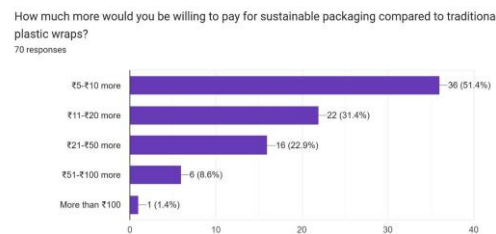


Figure 8- Willingness of respondents to pay for Sustainable packaging

This survey results on purchasing behaviour for food packaging products such as wraps and cling film indicate that consumers primarily buy these items from supermarkets and grocery stores, which remain the most common and convenient sources. Large retail chains and local grocery stores are preferred due to their wide availability, competitive pricing, and accessibility. Many consumers tend to purchase food packaging products as part of their regular grocery shopping rather than as standalone items.

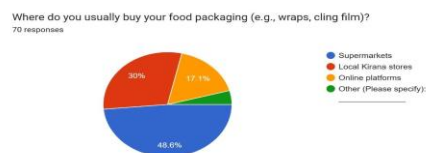


Figure 9- Chart talks about respondents where they buy sustainable packaging

The responses regarding the importance of using sustainable products, such as eco-friendly packaging, in daily life indicate a growing awareness and preference for environmentally responsible choices. A significant portion of respondents consider sustainability to be moderately to highly important, reflecting a positive shift toward

eco-conscious consumption. Many consumers recognize the long-term benefits of reducing plastic waste and minimizing environmental impact, which influences their purchasing decisions.

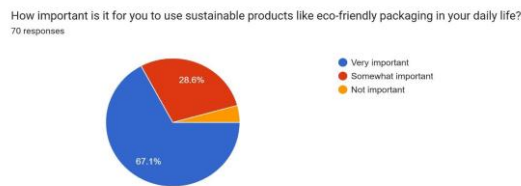


Figure10- Importance of Sustainable packaging

The responses regarding factors that would encourage consumers to use sustainable packaging more often highlight several key drivers that influence purchasing decisions. Cost affordability emerged as one of the most significant factors, with many respondents indicating that they would be more likely to choose eco-friendly packaging if it were priced competitively with traditional alternatives. Consumers are generally willing to make sustainable choices but may hesitate if the price difference is too high.

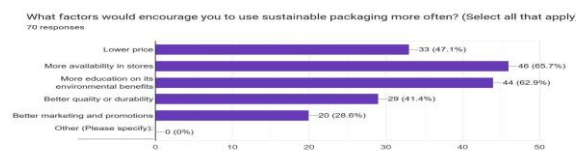


Figure 11-Chart talks about factors encouraging respondents to use sustainable packaging

5 Discussion

The study's conclusions offer important new information about customer awareness, willingness, and obstacles to using sustainable packaging. Although there is a clear trend toward environmentally friendly packaging, factors including pricing, accessibility, awareness, and customer perception affect how widely it is used.

The respondents' income distribution is a significant factor in the adoption of sustainable packaging. 31.4% of respondents, according to the poll, make between ₹3,00,000 and ₹5,99,999, followed by 28.6% who make less than ₹3,00,000 and just 21.4% who make more than ₹10,000,000. It would appear from this that a sizable percentage of consumers are middle-class or lower-class, which has a direct effect on their desire to spend money on environmentally friendly products. Cost is a major obstacle since lower-income people place a higher priority on affordability, whereas better-income persons may be more willing to spend more for sustainability. Respondents' levels of familiarity with sustainable packaging varied; many acknowledged its significance but lacked in-depth understanding of certain solutions. According to reports, the main ways that consumers first encountered eco-friendly packaging were through social media, brand marketing, and product labelling. This

suggests that digital platforms have a significant role in influencing consumer attitudes. According to consumer purchasing patterns, supermarkets and general stores were the most popular places to buy food packaging materials including cling film and wraps. However, because they provide a greater range of environmentally friendly solutions, online platforms are quickly taking the lead. The growth of e-commerce for eco-friendly packaging items reflects a change in consumer behaviour, where convenience and selection are important considerations.

The study shows that consumer perceptions of sustainable packaging have improved, but infrastructure and financial constraints continue to impede practical adoption. Businesses should concentrate on competitive pricing tactics to make sustainable choices more accessible to promote broader acceptance. Increasing availability in well-known retail establishments and online will help make it more accessible. In the meanwhile, government policies and incentives may motivate companies and customers to switch to more environmentally friendly options. Overall, the results indicate that although people are becoming more conscious of sustainable packaging, corporations, legislators, and environmental groups still need to take proactive steps to close the gap between intention and action. Long-term changes in consumer behaviour and the effect of laws on the uptake of environmentally friendly packaging options may be the subject of future studies.

6 Conclusion

Consumer awareness, willingness, and obstacles to implementing eco-friendly packaging alternatives were investigated in this study. According to the findings, although people are becoming more conscious of sustainability and its significance, there are still several obstacles standing in the way of the widespread use of sustainable packaging, including increased prices, restricted supply, and inadequate waste treatment facilities. Most respondents said they would be willing to pay a moderate premium for sustainable packaging, especially those who have more money to spend and are very concerned about the environment. Affordable prices are essential for broad adoption since many consumers, particularly those in lower income brackets, are still price sensitive. Food packaging is still most frequently purchased from supermarkets and grocery stores, but online marketplaces are becoming more popular since they provide a wider range of environmentally responsible options.

Consumer awareness is rising, according to this study's main findings, which are mostly attributable to digital media, product labelling, and business sustainability programs. Social media platforms, ads, and product branding were the primary sources of information for many respondents regarding sustainable packaging, highlighting the effectiveness of digital outreach in encouraging environmentally conscious behaviour. Knowledge gaps still exist, though, because some customers are dubious about how these options will affect

the environment. Trust and adoption could be increased by addressing these issues through consumer education campaigns, certification schemes, and plain labelling.

Major obstacles to India's adoption of sustainable packaging are also identified by the report. The main challenges continue to be higher prices, restricted supply, ignorance, and poor waste management infrastructure. Many consumers believe that the environmental benefits of packaging made of recyclable or biodegradable materials are diminished by inefficient trash segregation and recycling processes. This implies that to enhance the efficiency of sustainable packaging solutions, systemic changes in waste management and recycling facilities are required, in addition to individual consumer choices.

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