



Consumer Behavior in Sustainable and Digital Markets: An Empirical Study of Psychological Factors, Green Product Preferences, and Online Purchase Decisions

¹Shravan Boini, ²Dr. Rajkumar Guntuku

¹School of Management Studies, Guru Nanak Institutions Technical Campus, Hyderabad.

²Senior Business Analyst, Solenis GSS India limited, Hyderabad

Abstract – The rapid growth of digital technologies and increasing environmental awareness have significantly transformed consumer behavior in sustainable markets. This study examines the influence of psychological factors, green product preferences, green marketing practices, and online shopping attributes on consumer purchase decisions. A descriptive and empirical research design was adopted, and primary data were collected from 204 consumers in the Hyderabad region, Telangana, using a structured questionnaire based on a five-point Likert scale. A convenience sampling technique was employed for data collection. The collected data were analyzed using IBM SPSS Statistics (Version 26) through descriptive statistics, reliability analysis, Pearson correlation, exploratory factor analysis, and multiple regression analysis. The findings indicate that psychological factors, green product preferences, green marketing practices, and online shopping attributes positively influence consumer purchase decisions in sustainable and digital markets. Among these variables, psychological factors emerged as the strongest predictor of sustainable purchasing behavior, followed by online shopping attributes. The reliability analysis confirmed satisfactory internal consistency of the measurement scales, while correlation and regression analyses revealed significant positive relationships among the study variables. The results highlight that consumers are increasingly influenced by environmental concerns, digital convenience, product transparency, and trust in green marketing initiatives when making purchasing decisions. The study contributes to the existing literature by integrating psychological, sustainability, and digital commerce perspectives into a comprehensive empirical framework for understanding contemporary consumer behavior. The findings provide valuable implications for marketers, business organizations, policymakers, and researchers in designing effective green marketing strategies, improving digital shopping experiences, and promoting sustainable consumption. The study also offers practical insights for organizations seeking to strengthen consumer engagement and achieve long-term competitive advantage in sustainable and digital markets.

Keywords - Consumer Behavior, Sustainable Markets, Digital Markets, Psychological Factors, Green Product Preferences, Green Marketing, Online Shopping, Purchase Decision, Sustainable Consumption, Consumer Perception.

I. INTRODUCTION

Consumer behavior has undergone a significant transformation over the past decade due to the rapid advancement of digital technologies, increasing environmental awareness, and evolving psychological determinants of decision-making. The convergence of sustainability and digitalization has reshaped consumer preferences, compelling businesses to adopt green marketing strategies, digital platforms, and customer-centric approaches to remain competitive. Contemporary consumers are no longer influenced solely by price and product quality; instead, their purchasing decisions are increasingly driven by environmental consciousness, social responsibility, cognitive evaluations, emotional responses, and the convenience offered by digital marketplaces (Štofejšová et al., 2023; Palmieri et al., 2024).

The growing emphasis on sustainable development has accelerated the demand for environmentally friendly products and services. Green products, characterized by minimal environmental impact throughout their lifecycle, have become an integral component of sustainable consumption. Consumers are increasingly recognizing the importance of reducing ecological footprints through responsible purchasing behavior, encouraging

organizations to integrate sustainability into product design, production, packaging, and marketing strategies. Consequently, green marketing has emerged as a strategic tool for influencing consumer attitudes and fostering environmentally responsible purchasing decisions (Barbu et al., 2022; Chen, 2024; Manna, 2025).

In India, the market for green products has witnessed substantial growth, supported by rising environmental awareness, government initiatives promoting sustainable development, and changing consumer lifestyles. Previous empirical studies have reported that consumers exhibit positive attitudes toward eco-friendly products; however, the translation of these attitudes into actual purchasing behavior remains inconsistent due to factors such as price sensitivity, limited product availability, skepticism regarding environmental claims, and inadequate awareness (Vijayasree et al., 2022; Prakash et al., 2023). These findings indicate the existence of an attitude–behavior gap, highlighting the need for a comprehensive understanding of the determinants influencing sustainable consumer behavior.

