

Consumer Awareness on Green Packaging for a Sustainable Future

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Abstract

It's the time to think about the best alternates to give better environment to the coming generations and to retain current resources on the earth. In this pursuit, every industry is focusing to shift their processes' and products to sustainable processes' and products. It is now the responsibility of manufacturers, downstream processors, and value adders to make the processes as the sustainable processes in this green revolution. And the industries are trying to adopt Circular Economy Policy to Reduce, Reuse, and Recycle.

One major shift observed in the packaging industry is shifting from Plastic packing products to Sustainable packaging products. There are many alternates for plastic for packaging like Paper, Glass, Metal and Agri-based products. More specifically, this study analyses the impact of green packaging from 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 focusing on industrial segments like Food Packaging, E-Commerce, Pharma Packaging, FMCG packaging, Beverages packaging, Retail segment etc. A demographic study will support the study and statistical analysis would enhance the research.

Keywords: Green Packaging, Eco-friendly Packaging, Sustainability Marketing, Green Marketing, Circular Economy

Introduction

Packaging is very vital for every product. It not only protects the product, attracts consumers but also should ensure no harm to the environment. Green packaging ensures having lowest environmental impact. It is achieved by limiting the packaging waste, recyclable & biodegradable packaging elements, using renewable energy during production. Green packaging also ensures being mindful of business's carbon footprint. Even though 'zero waste' packaging is very difficult to achieve, but limiting package waste by opting eco-friendly packaging as much as possible.

Literature Review

David Feber, Anna Granskog, Oksar Lingqvist, and Daniel Nordigarden, (October 21, 2020) McKinsey & Company, Sustainability in packaging: Inside the minds of US consumers.

The COVID-19 pandemic has rapidly transformed consumer behavior in several ways: sparking higher price sensitivity, accelerating online shopping across all categories, and causing shoppers to focus even more on health, wellness, and hygiene. Consumer attitudes about sustainable packaging have also changed significantly. Before the pandemic, public awareness that packaging can leak into the environment had increased a good deal. Fast-moving-consumer- goods (FMCG) companies and retailers were making big commitments to sustainable packaging, and regulatory bodies were moving decisively on the issue. The major findings of the study were - Across all end-use segments, 60% to 70% of consumers said they would pay more for sustainable packaging. A willingness to pay more was relatively equally distributed across end-use segments. 52% of consumers said they would buy more products with sustainable packaging if those products didn't cost more than conventionally packaged ones. Approximately 35% to 36% of respondents would buy additional sustainably packaged products if they were more available in stores, available for more products, and better labelled (to indicate green packaging). Consumers are more or less equally interested in recyclable and recycled plastic packaging and in fiber-based packaging. Their specific preferences depend on the end use. Overall, consumers want plastic film and rigid packaging to be recyclable or to include higher levels of recycled content. Consumers expect more compostable packaging to be introduced.

Jerda, Hesil & Sahayaselvi, S. (2018). Green Packaging: An Emerging Need For Sustainable Development.

The main objective of the study is to find out an awareness and practice of green packaging to attain sustainable development in the coastal belt. ① To find out the demographic profile of the sample respondents ② To identify an awareness on the usage of green packaging among respondents and ③ To analyse the perception towards sustainable development in coastal belt. The major findings were - 71% (99) of the respondents belong to the age group of 21-40 and 3% (4) of the sample respondents to the age group of above 60 . ④ 68% (95) of the sample respondents are female and 32% (45) of the sample respondents are male. ⑤ 51% (72) of the respondents are employed and 23% (32) of them are students. ⑥ 51% of the respondents have 2 to 4 members in their family and 5% of the respondents have 8 to 10 family members in their family. It is inferred that majority of the respondents belong to the nuclear family. Hence they are affordable to buy green packaging. ⑦ 45% (63) of the respondents belong to upper middle class and 12% (17) of them belong to lower middle class. ⑧ 48% (67) of the respondents are aware of green packaging

which leads to sustainable development while 4% (5) of them are highly aware. It requires the attention of the policy makers. T test for significance difference between male and female respondents with respect to dimensions of customer perception of green packaging Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. ANOVA for significant difference between Economic Status with respect to amount spent on Green Package P value is less than 0.01, the null hypothesis is rejected at 1% level of significance

Wandosell, G.; Parra-Meroño, M.C.; Alcayde, A.; Baños, R. Green Packaging from Consumer and Business Perspectives. *Sustainability* 2021, 13, 1356.

