RESEARCH ARTICLE

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# Examining the Influence of Eco-Friendly Packaging on Consumer Perceptions

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## Abstract

The rising environmental challenges have spurred interest in eco-friendly product packaging, with many brands now prioritizing sustainable options. This study explores how eco-friendly packaging shapes consumer perceptions, focusing on the drivers of purchasing decisions and the role of marketing strategies. A demographic analysis highlights a strong interest from younger consumers, with a slight male majority and varied employment statuses. Using a cross-sectional research design and convenience sampling, data was collected from respondents in Kerala, a densely populated state in South India. Statistical methods, including Proportionate Analysis and Exploratory Factor Analysis (EFA) via SPSS, identified two key factors: perception and influence of eco-friendly packaging, and trust and practicality of eco-friendly packaging. This research aims to advance the understanding of consumer interest in eco-friendly packaging in the region.

**Keywords:** Environmental, Eco-friendly Packaging, Exploratory Factor Analysis, Consumer Perception.

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## Introduction

The global consumer landscape is undergoing a substantial change towards eco-friendly products and sustainable activities in the current era of heightened environmental consciousness. As the first point of interaction between customers and products in this trend, packaging is essential. Customers are paying closer attention to the product contents as well as the packaging & materials and environmental effects. Businesses are strategically responding to address environmental concerns and adapt to changing consumer preferences by implementing eco-friendly packaging. This paradigm shift is a fundamental re-evaluation of packaging strategies with the goal of decreasing ecological footprints and promoting sustainable consumption patterns, not just a passing trend. Nonetheless, there is still much to learn about this dynamic and multidimensional topic of consumer attitudes and behaviour related to eco-friendly packaging, which calls for careful research. Investigating the complex relationship between environmentally conscious packaging and consumer perceptions—which include perceived value, product attractiveness, environmental awareness, and purchase intentions—is the aim of this study. We hope to offer insightful information on the processes by which environmentally friendly packaging influences customer attitudes and behaviours by thoroughly analysing these variables. Businesses looking to have a competitive edge in marketplaces focused on sustainability and build enduring brand loyalty must comprehend how customers perceive and react to eco-friendly packaging initiatives.

According to studies, consumer perception of eco-friendly packaging plays a crucial role in shaping purchasing decisions and driving the adoption of sustainable practices (Kaur & Siddhey, 2024; Rani et al., 2024)

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By means of a methodical examination of extant literature, empirical investigations, and consumer questionnaires, this study aims to provide nuanced viewpoints regarding the impact of environmentally friendly packaging on customer attitudes. Our goal is to provide businesses with useful information so they can create packaging strategies that appeal to consumers who care about the environment by illuminating the underlying mechanisms and factors that shape this relationship. Essentially, the goal of this research project is to advance consumer-centric and sustainable packaging practices in the global marketplace by deciphering the nuances of environmentally friendly packaging and how they affect consumer perceptions. This will also help advance academic scholarship and practical business applications.

## Statement Of The Problem

This study aims to look at how consumers perceive environmentally friendly packaging. It looks deeply into the relationship between eco-friendly packaging, customer attitudes, and marketing tactics in order to shed light on this intricate relationship. The goal is to gain further knowledge about how companies can use environmentally friendly packaging to improve consumer attitudes and promote sustainable consumption habits.

## Purpose Of The Study

The purpose of this study is to explore the ways in which consumers' attitudes, behaviours, and perceptions of products are impacted by the use of environmentally friendly packaging. This study intends to shed light on the possible advantages and difficulties of using sustainable packaging techniques in the marketplace by examining how eco-friendly packaging affects consumer views.

### OBJECTIVES

- To analyze the factors that influence consumer perceptions of eco-friendly packaging.
- To examine the role of marketing strategies in shaping consumer perceptions of eco-friendly packaging.

