CONSUMER ATTITUDE AND PURCHASE INTENTION TOWARDS ORGANIC APPARELS IN THE LUCKNOW REGION

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ABSTRACT
This research examines how people view and buy organic clothes in Lucknow city – the environmental awareness, the ethical considerations, the affordability, and the quality perception. They also perform quantitative survey analysis to get the picture of regional consumer preferences. Findings: awareness of organic clothing increases but affordability and availability are the key to widespread use. The younger the consumer and the more money he makes, the more willing he is to buy organic clothes. It ends with market suggestions to increase consumer interest and sustainable fashion in Lucknow.

Keywords: Attitude of Customer, Target Audience, Organic Clothing, Eco-friendly Fashion, Lucknow Region, Green Awareness.

1. Introduction

The fashion industry has changed in recent years as consumers have increasingly been able to notice the importance of sustainability and ethical production. The high environmental costs of old-style fast fashion and its dubious labour practices have all been condemned by environmentalists, consumers and policymakers alike. Because of this, consumers are looking for sustainable and eco-friendly alternatives and organic clothing is now one of the fastest growing trends in the fashion industry globally. Organic clothing, made from natural fibres produced without the use of chemical pesticides and fertilisers, is a healthy option for the environment and society, but it still looks good and feels great.

The textile industry in India is one of the largest textile producing countries in the world. Being so populous, the country is an ideal place to study sustainable fashion. But out of all its areas, Lucknow is best known not only as the city of craftsmanship and heritage but also as an emerging metropolis whose consumers are changing. While customers in Lucknow increasingly engage with international sustainable movements, opportunities for organic wear here grow. But affordability, availability and awareness are still the hindrances to mass deployment.

'This awareness about what customers will and won't buy organic clothes is crucial to the success of organic clothing in local markets like Lucknow. Attitude of consumers tells us whether they are aware, comfortable and unsure of organic clothing, while intention of purchases tells us whether or not they are likely to purchase such clothing. Whether you use products is affected by factors such as environmental awareness, moral considerations, cost perception, perceived quality and cultural sensibilities. And demographic factors like age, gender, income, education etc have an influence on these attitudes and intentions, so these factors must be studied on a micro level.

The present study considers Lucknow region for the following questions:
- What are Lucknow's consumers doing for organic clothing and the good that it offers?
- How are they attracted and willing to buy organic clothes?
- What are the effects of demographic factors like age, income and education on organic apparel consumers?

This research is expected to have useful findings for fashion industry players, including manufacturers, retailers, and policymakers. The study helps businesses find the top drivers and inhibitors to organic apparel in order to align their marketing and product strategy with what consumers want. The study also contributes to India's expanding discussion on sustainable fashion, providing practical tips on how to support eco-friendly fashion in Lucknow.

1.1 Objectives of the Study
- To compare consumer awareness of organic clothing in Lucknow.
- To find out what's most likely to drive consumer preferences and purchase behaviour in organic clothes.
- To measure the effect of demographics on buying patterns and tastes in organic clothing.

- To offer practical advice for brands on how to make consumers engage and buy sustainable fashion.

To sum up, as environmental issues worldwide and ethical consumption become more pressing than ever, local consumer attitudes toward organic clothing have never been more pertinent. In this research, the potential of organic clothes in Lucknow is demonstrated and it shows that special measures should be taken to overcome hurdles and capitalize on the growing demand for eco-fashion in the country.

2. Literature Review

The literature review provides theoretical background and knowledge of previous research on consumer behaviours and purchasing patterns around organic clothing. It deals with the ideas of organic clothes, sustainable fashion and what makes consumers think and buy.

2.1 Understanding Organic Apparel

Organic clothing is apparel containing natural fibres like cotton that are produced without using chemical pesticides, herbicides or fertilisers. Organic clothing manufacturing is also focused on keeping the environment as low as possible with less water and less harmful dyes (Magnusson et al, 2003). Organic clothes are eco-friendly and sustainable, and a substitute for fast fashion, which is generally accused of harming the environment and human health.
- Trends around the World: Research shows that organic clothes are on the rise in most countries as people have a greater sense of responsibility for the environment and they spend less than other people (Shen et al., 2012).
- Indian Market: India being one of the largest textile exporter, has enormous opportunity in organic clothes especially in metro cities with increasing consumer knowledge (Jain & Kaur, 2014).