The research papers published on green packaging can be classified into two main groups, depending on whether they are approached from the consumer perspective [3] or from that of the company. An interesting investigation presented in [36] analyses the surveying attitudes of consumers from the United States, France and Germany, concluding that consumers' perceptions of packaging are centred on end-of-life attributes, that is, they are interested in reusable, recyclable or biodegradable packages. Another investigation analyses the responses provided by 268 Romanian consumers about green packaging, reporting that, despite most of them agreeing on the importance of packaging for environmental protection, low consumer budget was an important reason for the refusal to pay more for green-packaged products [43]. As for a study involving a large group of consumers living in China, it was found that the factors that determine consumers' interest in paying more for green-packaged products include the environment, the quality of green packaging, and the packaging price [44]. In [45], the opinions of 343 Indian respondents suggested that consumers' willingness to pay more for green packaging is determined by different factors, including functional, economic, symbolic, biospheric, altruistic, and epistemic values.

Companies are working hard to respond to customers' demands to reduce, reuse and recycle. To achieve this goal, companies must identify the factors related to green practice [47] in order to incorporate suitable materials [48] and new designs [49] to create authentic green-packaged products. In fact, it is important to focus efforts not only on the use of eco-friendly ingredients, but also on friendly packaging to reduce pollution [30]. One advanced manufacturing approach is green manufacturing, which aims to promote resource efficiency in order to reduce environmental impact [50]. Green manufacturing systems require a reduction in the use of non-toxic materials and environmental pollution per product, and an increase in the use of biodegradable materials. *Sustainability* 2021, 13, 1356 10 of 19 rials [51]. Indeed, manufacturers are establishing plans to reduce energy usage, water consumption, waste generation, toxic emissions and packaging size. Given that entrepreneurship and innovation play a key role in natural resource conservation and environmental protection [58], this section analyses some of the most interesting contributions related to green packaging from a business perspective.

Statement of the Problem

India has banned most single-use plastics from July 1st, 2022. The aim of the ban is to curb plastic pollution, since single-use plastic harms terrestrial and aquatic ecosystems. The core idea of this paper is to know the consumer awareness on green packaging for a sustainable future. It is also intended to know the consumers' perception towards alternatives of packaging materials.

Objectives

- To understand consumers' point of view towards green packaging of products
- To analyse the consumers' viewpoints on environmental impact of packaging
- To study the consumers' preferences / alternatives of packaging on the sustainability aspect.
- To analyse consumer's intuition on affording high / little variation in price for green packaging.

Research Methodology

The present paper is empirical in nature based on both primary and secondary data. Primary data was collected through questionnaire consisting 10 closed ended questions. Likert 5 point rating scale was used.

Sample Size: 248

Demographic Profile: Female respondents aged between 15 yrs to 58 yrs, residing at Hyderabad Secondary data was taken from internet, journal articles

Statistical Tool: Chi-Square

Hypothesis

- H₀: There is no significant association between age and consumer awareness on green packaging
H₁: There is significant association between age and consumer awareness on green packaging
- H₀: There is no significant association between age and consumer willingness to afford additional amount for green packaging
H₁: There is significant association between age and consumer willingness to afford additional amount for green packaging