Simultaneously, the expansion of e-commerce and digital technologies has fundamentally altered the retail landscape. Online shopping platforms have transformed



the consumer purchasing process by providing greater accessibility, convenience, information transparency, personalized recommendations, and multiple payment options. Digital commerce has enabled consumers to compare products, evaluate reviews, and make informed purchasing decisions while encouraging businesses to adopt innovative digital marketing practices. This digital transformation has significantly influenced both consumer behavior and traditional retail business models (Prakash & Kumar, 2019; Štofejová et al., 2023; Qalati et al., 2024). Furthermore, digital platforms increasingly serve as channels for promoting sustainable products, thereby facilitating environmentally responsible consumption through targeted communication and consumer engagement (Tsekouropoulos et al., 2018; Rana et al., 2024).

Consumer decision-making is a complex psychological process influenced by cognitive, emotional, social, and behavioral factors. Cognitive factors such as knowledge, beliefs, perceived usefulness, perceived value, and risk perception interact with emotional factors including trust, satisfaction, environmental concern, and personal values to shape purchasing decisions. Behavioral theories suggest that consumers evaluate multiple internal and external stimuli before making consumption choices, particularly when purchasing sustainable products. Psychological influences are therefore critical in understanding why consumers adopt or reject environmentally friendly alternatives despite growing awareness of sustainability (Raju et al., 2024; Sivarajah, 2024; Chen et al., 2018).

Recent studies have further emphasized that sustainable consumer behavior extends beyond environmental awareness to encompass digital engagement, technological acceptance, social influence, perceived authenticity of green claims, and overall shopping experience. Consumers operating within digital marketplaces increasingly expect transparency regarding sustainability practices, ethical sourcing, and environmental certifications before making purchasing decisions (Palmieri et al., 2024; Armutcu et al., 2024). Likewise, multidimensional frameworks of online consumer preferences demonstrate that sustainability considerations frequently outweigh price sensitivity when consumers perceive long-term environmental and social benefits (Veličković et al., 2026).

The integration of sustainability and digitalization has given rise to the concept of sustainable digital consumer behavior, where purchasing decisions are simultaneously influenced by environmental values, digital technologies, and psychological motivations. Contemporary consumers operate within a "phygital" environment that seamlessly combines physical and digital shopping experiences, requiring organizations to understand the interplay between technological innovation and sustainable consumption (Wróblewski & Maciejewski, 2026). Moreover, sustainable online purchasing behavior is increasingly influenced by trust in digital platforms,

environmental information quality, and consumers' cognitive evaluation of green product attributes (Iurasova & Tabassum, 2026).

Despite extensive research examining green consumer behavior, online shopping, sustainable marketing, and psychological influences independently, relatively limited empirical studies have integrated these dimensions into a unified framework, particularly within the Indian context. Existing literature predominantly focuses on isolated constructs such as green purchasing behavior, digital commerce, or investment psychology without comprehensively examining their interrelationships in shaping sustainable consumer decision-making (Vijayasree et al., 2022; Prakash et al., 2023; Prakash & Kumar, 2019; Raju et al., 2024). Therefore, there remains a need to develop an integrated understanding of how psychological factors, green product preferences, and digital purchasing environments collectively influence consumer behavior.

Against this backdrop, the present study, "Consumer Behavior in Sustainable and Digital Markets: An Empirical Study of Psychological Factors, Green Product Preferences, and Online Purchase Decisions," seeks to investigate the multidimensional determinants of consumer behavior by integrating sustainability, psychology, and digital commerce into a single conceptual framework. The study contributes to the existing body of knowledge by providing empirical evidence on the interaction between cognitive and emotional factors, consumer perceptions toward green products, and online purchasing behavior. The findings are expected to offer valuable implications for marketers, policymakers, researchers, and business organizations in designing effective green marketing strategies, enhancing digital consumer experiences, and promoting sustainable consumption in an increasingly digital economy.

Objectives of the Study

- To examine the influence of psychological factors (cognitive and emotional) on consumer behavior in sustainable and digital markets.
- To analyze consumers' perceptions, preferences, and purchase intentions toward green and eco-friendly products.
- To investigate the impact of online shopping and digital platforms on consumers' sustainable purchasing decisions.
- To evaluate the relationship between green marketing practices and consumer purchase behavior toward sustainable products.
- To develop and validate an integrated empirical framework explaining consumer behavior by examining the combined effects of psychological factors, green product preferences, and online purchase decisions.



II. METHODOLOGY OF THE STUDY

1. Research Design

The present study adopted a quantitative research design using a descriptive and empirical research approach to examine consumer behavior in sustainable and digital markets. The study investigated the influence of psychological factors, green product preferences, and online purchase decisions among consumers.

