

A Study on Consumer Perception Towards Green Products

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Abstract:

Purpose: To explore consumer perceptions of green products and the factors influencing their purchasing decisions in an eco-conscious market.

Theoretical framework: The theoretical framework centers on consumer perceptions of green products, emphasizing eco-conscious behavior and preferences for sustainable, environmentally friendly items.

Design/methodology/approach: The study employed a structured questionnaire for data collection, utilizing a random administration approach to gather responses from participants.

Findings: The findings highlight a consumer shift towards green products driven by environmental consciousness, safety, and demand for sustainability.

Research, Practical & Social implications: Research implications include understanding consumer perceptions of green products. Practically, businesses can respond to demand for eco-friendly items. Socially, it promotes sustainability awareness.

Originality/value: Originality lies in exploring consumer perceptions of green products, understanding factors influencing purchase decisions amid growing demand for sustainability.

Keywords: *Environmental consciousness, Green products, Business Management, Consumer behavior, Sustainability, Waste Reduction.*

1. Introduction

In response to a heightened global environmental consciousness, consumers are now more discerning about the safety and ecological impact of personal care items and products with environmental benefits. This shift in consumer behavior towards "green" products has been particularly pronounced in recent years, as individuals increasingly prioritize sustainability. Green products, characterized by their dual objectives of waste reduction and resource efficiency maximization, are designed to minimize environmental impacts throughout their entire life cycle, extending beyond their period of use Patil and Hasalkar (2021), Dixit et al. (2022). This study delves into the perception of consumers regarding green products, aiming to identify the factors that significantly influence their purchasing decisions. Recognizing the crucial role of consumer perception in shaping decision-making processes and buying behaviors, the study underscores the growing need for environmentally friendly products and processes to sustain a green planet. Modern consumers, seeking personalized and health-conscious goods, are placing a premium on green and eco-friendly alternatives. The appeal of such products lies in their reduced toxicity, enhanced safety, biodegradability, and recyclability. Aligning with eco-friendly principles, individuals increasingly adopt the ethos of Reduce, Reuse, and Recycle (RRR). The study, conducted through a structured questionnaire, offers valuable insights into consumer attitudes, shedding light on the dynamic interplay between environmental consciousness and purchasing choices in the contemporary marketplace.

2. Literature Review

Green products, defined as those causing no harm to the environment in production, use, or disposal, contribute to a less polluted environment. Crafted from either eco-friendly materials or recycled resources, they aid in energy conservation, reduce carbon footprints, and maintain low toxicity levels. The emergence of the terms "Green Products" and "Green Marketing" gained traction in the early 1990s in central Europe, responding to environmental concerns Lavuri and D (2020). In India, although green products are available, awareness remains limited. Manufacturers prioritize minimal environmental impact in production, addressing issues such as air and water pollution and reducing the use of natural resources and toxic substances Mokha (2017). Indian consumers, deeply conscious of environmental concerns, prioritize products that inflict minimal harm to nature due to their belief in the sanctity of nature and growing environmental issues. Perception stands out as a primary psychological determinant shaping individuals' decisions when it comes to making purchases, as highlighted by Hiam et. al Almohammadi and Abdulghaffar (2023). The concept is elucidated as the cognitive process involving the identification and understanding of stimuli emanating from the environment, facilitated through human senses such as vision, hearing, taste, smell, and touch, as defined by Ariffin et. al Ariffin et al. (2016). Nevertheless, Hiam et. al Almohammadi and Abdulghaffar (2023) posit that the reception and interpretation of environmental stimuli vary among individuals, owing to the inherent subjectivity embedded in each person's perception. In essence, the diverse ways in which each person receives and comprehends external stimuli contribute to the subjective nature of perception. Consumer decisions are significantly swayed by their perceptions, leading them to choose organizations that provide the highest perceived value. Essentially, those capable of delivering superior product or service experiences garner the most success. Consequently, organizations strive to shape consumer perceptions through tactics such as enhancing their image and fostering enduring relationships Arli et al. (2018). Given the subjective nature of perception, individual criteria, including reputation and quality, are influenced by factors like age, income, education level, lifestyle, personality traits, and knowledge about the product, service, and the organization itself, as outlined by Hiam et. al Almohammadi and Abdulghaffar (2023). This emphasizes the importance of organizations tailoring their strategies to diverse consumer profiles.