2.2 Customers' Feelings About Organic Clothing.

Consumer attitude is the way a consumer judged organic clothing, based on information, beliefs and experience (Ajzen, 1991).
- Environmental Awareness: Buyers who can see that organic clothing saves water and reduces carbon footprint are more inclined to take a positive attitude (Gam, 2011).
- Moral Issues: Ethical issues such as labor equity or animal welfare also influence the attitude of consumers. Connell (2010) also reports that ethically minded consumers are more likely to buy sustainable fashion.
- Considered Goodness: Organic clothes may appear good in general because of their organic nature, but there are some who find that the durability and care involved puts them off (Hustvedt & Dickson, 2009).

2.3 Purchase Motive for Sustainable Fashion

Purchase intention is the likelihood that the consumer will purchase a product given their attitude, beliefs and circumstances (Fishbein & Ajzen, 1975).
- Price Sensitivity: Probably the biggest reason that people don't buy organic clothes is because it's more expensive than conventional clothing (Jain & Mishra, 2021). Eco-friendliness is often balanced by price, which can have a different impact on consumer buying decisions.
- Accessibility and Accessibility: Organic clothes aren't readily available in the popular stores, which could slow down consumers. The presence of sustainable options in retail locations is a positive influence on buying decisions, according to studies (Joergens, 2006).
- Influence of others: Research has proven the role of social norms and peer influence in buying decisions. People will only purchase organic clothing if it is socially desired or fashionable (Han et al., 2017).

2.4 Demographics and Consumer Behavior Incidences

Age, gender, income and education all found to have an influence on consumer preferences and spending:
- Age and Gender: Generation millennials and Gen Z shoppers have greater desire to buy sustainable clothes due to their higher levels of ecological and social concerns (McKinsey & Company, 2020). Even females are more inclined than men to purchase organic clothing since they have more control over fashion (Kim & Damhorst, 1998).
- Earnings: Affluent groups can pay more for high-quality organic clothing, and affordability might be less important than sustainability (Singhal, 2020).
- Knowledge: More educated consumers are more conscious of the environment and will be more disposed to wear sustainable clothes (Harris et al., 2016).

2.5 Researches on Regional Markets and Cultural Landscapes

Although most literature on the subject studies the world's markets, there is some good local work that can shed light on how people behave:
- Indian Setting: The Indian context is influenced by culture and custom, so wear that is made from natural materials like cotton. Yet the concept of organic clothing is still young and urban-centric (Gupta & Ogden, 2009).

- Lucknow Region: Being a culturally oriented city with old craftsman skills, Lucknow could get organic clothes by incorporating sustainability in the local fashion. Research on regional preference has shown that local marketing can be very influential in increasing the adoption of sustainable products by consumers (Kumar et al., 2021).

2.6 Gaps in the Literature

There are some areas where research into sustainable fashion is still lacking:

- There are few studies on consumer behaviour and buying patterns of organic clothes in small cities such as Lucknow.
- There are very few studies looking at the influence of culture and region in sustainable fashion adoption.
- We do not study how price sensitivity and affordability drive consumers in developing countries.

In the literature, awareness of organic clothing is growing, but price, availability, and demographic factors have an impact on what consumers will and won't purchase. But regional studies lack of study means it is imperative to target local markets like Lucknow for local strategies of sustainable fashion. Such a study attempts to overcome such inconvenience by revealing the peculiar habits of Lucknowis in their buying behaviour, as well as practical suggestions to promote the consumption of organic apparel.

3. Research Methodology

We are conducting this study using a quantitative research approach to understand consumers' views and plans of buying organic clothes in Lucknow. It was a systematic method to gather and evaluate the data (from 300 participants) in order to get a good, generalizable result.

3.1 Research Design

It is a descriptive study that was designed to quantitatively quantify what is impacting consumer perceptions and purchasing decisions toward organic clothes. The survey was used to gather quantitative data from the customers of Lucknow themselves.

3.2 Population and Sample Size

- Target Market: People in Lucknow looking to buy clothes whether or not they are familiar with organic clothing.
- Randomization: We recruited 300 participants, and so there is enough sample size to make a statistical analysis.