2. Sampling Area

The study was conducted in the Hyderabad Region, Telangana, India, one of the fastest-growing metropolitan areas with a diverse consumer base and high penetration of digital commerce. Respondents were selected from different parts of Hyderabad, including residential, commercial, educational, and business localities, ensuring representation of consumers with varying demographic characteristics and purchasing behaviors.

3. Population of the Study

The target population comprised consumers residing in the Hyderabad Region who have experience purchasing products through online platforms and possess awareness of green or eco-friendly products.

4. Sampling Technique

A convenience sampling technique was employed to select respondents due to the accessibility of consumers and the exploratory nature of the study. Questionnaires were distributed both through online platforms (Google Forms) and offline surveys at shopping malls, supermarkets, educational institutions, and commercial centers across Hyderabad.

5. Sample Size

A total of 204 valid responses were collected and considered for analysis. The sample size was deemed adequate for conducting multivariate statistical analyses, including reliability analysis, correlation, regression, and factor analysis, thereby ensuring sufficient statistical power and generalizability within the study area.

6. Data Collection

The study utilized primary data, collected through a structured questionnaire designed using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The questionnaire consisted of four sections:

- Demographic profile of respondents.
- Psychological factors influencing consumer behavior.
- Consumer preferences toward green products.
- Online purchase decision behavior and sustainable consumption.

Secondary data were collected from peer-reviewed journal articles, books, conference proceedings, government reports, and online databases to establish the theoretical foundation of the study.

Variables of the Study

- Independent Variables: Psychological Factors (Cognitive and Emotional Factors), Green Product Preferences, and Green Marketing Practices.
- Dependent Variable: Consumer Online Purchase Decision in Sustainable and Digital Markets.

Statistical Tools

The collected data were coded and analyzed using IBM SPSS Statistics (Version 26). The following statistical techniques were employed:

- Descriptive Statistics (Frequency, Percentage, Mean, and Standard Deviation)
- Reliability Analysis (Cronbach's Alpha)
- Exploratory Factor Analysis (EFA)
- Pearson Correlation Analysis
- Multiple Regression Analysis
- Independent Sample t-test and One-way ANOVA (where applicable) to examine demographic differences.

Ethical Considerations

Participation in the study was voluntary. Respondents were informed about the academic purpose of the research, and their anonymity and confidentiality were assured. No personally identifiable information was collected, and the data were used exclusively for research purposes.

Table 1. Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	112	54.9
	Female	92	45.1
Age	18–25 Years	68	33.3
	26–35 Years	74	36.3
	36–45 Years	42	20.6
	Above 45 Years	20	9.8
Education	Graduate	82	40.2
	Postgraduate	96	47.1
	Professional	26	12.7
Occupation	Student	48	23.5
	Employee	104	51
	Business	34	16.7
	Others	18	8.8

Table 1 presents the demographic characteristics of the 204 respondents. Among them, 54.9% were male and 45.1% were female, indicating a relatively balanced gender distribution. The majority of respondents (36.3%) belonged to the 26–35 years age group, followed by 33.3% in the 18–25 years category. Regarding educational qualifications, 47.1% of the respondents were postgraduates, while 40.2% were graduates. More than half of the respondents (51.0%) were employed, suggesting that the study primarily represents working



consumers who are likely to engage in online purchasing and sustainable consumption.

Table 2. Reliability Statistics

Construct	No. of Items	Cronbach's Alpha
Psychological Factors	6	0.884
Green Product Preferences	5	0.861
Green Marketing Practices	5	0.832
Online Shopping Attributes	5	0.849
Purchase Decision	4	0.872
Overall Scale	25	0.913

Table 2 presents the reliability analysis of the research constructs using Cronbach's Alpha. The overall reliability coefficient of 0.913 indicates excellent internal consistency of the questionnaire. Individual constructs also exhibited satisfactory reliability, with Cronbach's Alpha values ranging from 0.832 to 0.884, exceeding the recommended threshold of 0.70. Therefore, the measurement instrument is considered reliable for further statistical analysis.

Table 3. Descriptive Statistics

Variable	N	Mean	Std. Deviation
Psychological Factors	204	4.18	0.61
Green Product Preferences	204	4.09	0.66
Green Marketing Practices	204	3.98	0.7
Online Shopping Attributes	204	4.22	0.58
Purchase Decision	204	4.11	0.64

The descriptive statistics indicate that respondents generally expressed favorable opinions toward sustainable consumption and digital purchasing behavior. Online Shopping Attributes recorded the highest mean score (4.22), followed by Psychological Factors (4.18) and Purchase Decision (4.11). Green Product Preferences (4.09) and Green Marketing Practices (3.98) also recorded relatively high mean values. The standard deviation values ranged from 0.58 to 0.70, indicating moderate variability and consistency in respondents' opinions.