A study in Dondapati (2019) sought to analyze the correlation between environmental attitudes and attitudes towards green products. Findings from the independent sample t-test indicated no significant gender-based differences in environmental attitudes or attitudes towards green products. Multiple linear regression analysis revealed that consumer attitudes toward the government's role and their personal norms concerning the environment significantly influenced their attitudes towards green products.

Notably, personal norms emerged as the primary contributor to attitudes towards green products, whereas environmental protection did not significantly impact consumer attitudes in this context Mahapatra (2013).

A study in Kong et al. (2014) aimed to investigate how consumer perceptions of green products impact their intention to make green purchases. The study defined the perception of green products as a multidimensional variable encompassing aspects like green corporate perception, eco-label, green advertising, green packaging, and green product value. Utilizing a survey, the research collected 159 responses from individuals aged 18 and above in Sabah. Results indicated that eco-label and green product value played a significant role in influencing consumers' intention to purchase green products. However, both green advertising and green packaging did not have a notable impact on consumer intentions to buy environmentally friendly products Kong et al. (2014).

A study in Mahapatra (2013) aimed to discern the factors influencing environmentally conscious behavior regarding green products. The study's findings contributed to a better understanding of consumers' environmentally conscious behavior, offering insights essential for developing effective environmental policies that support and encourage green purchases. Additionally, the research provided valuable information for companies seeking to profile green consumers in India. This profiling knowledge can be utilized to craft messages that resonate functionally and emotionally with the target audience, aiding companies in developing strategies that appeal to environmentally conscious customers effectively Mahapatra (2013).

Lavanya et. al P (2023) research aimed to comprehend consumer perceptions of green products and marketing strategies. It emphasized the significance of environmental concerns for various stakeholders, including

consumers, marketers, and the government. The study revealed that customers exhibit a positive attitude towards environmentally friendly products, with an increased willingness to purchase items with minimal environmental impact. Additionally, in Slab'a (2020) quantitative research highlighted a shift in consumer preferences from traditional to eco-friendly products, driven by heightened awareness. The study emphasized the necessity for proactive promotion of green products to enhance consumer awareness and acceptance, identifying the current challenges as a lack of awareness, insufficient promotion, and inadequate regulations Rajagopalan (2016).

3. Research Methodology

Indian consumers are increasingly mindful of the advantages associated with environmentally friendly and sustainable practices, driven by growing concerns about environmental issues in their daily lives Karigar (line). These consumers actively seek products that incorporate environmentally safe raw materials. The primary determinant influencing their purchasing decisions revolves around environmental considerations as a key product attribute. To comprehensively grasp the factors impacting eco-conscious purchases, consumers were surveyed regarding their purchase intentions and perceptions of environmental sustainability. Using a structured questionnaire administered through convenience sampling, 94 responses were collected. This survey aimed to analyze consumer perceptions of green products, emphasizing the interconnection between a green environment and consumption for a healthier lifestyle. The study underscores the responsibility of companies to produce environmentally compatible products, aligning with consumer expectations of a corporate culture prioritizing environmental protection over profit maximization.

Hypothesis

The following hypothesis are analysed for the research.

- Hypothesis 1: Analysis to find out if there is any significant difference between monthly income of consumers and the perceived quality of green products.
 - Null Hypothesis, H_0 : There is no significant difference in consumer's perceived quality of green products and monthly income of consumers.
 - Alternate Hypothesis, H_a : There is a significant difference in consumer perceived quality of green products and monthly income of consumers
- Hypothesis 2: To find out whether there is any significant difference between different age groups and consumer perceived harmful effects about green products.
 - Null Hypothesis, H_0 : There is no significant difference in consumer perceived harmful effects about green products with respect to age groups.
 - Alternate Hypothesis, H_a : There is a significant difference in consumer perceived harmful effects about green products with respect to age groups.
- Hypothesis 3: To find out whether there is a significant difference between the gender and the consumer perceived packaging of green products.
 - Null Hypothesis, H_0 : There is no significant difference between male and female consumers in terms of the consumer perceived packaging of green products.
 - Alternate Hypothesis, H_a : There is a significant difference between male and female consumers in terms of the consumer perceived packaging of green products.
- Hypothesis 4: Analysis to find out whether there is any significant difference between the occupation of the consumers and consumer perceived pricing of the green products.
 - Null Hypothesis, H_0 : There is no significant difference between occupation of the consumers and consumer perceived pricing of the green products.
 - Alternate Hypothesis, H_a : There is a significant difference between occupation of the consumers and consumer perceived pricing of the green products.