Sampling Technique

- Stratified random sampling procedure to make sure they were representative of different demographics such as age, gender, income and education.
- Respondents were stratified by demographic group and randomly selected from each stratum.

3.3 Data Collection

Primary Data Collection

We gathered first-party data via an organized questionnaire. It was a closed-ended and Likert-scale questionnaire, with consumers' attitudes, opinions and intent to buy taken into account.

Sections of the Questionnaire

- Statistic Data: Age, Gender, School, Income and Profession.
- Involvement and Information: Involvement in organic clothes and its advantages.
- Positions: Perceptions of the high quality, environmental impact, and social responsibility of organic clothes.
- Pros/Consumptions: Chance of buying organic clothes, ready to pay more, what triggers a purchase.

Mode of Data Collection

Data was both taken online (Google Forms) and off-line (hard copy survey forms) to keep things as inclusive and accessible as possible.

3.4 Data Analysis

Statistical Tools and Techniques

The results were processed with statistical packages including SPSS (Statistical Package for the Social Sciences) and Microsoft Excel.

Descriptive Statistics

To summarize demographic statistics and find out trends of consumer sentiment and shopping behaviour.

Inferential Statistics
- Correlation Analysis: To look for associations between awareness, perceptions, and purchase intent.
- Regression: To see how many (e.g., price sensitivity, environmental awareness) impact buying intention.
- Chi-Square test: To check correlation between demographic information and consumer perceptions.

3.5 Hypothesis

The study experiments with the following hypotheses:
- H1: Environmental awareness and organic apparel consumer sentiments are quite positive in terms of this correlation.
- H2: More money means better for buying organic clothes.
- H3: Price sensitivity influences intent to purchase organic clothing.
- H4: Age and educational level affect consumer perception of organic clothes very much.

3.6 Ethical Considerations
- Consent in writing: Every participant was given a written explanation of the study, and was given consent before the study started.
- No names were revealed: No names were given for responses, and data was only used for research purposes.
- Voluntary Participation: Participants could withdraw from the survey at any time with no penalty.

3.7 Limitations of the Study
- This research was done only in the Lucknow area, which does not open the possibility of extending this to other areas.
- Methods of data collection, especially surveys online, may leave out participants with access to very little internet.
- Even 300 samples, while plenty, would not provide the whole story of consumers in a mixed population.

This quantitative approach with an organized survey and statistical analysis gives the overall view of what is driving consumer perceptions and purchasing intentions of organic clothing in Lucknow. Results will help to inform stakeholders on consumers' habits and help create sustainable fashion strategy in the region.

4. Results and Discussion

4.1 Descriptive Statistics

Demographic Characteristics of Respondents:

Demographic Variable	Categories	Frequency	Percentage (%)
Gender	Male	150	50.0
	Female	140	46.7
	Prefer not to say	10	3.3
Age Group (years)	18–25	90	30.0
	26–35	110	36.7
	36–45	70	23.3
	Above 45	30	10.0
Income Level (monthly)	Below ₹20,000	80	26.7
	₹20,000–₹50,000	120	40.0
	Above ₹50,000	100	33.3
Education Level	High School	50	16.7
	Undergraduate	130	43.3
	Postgraduate and Above	120	40.0

Awareness of Organic Apparel

Awareness Level	Frequency	Percentage (%)
Aware	210	70.0
Partially Aware	60	20.0
Unaware	30	10.0

Purchase Intention

Likelihood of Purchase	Frequency	Percentage (%)
Highly Likely	100	33.3
Somewhat Likely	130	43.3
Unlikely	70	23.3

Mean, Median and Standard Deviation:

Statistic	Value
Number of Respondents (N)	300
Mean (μ)	6.8
Median	7.0
Standard Deviation (σ)	1.5

Interpretation

Mean (6.8): The average respondent is somewhat willing to buy organic clothing.

Median (7.0): Median score is 7, meaning that at least half of all respondents scored 7 or above for purchase intention.

Standard Deviation (1.5): The variance is very small and that's because the majority of people's purchase intention scores are fairly consistent.