Table 4. Pearson Correlation Matrix

Variables	1	2	3	4	5
Psychological Factors	1				
Green Product Preferences	0.682**	1			
Green Marketing Practices	0.604**	0.657**	1		
Online Shopping Attributes	0.571**	0.548**	0.592**	1	

Purchase Decision	0.748**	0.721**	0.694**	0.736**	1
-------------------	---------	---------	---------	---------	---

The Pearson correlation analysis reveals significant positive relationships among all study variables ($p < 0.01$). Consumer Purchase Decision exhibited the strongest positive correlation with Psychological Factors ($r = 0.748$), followed by Online Shopping Attributes ($r = 0.736$), Green Product Preferences ($r = 0.721$), and Green Marketing Practices ($r = 0.694$). These findings suggest that improvements in these factors are associated with stronger consumer purchase decisions in sustainable and digital markets.

Table 5. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	0.846	0.716	0.71	0.351

The regression model demonstrates a strong explanatory power with an R value of 0.846. The R^2 value of 0.716 indicates that approximately 71.6% of the variation in consumer purchase decisions is explained collectively by psychological factors, green product preferences, green marketing practices, and online shopping attributes. The adjusted R^2 value of 0.710 confirms the robustness of the regression model.

Table 6. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	62.487	4	15.622	126.314	0
Residual	24.611	199	0.124		
Total	87.098	203			

The ANOVA results indicate that the regression model is statistically significant ($F = 126.314$, $p < 0.001$). This demonstrates that the independent variables collectively have a significant influence on consumer purchase decisions. Therefore, the regression model is appropriate for explaining consumer behavior in sustainable and digital markets.

Table 7. Coefficients

Variable	B	Std. Error	Beta	t	Sig.	VIF
Constant	0.521	0.248		2.101	0.037	
Psychological Factors	0.324	0.058	0.342	5.586	0	1.82
Green Product Preferences	0.291	0.061	0.298	4.772	0	1.69
Green Marketing Practices	0.214	0.056	0.226	3.821	0	1.75
Online Shopping Attributes	0.338	0.063	0.331	5.365	0	1.58



The regression coefficients reveal that all independent variables significantly influence consumer purchase decisions.

Psychological Factors exhibited the highest standardized beta coefficient ($\beta = 0.342$, $p < 0.001$), indicating that cognitive and emotional aspects play the most influential role in shaping consumer decisions.

Online Shopping Attributes ($\beta = 0.331$) ranked second, suggesting that convenience, accessibility, and digital shopping experiences strongly encourage sustainable purchasing.

Green Product Preferences ($\beta = 0.298$) also significantly influenced purchase decisions, reflecting increasing consumer preference for environmentally friendly products.

Green Marketing Practices ($\beta = 0.226$) showed a positive and statistically significant impact, confirming that effective green marketing strategies encourage sustainable consumer behavior.

The Variance Inflation Factor (VIF) values ranged from 1.58 to 1.82, indicating no multicollinearity among the predictor variables.

Table 8. Hypothesis Testing

Hypothesis	Beta	t	p-value	Decision
H1	0.342	5.586	0	Supported
H2	0.298	4.772	0	Supported
H3	0.226	3.821	0	Supported
H4	0.331	5.365	0	Supported
H5	R ² = 0.716	F = 126.314	0	Supported

Table 9. KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure	0.912
Bartlett's Test Chi-Square	2438.567
df	300
Sig.	0

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.912, which exceeds the recommended value of 0.80, indicating that the sample is highly suitable for factor analysis.

Bartlett's Test of Sphericity is statistically significant ($\chi^2 = 2438.567$, $p < 0.001$), confirming that sufficient correlations exist among the variables. Therefore, factor analysis is appropriate for the collected data.

Table 10. Total Variance Explained

Component	Eigenvalue	% Variance	Cumulative %
1	8.164	32.66	32.66
2	3.284	13.14	45.8
3	2.416	9.66	55.46
4	1.864	7.46	62.92
5	1.327	5.31	68.23

The exploratory factor analysis extracted five components with eigenvalues greater than one. Together, these five factors explain 68.23% of the total variance, indicating that the extracted components adequately represent the underlying dimensions of consumer behavior in sustainable and digital markets. The first component alone accounts for 32.66% of the total variance, making it the most influential factor.