## Literature Review

Magnier and Schoormans (2017) examined how packaging material, color, and environmental claims influence consumer evaluations of packaging, brands, and products. They found that packaging material significantly influences consumer perception, with environmental claims being more credible when the packaging includes eco-friendly materials. This underscores the importance of considering these factors in packaging design to affect consumer choices and brand perception effectively.

Esmaeilpour and Rajabi (n.d.) explored the link between consumers' environmental attitudes and their perception of packaging usability. Their study revealed that eco-conscious consumers highly value recyclable packaging. It also highlighted that packaging design elements such as form, color, and material significantly influence perceptions of reusability, suggesting that companies should integrate both environmental and usability considerations in packaging design.

Herbes, Beuthner, and Ramme (2018) conducted a cross-cultural study to understand consumer attitudes towards biobased packaging. They found that consumers prioritize end-of-life characteristics like recyclability and biodegradability over renewable origins. Additionally, they noted discrepancies between consumer perceptions and life cycle assessment (LCA) studies, indicating the need for better consumer education and communication regarding eco-friendly packaging attributes.

Hyder and Amir (2023) investigated the impact of green packaging on consumer behavior, emphasizing the mediating role of attitude. Their findings suggest that eco-labeling, premium pricing, environmental awareness, and perception of green packaging significantly influence consumer purchasing decisions. Companies adopting green packaging strategies can gain a competitive edge and improve their reputation.

Nguyen et al. (2020) defined eco-friendly packaging from a consumer perspective, focusing on Vietnamese consumers. They found that, besides recyclability and biodegradability, consumers value packaging that maintains price and visual appeal. The study highlighted a knowledge gap regarding sustainable production processes, suggesting an opportunity for businesses to educate consumers.

Ecevit (2023) examined how sustainable packaging affects quality perception and purchasing intention, considering the moderating effects of environmental and health awareness. His study in Turkey revealed that consumer awareness levels significantly influence the perceived quality and purchasing intention of products with sustainable packaging.

Koch et al. (2022) investigated consumer motives in selecting eco-friendly packaging in online retail, using

a goal-framing technique. They discovered that social obligation and personal gain drive the preference for sustainable packaging, while hedonic motives are less influential. This research provides insights into sustainable consumer behavior in online shopping.

Wang and Huang (n.d.) explored the effects of reusability and green design on consumer satisfaction. They found that reusability positively impacts consumer happiness, and green design features enhance this effect. This indicates that consumers value packaging that combines eco-friendly design with practicality and style. Steenis et al. (n.d.) examined the impact of sustainable design strategies on consumer preferences for redesigned packaging.

### Research Methodology

### Research Design

A cross-sectional design was used in this study with the help of a structured questionnaire. Convenience sampling is used to select the respondents from across the State of Kerala, India.

### Population of the Study

The target group consists of people from different regions across Kerala. The data was collected from 189 respondents through a structured questionnaire.

### Data Collection

The study used both primary and secondary data. Data was collected through an adopted questionnaire. Data collection was done through Google Forms. The first part of the questionnaire consists of demographic information and a general survey on consumers' perspectives towards eco-friendly products. The second part consists of questions related to the on factors that influence consumer perceptions of eco-friendly products among the customers. A 5-point LIKERT scale was used.

### Statistical Tools and Techniques Used for Analysis

The statistical test done includes proportionate analysis using Excel and exploratory factor analysis using IBM SPSS v23.

## Results And Discussion

### Demographic Characteristics And General Survey On Eco-Friendly Products

The research collected data on the demographics and general customer's views on eco-friendly products in the region. Table 1 shows the summary of the demographic characteristics.

The demographic analysis of respondents in the study on environmentally friendly packaging revealed that the majority were aged between 18 and 24 years (27.5%), followed by those aged 25 to 34 years (26.5%). Respondents aged 35 to 44 years constituted 21.2%, while those aged above 44 years made up 24.3% of the sample. Gender distribution showed that 57.1% of participants were male, 30.7% were female, and 12.2% identified as other genders. Regarding employment status, 38.1% of respondents were employed, 23.8% were students, 22.8% were self-employed, and 15.3% were unemployed.