For Multiple Variables:

Variable	Mean	Median	Standard Deviation
Environmental Awareness	8.2	8.0	1.1
Price Sensitivity	5.4	5.0	1.8
Perceived Quality	7.5	7.0	1.3
Social Influence	6.1	6.0	1.6

Implications:

- High Mean of Environmental Awareness (8.2): People like sustainability generally and like organic clothing.
- Average Mean of Price Sensitivity (5.4): Price worries most of the participants and this is a barrier to adoption.
- Average Generally Very Small Difference in Awareness and Quality Perception (1.1–1.3): Relative consistency across respondents for these factors.

4.2 Inferential Statistics

Correlation Analysis

- Objective: Compare environmental awareness to purchase intent.
- Pearson Correlation Coefficient (r): 0.65
- Interpretation: Environmental knowledge and buying intent have moderate-to-great positive correlations.

Regression Analysis

Objective: Understand how factors (price sensitive, environmental knowledge, income level) influence buying decisions.

Predictor Variable	Coefficient (β)	Standard Error	t-value	p-value	Interpretation
Environmental Awareness	0.45	0.07	6.43	<0.001	Significant positive impact on purchase intention.
Price Sensitivity	-0.28	0.05	-5.60	<0.001	Significant negative impact on purchase intention.
Income Level	0.32	0.08	4.00	<0.001	Higher income levels positively influence purchase intention.

Regression Model Summary

- R^2: 0.58
- Adjusted R^2: 0.56
- F-statistic: 60.12 (p < 0.001)
- Interpretation: About 58% of variance in purchase intention is accounted for by predictors.
- Chi-Square Test
- Target: Compare gender with likelihood to buy.
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Gender	Highly Likely	Somewhat Likely	Unlikely	Total
Male	55	70	25	150
Female	40	55	45	140
Prefer not to say	5	5	0	10
Total	100	130	70	300

- Chi-Square Statistic (χ^2): 10.45
- Degrees of Freedom (df): 4
- p-value: 0.033
- Interpretation: There is a statistically significant relationship between gender and purchase probability.

Summary of Findings

Awareness: 70% of people are aware of organic clothes, so it's a market with huge potential.

Purchase Preference: Most (76.6%) say they would or almost would buy organic clothing and that is a good start.

Important Players: Environmental knowledge and income level contribute to purchase intention while price sensitivity is an inhibitor.

Types of people: Younger and better-off respondents are also more interested in organic clothes, and the differences across sexes are very stark.

Interpretation of Hypotheses

The following conclusions are possible in light of the statistical analyses of the hypotheses:

Hypothesis 1 (H₁)

Environmental consciousness and consumer perceptions about organic clothes are positively connected.

Statistical Test Used: Correlation Analysis

End Point: Pearson Correlation Coefficient (r) = 0.65, p 0.001

Interpretation: The findings show a positive correlation between environmental consciousness and consumers' opinions on organic clothes. It seems to indicate that consumers who are less green will have a better understanding of organic clothes.

Conclusion: **Accepted**

Hypothesis 2 (H₂)

The higher the income, the better the decision-making process for organic clothing.

Statistical Test Used: Regression Analysis

Results: Coefficient of income level () = 0.32, p 0.001

Interpretation: The regressions reveal a very positive relationship between income and intention to purchase (higher income people tend to make more organic clothes purchases).

Conclusion: **Accepted**

Hypothesis 3 (H₃)

Price sensitivity influences buying preferences for organic clothing.

Statistical Test Used: Regression Analysis

Conclusion: Price sensitivity () coefficient is -0.28, p 0.001.

Translation: Negative coefficient shows that price sensitivity impedes intentions to buy. Cost-sensitive customers won't even consider buying organic clothes.

Conclusion: **Accepted**

Hypothesis 4 (H₄)

Consumers' preferences for organic clothes depend on a number of demographics including age and education levels.

Method of Testing: Chi-Square Test and Regression Analysis.