Data Analysis

No. of Respondents in each age category

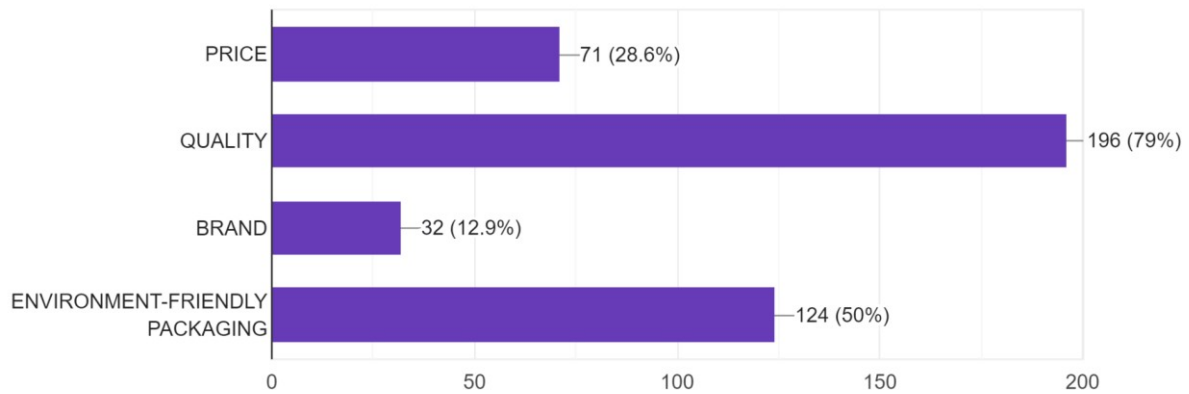
Age	15 – 25 yrs	26 – 36 yrs	37 – 47 yrs	48 – 58 yrs
No. of Respondents	144	58	43	3

Total no. of respondents were 248, of which 58.06% were in-between 15 to 25 yrs age group, 23.38% were 26 to 36 yrs age group 17.33 % were 37 to 47 yrs age group and 1.23% were in-between 48 to 58 yrs age group.

Factors considered important by consumers while purchasing a product

1. Which among the following do you consider important when you buy anything?

248 responses



It is observed from the above graph that, 79 % responded Quality as vital, 50 % responded that Environment-friendly packaging is also important, 28.6% responded Price as important factor and 12.9% responded for Brand.

Consumer Awareness on Green Packaging

Table of Observed Values

Age	Extremely Familiar	Very Familiar	Somewhat Familiar	Not So Familiar	Not At All Familiar	Total
15-25	48	47	45	3	1	144
26-36	8	27	21	2	0	58
37-47	13	13	15	1	1	43
48-58	1	2	0	0	0	3
Total	70	89	81	6	2	248

Table of Expected Values

Age	Extremely Familiar	Very Familiar	Somewhat Familiar	Not So Familiar	Not At All Familiar
15-25	40.6	51.7	47.0	3.5	1.2
26-36	16.4	20.8	18.9	1.4	0.5
37-47	12.1	15.4	14.0	1.0	0.3
48-58	0.8	1.1	1.0	0.1	0.0

Chi-Square Table

Observed Values	Expected Values	(O – E)	(O – E) ²	(O – E) ² ÷ E
48	40.6	7.4	54.76	1.35
47	51.7	-4.7	22.09	0.43
45	47	-2	4	0.09

3	3.5	-0.5	0.25	0.07
1	1.2	-0.2	0.04	0.03
8	16.4	-8.4	70.56	4.30
27	20.8	6.2	38.44	1.85
21	18.9	2.1	4.41	0.23
2	1.4	0.6	0.36	0.26
0	0.5	-0.5	0.25	0.50
13	12.1	0.9	0.81	0.07
13	15.4	-2.4	5.76	0.37
15	14	1	1	0.07
1	1	0	0	0.00
1	0.3	0.7	0.49	1.63
1	0.8	0.2	0.04	0.05
2	1.1	0.9	0.81	0.74
0	1	-1	1	1.00
0	0.1	-0.1	0.01	0.10
0	0	0	0	0.00
Chi-Square Calculated Value				13.14

Level of Significance: 0.05; Degrees of freedom: 12 Chi-Square Critical Value = **21.03**

H0: There is no significant association between age and consumer awareness on green packaging