The survey results in Table 2 indicate that a significant portion of respondents prioritize eco-friendly packaging when making purchases, with 65.6% reporting frequent purchases of such products (36.5% "often" and 29.1% "always"). Additionally, 23.3% of respondents purchase products with eco-friendly packaging "sometimes," while only 11.1% rarely consider eco-friendly packaging in their buying decisions.

The decision to purchase products with eco-friendly packaging is primarily influenced by two factors: environmental impact (31.2%) and concern about pet health (30.2%) as per the summary of Table 3. This indicates that a significant portion of consumers prioritize reducing their environmental footprint and are worried about the potential hazards of traditional packaging materials for pets. Other factors include brand reputation for sustainability (18.9%), product price

**Table 1:** Demographic characteristic

| *Age Group* | *n* | *%* |
|---|---|---|
| 18-24 yrs | 52 | 27.5 |
| 25-34 yrs | 50 | 26.5 |
| 35-44 yrs | 40 | 21.2 |
| Above 44 yrs | 46 | 24.3 |
| Gender | | |
| Male | 58 | 30.7 |
| Female | 108 | 57.1 |
| Prefer not to say | 23 | 12.2 |
| Occupation | | |
| Unemployed | 29 | 15.3 |
| Self Employed | 45 | 23.8 |
| Salaried | 72 | 38.1 |
| Student | 43 | 22.8 |

Note: Sample size, n= 189

**Table 2 :** How often do you purchase products with eco-friendly packaging?

| *Frequency* | *n* | *%* |
|---|---|---|
| Always | 55 | 29.1 |
| Often | 69 | 36.5 |
| Sometimes | 44 | 23.2 |
| Rarely | 21 | 11.1 |

**Table 3 :** What factors influence your decision to purchase products with eco-friendly packaging?

| *Factors* | *n* | *%* |
|---|---|---|
| Environmental impact | 59 | 31.2 |
| Personal health concerns | 57 | 30.2 |
| Brand reputation for sustainability | 34 | 18 |
| Convenience | 19 | 10.1 |

**Table 4:** How much are you willing to pay extra for a product with eco-friendly packaging compared to a similar product without eco-friendly packaging

| *Ready to pay* | *n* | *%* |
|---|---|---|
| No extra amount | 91 | 48.1 |
| Up to 5% extra | 54 | 28.6 |
| 5-10% extra | 21 | 11 |
| 10-20 % extra | 14 | 7.3 |
| More than 20% extra | 9 | 5 |

**Table 5:** KMO and Bartlett's Test Summary

| | | |
|---|---|---|
| *Kaiser-Meyer-Olkin Measure of Sampling Adequacy* | | *0.903* |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1479.554 |
| | df | 136 |
| | Sig | <.05 |

(10.1%), and convenience (9.6%), although these are less influential in comparison.

The survey results show in Table 4 hint that the largest segment of respondents (48.1%) are not willing to pay extra for eco-friendly packaging. In contrast, 28.6% are willing to pay up to 5% more, while 18.9% are willing to pay 10-20% extra. Only a small segment (4.4%) is willing to pay more than 20% extra for eco-friendly packaging.

## Exploratory Factor Analysis

Factors influencing the consumer perception of eco-friendly products among consumers.

Table 5 shows the summary of the KMO and Bartlet's test which was significant according to previous literature (Li et al., 2020). The Principal Component Analysis with Varimax Rotation Method identified these components based on the rotated component matrix. The summary of the EFA in Table 6 shows two components generated with eigenvalues of 7.815 and 1.429 respectively. The total variance for each component was 46.878 and 8.525 respectively.