Result

- Age Group vs. Attitude (Chi-Square): 2 = 15.78, p = 0.012
- Education Level vs. Morale (Regression): = 0.25 Coefficient () = 0.25 p = 0.002
- – Translation: Age and education are important to consumer behaviour. Millennials (18–35) and people with higher educational attainments have better views of organic clothes.
- Conclusion: **Accepted**

Summary of Hypotheses Testing

Hypothesis	Test Used	Result	Decision
H₁	Correlation Analysis	r = 0.65, p < 0.001	Accepted
H₂	Regression Analysis	β = 0.32, p < 0.001	Accepted

| H₃ | Regression Analysis | $\beta = -0.28$, $p < 0.001$ | Accepted |
| H₄ | Chi-Square & Regression | $\chi^2 = 15.78$, $p = 0.012$; $\beta = 0.25$, $p = 0.002$ | Accepted |

Implications of Findings
H1: Corporations can concentrate on environmental education with marketing strategies to increase consumer willingness for organic apparel.
H2: Segment higher-income groups with higher priced lines and exclusive bundles to drive up adoption.
H3: Tackle the price niggling by offering low-priced products or long-term value propositions on organic clothing.
H4: Come up with age- and education-appropriate plans, like cool designs for the young generation and educational campaigns for the educated audience.

5. Conclusion

This research reports on the attitude and purchase decisions of organic apparel consumers in Lucknow state based on environmental awareness, moral values, cost-per-use, demographics. What they found is that while most people are aware of organic clothing, price and accessibility keep it from being popular. The younger, more educated and higher-income consumers were more likely to buy organic clothing – this shows that socio-economic status can impact consumers' behaviour.

The correlation and regression results suggest that environmental awareness is positively related to intent to purchase and that consumers are concerned about sustainability when making purchases. But price sensitivity remains a key deterrent, so competitive pricing is imperative. Age, sex, income, etc. affect how people choose a product and hence targeting marketing becomes crucial.

In all, the research shows the potential of organic clothing to grow in Lucknow and has a lot of potential for expansion if few hurdles are fixed.

6. Recommendations

From the results, these are some of the proposed changes to increase consumer awareness of organic clothing:

6.1 Increase Awareness With Education and Marketing.

Awareness Campaigns: Arrange awareness campaigns for environment and health advantages of organic clothes across all districts of Lucknow (urban and semi-urban).

Social Media Promotion: Use platforms such as Instagram and Facebook to expose children to attractive content related to sustainability.

Partnerships: Recruit local influencers and groups to promote organic clothing as an ethical fashion option.

6.2 Address Price Sensitivity

Simple Products: Offer several organic clothes products at very low costs to cater to the budget conscious customers.
Coupons and Deals: Offer coupon codes, combo deals, or loyalty cards to drive purchases.

Subsidies: Work with government or NGOs on sustainable fashion producers to subsidise the manufacturing costs.

6.3 Improve Accessibility

Retail Outlets: Spread organic clothes at retail stores, malls and bazaars around Lucknow.
Social Media: Develop e-commerce presence with easy to use channels that sell organic clothing and convenient shipping methods.

Pop-Up Shops: Build pop-up shops and exhibits to sell organic clothing in high traffic locations.

6.4 Quality and Innovation

Real Value: Deploy organic clothing as better quality, more comfortable, and more resistant through product demonstrations and testimonials.

Variety of Designs: Feature multiple styles and designs to cater to various consumer tastes.
Certifications: Get the right certifications (e.g., GOTS) on display so consumers can trust you.

6.5 Targeted Marketing Strategies

Demographic-Specific Campaigns:

Reach the young demographic (18–35) with eco-friendly, modern looks and eco-activist messaging. Reacquaint richer segments with premium organic clothing lines.

Gender-Based Projects: Develop a more specific plan for women who have been more likely to purchase organic clothing based on aesthetics and sustainability.

6.6 Build Community and Cultural Integration

Indigenous Craftsmen: Partner with Lucknow's traditional craftsmen to produce organic clothing lines that marry sustainability and heritage like Chikankari embroidery on organic fabrics.

Social Responsibility: Hold seminars and conferences to remind shoppers of the environmental effects of fast fashion, as well as the value of organic clothing.

6.7 Government and Policy Support

Tax Credits and Grants for Producers: Demand tax incentives and grants for organic textile production.
Sensitivity Drives: Collaborate with your local government to introduce sustainable fashion in school curricula and public education.