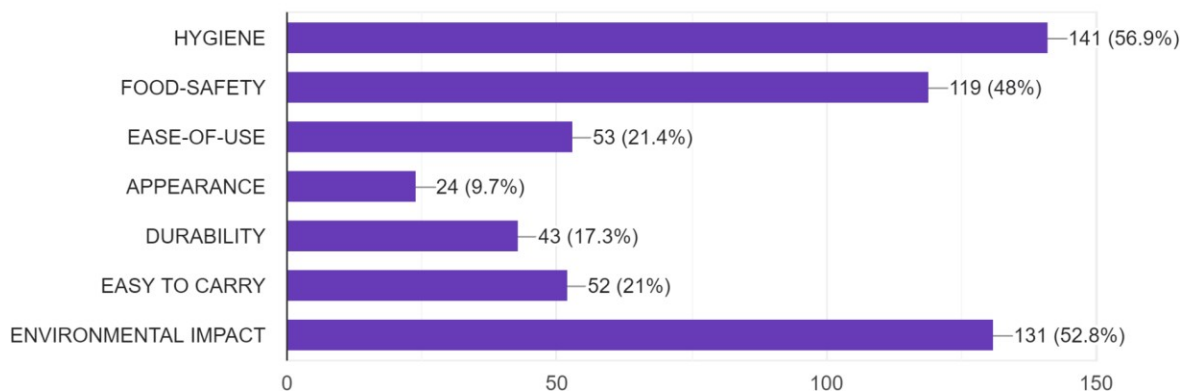
H1: There is significant association between age and consumer awareness on green packaging

As the chi-square calculated value is less than chi-square critical value, null hypothesis is accepted. There is no significant association between age and consumer awareness on green packaging.

Consumer perception towards Green Packaging merits

3. What do you think is highly important while considering Environment-Friendly Packaging (Green Packaging)

248 responses

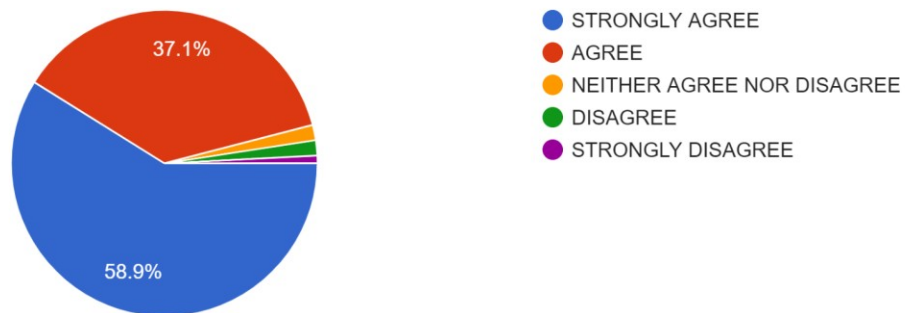


It is observed from the above graph that, consumers consider environmental impact as one of the major concerns of packaging along with hygiene & food safety. Ease-of-use, Easy-to-carry, Durability and Attractive Appearance are considered less important.

Importance of Eco-friendly packaging by Organizations (Business Perspective)

4. Packaging which doesn't affect environment (Green Packaging) should be of primary concern for every brand / organization.

248 responses



It is observed from the above graph that consumer's expect brands / organizations to give more importance to eco-friendly packaging. 58.9% strongly agree where as 37.1% agree for the above. Negligible percentage of respondents are neutral.

Consumer's willingness to afford for Green Packaging

Table of Observed Values

Age	Willing to afford high price for Green Package	OK to afford little amount for Green Package	Not willing to afford any amount for Green Package	Total
15-25	39	97	8	144
26-36	14	44	0	58
37-47	10	33	0	43
48-58	1	1	1	3
Total	64	175	9	248

Table of Expected Values

Age	Willing to afford high price for Green Package	OK to afford little amount for Green Package	Not willing to afford any amount for Green Package
15-25	37.2	101.6	5.2
26-36	15.0	40.9	2.1
37-47	11.1	30.3	1.6
48-58	0.8	2.1	0.1