### *Component*

Perception and Influence of Eco-friendly Packaging

This component, with an eigenvalue of 7.815 and accounting for 46.878% of the total variance, comprises several key factors. The statements loading highly on this component include perceptions of eco-friendly packaging effectiveness (0.748), the influence of clear eco-friendly labels on purchase decisions (0.714), the belief that biodegradable packaging is a better environmental choice (0.711), the importance of clear recycling instructions (0.662), skepticism towards celebrity endorsements (0.621), willingness to pay a premium (0.594), and the influence of social media endorsements (0.577). These factors collectively suggest that consumers are influenced by clear, credible information and practical considerations regarding eco-friendly packaging. Consumer sentiments towards eco-friendly packaging have been found to be favorable, with Indian consumers showing a strong inclination towards purchasing products with sustainable packaging alternatives (Kaur & Siddhey, 2024).

### *Component*

Trust and Practicality of Eco-friendly Packaging

Table 6 highlights the summary of the rotated matrix components related to exploratory factor analysis of the various factors influencing the perception of consumers. This component, with an eigenvalue of 1.429 and accounting for 8.525% of the total variance, includes factors related to the trustworthiness and practical aspects of eco-friendly packaging. High-loading statements include the importance of easy-to-open and re-closable packaging (0.785), trust in companies using eco-friendly packaging (0.785), preference for recycled materials (0.752), concern over potentially misleading eco-friendly claims (0.697), and the consideration of eco-friendly packaging in purchase decisions (0.478). This component highlights that trust and practical usability

**Table 6 :** Rotated Component Matrix, Eigen Values, and Total Variance Percentage for Components obtained by Principal Component Analysis with Varimax Rotation Method

| *Statements* | *Component* | |
|---|---|---|
| | *1* | *2* |
| Eco-friendly packaging is often less effective at protecting products. | 0.748 | |
| Seeing clear labels explaining the eco-friendliness of packaging influences my purchase decision. | 0.714 | |
| Products with biodegradable packaging are a better environmental choice. | 0.711 | |
| Clear instructions on how to recycle or dispose of eco-friendly packaging are important. | 0.662 | |
| Celebrity endorsements for eco-friendly packaging can be misleading. | 0.621 | |
| I am willing to pay a small premium for products with eco-friendly packaging. | 0.594 | |
| Social media influencers promoting eco-friendly packaging can be convincing. | 0.577 | |
| Eco-friendly packaging should be easy to open and reclose. | | 0.785 |
| I trust companies that use eco-friendly packaging more than those that don't. | | 0.785 |
| I prefer packaging made from recycled materials. | | 0.752 |
| I'm concerned that some "eco-friendly" packaging might be misleading. | | 0.697 |
| I consider eco-friendly packaging when making purchasing decisions. | | 0.478 |
| Eigenvalues | 7.815 | 1.429 |
| Percentage of total variance | 46.878 | 8.525 |

Note: Factor loadings less than 0.433 were omitted from the table.

are significant factors in consumer decisions regarding eco-friendly packaging.

Consumer trust positively affects attitudes towards the purchase of convenience food with eco-friendly attributes (Ricci et al., 2018). Consumers need guidance in recognizing environmentally friendly packaging, lack knowledge about new packaging materials, and prioritize product attributes like price and quality over environmentally friendly packaging (Ketelsen et al., 2020).

In summary, the factor analysis reveals that consumers' purchase decisions regarding eco-friendly products are influenced by two main components: the perception and influence of eco-friendly packaging, and the trust and practicality associated with it. These insights can guide companies in improving their packaging strategies to better meet consumer expectations and enhance their market positioning.

## Conclusion

In conclusion, this study highlights that eco-friendly packaging has a notable influence on consumer perceptions, primarily driven by environmental impact and pet health considerations. Consumers, especially young adults, strongly prefer eco-friendly packaging, yet the willingness to pay a premium remains limited. Two main factors—perception and influence of eco-friendly packaging, and trust and practicality—shape consumer attitudes significantly. Consumers value transparency, clear eco-labels, and practical features in eco-friendly packaging, but they are cautious about misleading claims. These insights underscore the importance of credible marketing strategies and practical product design to enhance consumer adoption of sustainable packaging effectively.

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