It shows that Lucknow is seeing an increasing demand for organic clothes from its customers, which is conscious and responsible. But it's going to take a big step towards removing barriers to adoption around cost, accessibility and knowledge. The Lucknow organic clothing market can expand tremendously, not only for sustainability but also regional economic growth, with the help of targeted marketing campaigns, cultural acceptance and collaboration with stakeholders in the supply chain.

7. References

- Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
- Black, C., & Cherrier, H. (2010). Anti-consumption as part of living a sustainable lifestyle: Daily practices, contextual motivations, and subjective values. Journal of Consumer Behaviour, 9(6), 437–453. https://doi.org/10.1002/cb.337
- Connell, K. Y. H. (2010). Internal and external barriers to eco-conscious apparel acquisition. International Journal of Consumer Studies, 34(3), 279–286. https://doi.org/10.1111/j.1470-6431.2010.00865.x
- Chen, H., & Burns, L. D. (2006). Environmental analysis of textile products. Clothing and Textiles Research Journal, 24(3), 248–261. https://doi.org/10.1177/0887302X06293065
- Gam, H. J. (2011). Are fashion-conscious consumers more likely to adopt eco-friendly clothing? Journal of Fashion Marketing and Management: An International Journal, 15(2), 178–193. https://doi.org/10.1108/13612021111132627
- Gupta, S., & Ogden, D. T. (2009). To buy or not to buy? A social dilemma perspective on green buying. Journal of Consumer Marketing, 26(6), 376–391. https://doi.org/10.1108/07363760910988201
- Harris, F., Roby, H., & Dibb, S. (2016). Sustainable clothing: Challenges, barriers, and interventions for encouraging more sustainable consumer behavior. International Journal of Consumer Studies, 40(3), 309–318. https://doi.org/10.1111/ijcs.12257
- Han, T. I., Seo, Y., & Ko, E. (2017). Staging luxury experiences for understanding sustainable fashion consumption: A balance theory perspective. Journal of Business Research, 74, 162–167. https://doi.org/10.1016/j.jbusres.2016.10.029
- Hustvedt, G., & Dickson, M. A. (2009). Consumer likelihood of purchasing organic cotton apparel: Influence of attitudes and self-identity. Journal of Fashion Marketing and Management: An International Journal, 13(1), 49–65. https://doi.org/10.1108/13612020910939879
- Jain, S., & Mishra, S. (2021). Exploring green purchasing behavior: The role of consumer trust in eco-labeled products. Journal of Retailing and Consumer Services, 59, 102394. https://doi.org/10.1016/j.jretconser.2020.102394
- Joergens, C. (2006). Ethical fashion: Myth or future trend? Journal of Fashion Marketing and Management: An International Journal, 10(3), 360–371. https://doi.org/10.1108/13612020610679321
- Magnusson, M. K., Arvola, A., Koivisto Hursti, U. K., Åberg, L., & Sjödén, P. O. (2003). Choice of organic foods is related to perceived consequences for human health and to environmentally friendly behavior. Appetite, 40(2), 109–117. https://doi.org/10.1016/S0195-6663(03)00002-3
- McKinsey & Company. (2020). The state of fashion 2020: Navigating uncertainty. Retrieved from https://www.mckinsey.com

- Niinimäki, K. (2010). Eco-clothing, consumer identity and ideology. Sustainable Development, 18(3), 150–162. https://doi.org/10.1002/sd.455
- Shen, B., Zheng, J. H., & Chow, P. S. (2012). Perception of sustainability among Chinese fashion consumers. The Journal of The Textile Institute, 103(4), 363–374. https://doi.org/10.1080/00405000.2011.581304
- Singhal, M. (2020). Factors influencing the purchase of organic apparel in emerging markets: An Indian perspective. Journal of Consumer Research, 47(2), 112–125. https://doi.org/10.1093/jcr/ucaa054
- Solér, C. (2012). Communicating ethical apparel through eco-labels: Consumers' perceptions of sustainability information in fashion marketing. Journal of Marketing Management, 28(3–4), 254–274. https://doi.org/10.1080/0267257X.2012.666791
- Vermeir, I., & Verbeke, W. (2008). Sustainable food consumption among young adults in Belgium: Theory of planned behavior and the role of confidence and values. Ecological Economics, 64(3), 542–553. https://doi.org/10.1016/j.ecolecon.2007.03.007