Chi-Square Table

Observed Values	Expected Values	(O - E)	(O - E) ²	(O - E) ² ÷ E
39	37.2	1.8	3.24	0.09
97	101.6	-4.6	21.16	0.21
8	5.2	2.8	7.84	1.51
14	15	-1	1	0.07
44	40.9	3.1	9.61	0.23
0	2.1	-2.1	4.41	2.10
10	11.1	-1.1	1.21	0.11

33	30.3	2.7	7.29	0.24
0	1.6	-1.6	2.56	1.60
1	0.8	0.2	0.04	0.05
1	2.1	-1.1	1.21	0.58
1	0.1	0.9	0.81	8.10
Chi-Square Calculated Value				14.88

Level of Significance: 0.05; Degrees of freedom: 6 Chi-Square Critical Value = **12.59**

H₀: There is no significant association between age and consumer willingness to afford additional amount for green packaging

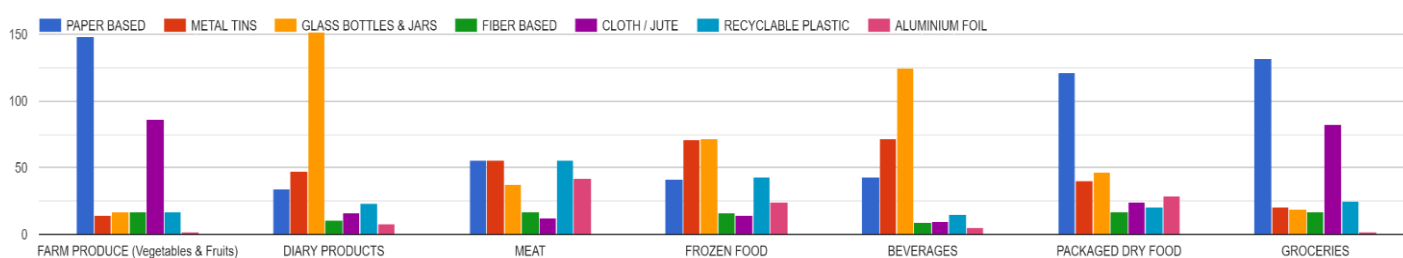
H₁: There is significant association between age and consumer willingness to afford additional amount for green packaging

As the chi-square calculated value is greater than chi-square critical value, null hypothesis is rejected and alternative hypothesis is accepted.

There is significant association between age and consumer willingness to afford additional amount for green packaging.

Consumer perception towards alternates for packaging various goods

7. Which of the following do you think is best replacement of plastic in packaging



From the above graph it is observed that, for farm produce, packaged dry food and groceries – consumers consider paper based material as best alternative. For dairy products and beverages glass bottles and jars are considered as best alternatives. Metal tins, fibre based packaging, cloth / jute, recyclable plastic, aluminium foil are considered as alternatives for meat, frozen food, packaged dry food and groceries.

Findings

It is evident that there is no significant association between age and consumer awareness on green packaging. It is also found that there is a significant association between age and consumers' willingness to afford little / high price for green packaging. Consumers' consider environmental impact as one of the important concerns while choosing packaging. Consumers' perceive that brands and organizations should shift to best alternates in packaging that ensures less environmental impact. Green packaging is considered as one of the crucial elements for success of a product in market.

Suggestions

- It is suggested that every brand and organization must consider eco-friendly packaging as one of the important factor from customer's point of view as well as societal welfare.
- Paper based packaging is best alternate packaging materials to the industries.
- Fibre based packaging is still under research and hardly they are available for the use in market. Improved production of fibre based packaging materials can bring in great change in the packaging industry.

Conclusion

In a cosmopolitan city like Hyderabad, consumer's show interest, and willingness to prefer green packaging. It might be different in sub-urban and rural areas. Consumers' perception would greatly vary depending upon the life style and geographical location. Business perspective towards packaging also has to move towards sustainability. More alternates for plastic has to be researched so that businesses can afford for the environment well-being.

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