Sources of Data

Primary data: The research is based on primary data collected in the form of questionnaires, where the respondents were randomly selected and asked to fill the questionnaire.

Sampling Details

- Sampling Data: The primary data was collected in the form of questionnaire, where the people were asked to fill out the questionnaire irrespective of whether they used green product or not without any age or gender bias (ILIPL).
- Sampling method: A representative sample is a subset of the population, providing insights for the entire population based on the perspective of this selected subset. In this study, a convenience sampling strategy was employed for non-probability sampling, chosen for its simplicity and affordability.
- Sample size: A total of 94 people were chosen at random for this research.

Statistical tools used for analysis of data

Data analysis relies on the study's objectives and the characteristics of collected variables. The gathered data underwent analysis employing both descriptive statistics, including frequency and percentage, and inferential statistics, such as Analysis of variance (ANOVA) tests, to assess mean differences. The technique used for analysis are the following:

ANOVA: It is a statistical tool that dissects the observed variability within a dataset into systematic factors, which impact the data statistically, and random factors, which do not. It enables simultaneous comparison of more than two groups to assess relationships. The F statistic, derived from the ANOVA formula, analyzes variability between and within multiple data samples. ANOVA extends the concepts of t- and z-tests and is often referred to as Fisher analysis of variance.

Garrett Ranking Technique This method was employed to assess respondent preferences on various factors. Participants assigned ranks to these factors, and the resulting rankings were transformed into scores using the following formula.

$$\text{Percent Position} = \frac{100(R_{ij}-0.5)}{N_j} \quad (1)$$

where, R_{ij} is the Rank given for the i th variable by the j th respondents and N_j defines the number of variables ranked by the j th respondents. Utilizing the Garrett Table, the percent positions were converted into scores, and the mean value determined the most important factor.

Data Analysis and Interpretation

Percentage Analysis

The statistical analysis is done for various attributes that are collected. Figure 1 gives the analysis based on gender, age, employment and income. Further, analysis on the green products based on Usage before, product satisfaction, environment harmness and quality is illustrated in Figure 2. Also, about the green products, whether they are priced reasonable, packaged properly and the willingness to pay more analysis is done in Figure 3.

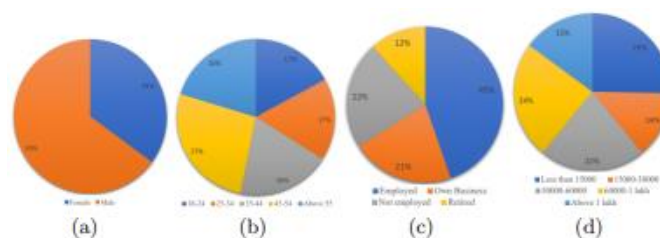


Fig 1. Analysis on (a) Gender (b) Age (c) Occupation (d) Income

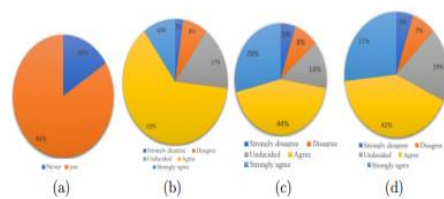


Fig 2. Are Green Products (a) Used Before (b) Satisfied (c) Harmless to environment (d) Quality Good.

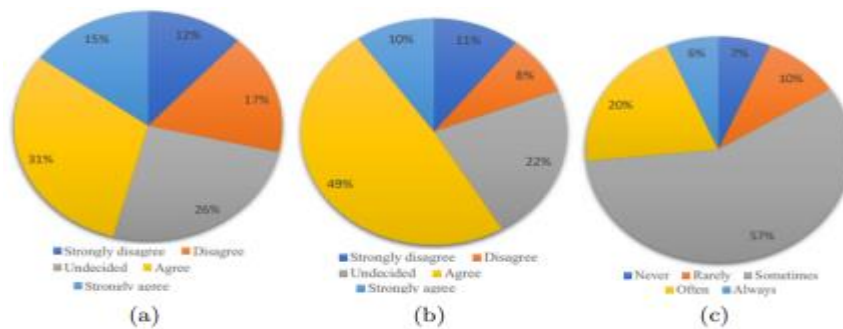


Fig 3. Are Green Products (a) Priced reasonable (b) Packaged Properly (c) Ready to Pay more.

Garret Ranking Technique

Garret ranking technique was used to find out the ranks from 1 to 6 to identify the attributes for reasons to purchase Green Products. By using Garrett ranking technique, from Table 1 and Figure 4, it is found that 'Want to preserve earth' is the attribute which got 1st rank and liking green products is the attribute which got 2nd rank. From this we can understand that the most influencing attribute which makes the consumer buy green products is they want to preserve earth and they just like green products. Others judging if not buying a green product is not an important attribute for the consumer to purchase green products. Present the methodology used in the study, as well as the research techniques used.

Table 1 – The ranking of attributes for reasons to purchase green products from 1-6

Particulars	Total Score	Rank	Percentage(%)
Want to preserve earth	4512	1	18.95
Like Green Products	4285	2	18.00
Good Image	4044	3	16.99
Reduces waste that is	3783	4	15.85
Trendy / Fashionable	3627	5	15.23
Others would Judge	3550	6	14.91

Source: Prepared by the authors (2023)

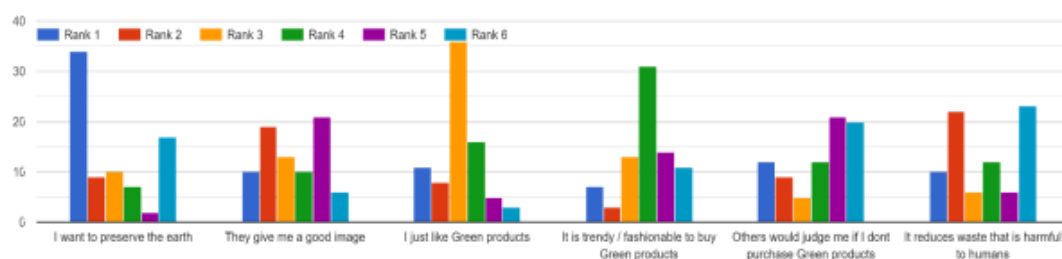


Fig 4. Garret ranking for various attributes

Anova Test

Hypothesis 1: From Tables 2 and 3, the P value = 0.7447, which is greater than Significance value (0.05). So, we accept the Null hypothesis, Ho. It is concluded that there is no significant difference between consumer perceived quality of green products and monthly income of consumers.

Table 2 – Hypothesis 1-Variation in consumer perceived quality w.r.t the monthly income

Groups	Count	Sum	Average	Variance
Less than 15,000	22	79	3.5909	1.2056
15000-30000	12	46	3.8333	0.6969
30000-60000	19	74	3.8947	1.4327
60000-1 Lakh	21	75	3.5714	1.6571
Above 1 Lakh	13	52	4	1.1667

Source: Prepared by the authors (2023)

Table 3 – Anova Table for Hypothesis 1

Source of Variation	SS	Df	MS	f	P-value	F-crit
Between Groups	2.5196	4	0.6299	0.4877	0.7447	2.4830
Within Groups	105.92	82	1.2917			
Total	108.436	86				

Source: Prepared by the authors (2023)

Hypothesis 2: From Table 4 and Table 5, since the P value = 0.6010, which is greater than the Significance value (0.05). So we accept the null hypothesis Ho. It is concluded that there is no significant difference in consumer perceived harmful effects about green products with respect to age groups.

Table 4 – Hypothesis 1-Variation in consumer perceived quality w.r.t the monthly income

Groups	Count	Sum	Average	Variance
18-24	16	65	4.0625	0.3291
25-34	16	61	3.8125	0.8191
35-44	18	73	4.0556	0.7614
45-54	25	91	3.6400	1.7400
Above 55	19	69	3.6316	2.1345

Source: Prepared by the authors (2023)

Table 5 – Anova Table for Hypothesis 2

Source of Variation	SS	Df	MS	f	P-value	F-crit
Between Groups	2.5196	4	0.6299	0.4877	0.7447	2.4830
Within Groups	105.92	82	1.2917			
Total	108.436	86				

Source: Prepared by the authors (2023)

Hypothesis 3: From Tables 6 and 7, the P value = 0.6127, which is greater than the Significance (value 0.05). So we accept the Null hypothesis, H_0 . It is concluded there is no difference in terms of consumer perceived packaging of green products with respect to gender.

Table 6 – Hypothesis 3-variation in consumer perceived packaging w.r.t the gender.

Groups	Count	Sum	Average	Variance
Male	61	209	3.426	1.249
Female	33	109	3.303	1.280

Source: Prepared by the authors (2023)

Table 7 – Anova Table for Hypothesis 3

Source of Variation	SS	Df	MS	f	P-value	F-crit
Between Groups	0.325	1	0.325	0.258	0.6127	3.945
Within Groups	115.888	92	1.260			
Total	116.213	93				

Source: Prepared by the authors (2023)

Hypothesis 4: From Table 8 and Table 9, since the P value = 0.4878, is greater than the Significance value (0.05), we accept the Null hypothesis, H_0 . It is concluded that there is no significant difference between occupation and of the consumers and consumer perceived pricing of the green products.

Table 8 – Hypothesis 4-variation in consumer perceived pricing w.r.t occupation.

Groups	Count	Sum	Average	Variance
Employed	42	134	3.1904	1.3774
Own Business	20	69	3.4500	1.3131
Not employed	21	68	3.2380	1.2904
Retired	11	30	2.7272	3.0181

Table 9 – Anova Table for Hypothesis 4

Source of Variation	SS	Df	MS	f	P-value	F-crit
Between Groups	3.7420	3	1.2173	0.8169	0.4878	2.7058
Within Groups	137.418	90	1.5268			
Total	141.160	93				

Source: Prepared by the authors (2023)

4. Discussion

Out of the 94 responses received, males formed 65% of respondents of this study. People belonging to the age group 45-54 years covered a major part of the respondents. Mainly employed people (66%) responded to the questionnaire and they were the people who mostly enjoyed using green products. 84% of the respondents have used green products prior to the survey. 73.3% of the respondents were satisfied with the green products they had purchased.

People feel a sense of satisfaction using green products and are ready to pay extra price for the betterment of environment as green products are expensive than non-green products. 69% of them agreed that the products have good quality or performance. Understanding the quality of products, majority are ready to recommend green products their dear ones. Almost 70% were of the view that further more increase in availability of the green products in stores will help them switch to these products easily.

It is found that the attributes such as “want to preserve earth”, “like green products”, “good image” are ranked top three reasons to purchase green products. Hence it is evident that the companies can focus on these factors to popularize green products among people, i.e.; promotional activities and campaigns can centre on various ways to make green products more environmental friendly and acceptable to people.

Irrespective of the financial status of the consumers, they had great opinion regarding quality of green products. Consumers' perception of quality of green products did not vary with their monthly income. Across the age groups, consumers did not differ in their opinion of eco friendly and sustainable aspects of green products. This could also be the reason why age groups to which consumers belonged did not seem to affect their perception about harmful effects of on environment. Both, males and females, are quite similar in appreciating the packing designs and information on it. All people, whether employed or unemployed, accept the merits of using green products and hold a reasonable value for it. However, 29% of the respondents felt that the price of green products were on the higher side. Manufacturers and marketers of green products need to think of ways to reduce the price by leveraging the use of technology in manufacturing as well as use of cost-effective channels for marketing.

5. Conclusion

This research seeks to comprehend consumer perspectives on the quality, price, performance, and environmental aspects of green products, aiming to pinpoint the decisive factors influencing their purchasing decisions. The findings indicate that a majority of respondents express satisfaction with their green product purchases, driven by a desire to preserve the environment and capitalize on the perceived safety, health benefits, and superior quality of these products. Marketers are encouraged to incorporate these aspects into their promotional strategies to incentivize consumer adoption. While consumers prioritize green products, they may resort to non-green alternatives if the former are either unavailable or expensive. The establishment of offline stores and local availability could boost green product purchases. Modern consumers exhibit awareness and belief in the potential of green products to enhance their quality of life and address environmental concerns. Implementing certification marks and labels may enhance consumer confidence. Employing digital marketing strategies, including online brochures, tweets, emails, affiliate links, and video advertising, presents an avenue for active promotion of green products.

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