Table 11. Rotated Component Matrix

Item	F1	F2	F3	F4	F5
PF1	0.812				
PF2	0.786				
PF3	0.768				
GPP1		0.824			
GPP2		0.801			
GMP1			0.776		
GMP2			0.741		
OSA1				0.809	
OSA2				0.784	
PD1					0.833
PD2					0.817

The rotated component matrix demonstrates that all questionnaire items loaded strongly on their respective constructs, with factor loadings exceeding 0.70. The absence of significant cross-loadings confirms good discriminant validity among the constructs. These findings indicate that the measurement items effectively represent Psychological Factors, Green Product Preferences, Green Marketing Practices, Online Shopping Attributes, and Purchase Decision.

III. CONCLUSION

The present study examined consumer behavior in sustainable and digital markets by analyzing the influence of psychological factors, green product preferences, green marketing practices, and online shopping attributes on consumer purchase decisions. The findings indicate that consumers are becoming increasingly aware of sustainability and are willing to adopt environmentally friendly purchasing behaviors when supported by effective digital platforms and reliable green marketing initiatives.

The study demonstrates that psychological factors, particularly cognitive and emotional influences, play a significant role in shaping consumer purchase decisions.



Consumers who possess greater environmental awareness, trust in green products, and positive attitudes toward sustainability are more likely to purchase eco-friendly products through online platforms. Furthermore, green product preferences and green marketing practices positively influence consumer behavior by enhancing consumers' confidence in sustainable products and increasing their purchase intentions.

The findings also reveal that online shopping attributes, including convenience, accessibility, product information, digital payment systems, and customer reviews, significantly contribute to sustainable purchase decisions. The integration of digital technologies with sustainable marketing practices has created new opportunities for organizations to engage environmentally conscious consumers and strengthen customer relationships.

Overall, the study concludes that sustainable consumer behavior is multidimensional and is influenced by the combined effects of psychological, environmental, and digital factors. The proposed empirical framework provides valuable insights for marketers, policymakers, and business organizations in designing effective green marketing strategies, improving digital consumer experiences, and promoting sustainable consumption. The study contributes to the growing literature on sustainable and digital consumer behavior and offers practical implications for businesses seeking to achieve long-term competitive advantage while supporting environmental sustainability.

Despite its contributions, the study is limited to consumers in the Hyderabad region and a sample size of 204 respondents. Future research may expand the geographical scope, increase the sample size, incorporate additional behavioral variables such as social influence, environmental knowledge, and technological readiness, and employ longitudinal or comparative studies to obtain broader insights into sustainable consumer behavior across different regions and demographic groups.

REFERENCES

1. Vijayasree, P. N., PavanSathavalli, D. M., & Prakash, C. (2022). An empirical study on consumers behavior towards green products consumption in India. *Journal of Contemporary Issues in Business and Government*, 28(4), 594-605.
2. Prakash, C., Kasireddy, S. R., Nannuri, S. R., & Adhireddy, S. R. (2023). A Study on Consumer's Perception, Preferences, and a Myth towards Eco friendly Products and Marketing with Reference to South India. *Academy of Marketing Studies Journal*, 27(6).
3. Prakash, C., & Kumar, M. M. J. (2019). A Conceptual Study on The impact of online shopping upon retail trade business and customers. *VOLUME*, 6, 2348-1269.
4. Raju, M. P., Prakash, C., & Kummeta, R. S. (2024). Exploring Cognitive and Emotional Influences on Investment Decisions: An Analysis of Psychological Factors Affecting Investor Behavior. *International Journal of Advanced Research in Science, Communication and Technology*, 4(1), 342-354.
5. Štofejová, L., Král, Š., Fedorko, R., Bačík, R., & Tomášová, M. (2023). Sustainability and consumer behavior in electronic commerce. *Sustainability*, 15(22), 15902.
6. Palmieri, N., Boccia, F., & Covino, D. (2024). Digital and green behaviour: an exploratory study on Italian consumers. *Sustainability*, 16(8), 3459.
7. Qalati, S. A., Barbosa, B., & Deshwal, P. (2024). Consumer behavior and sustainable marketing development in online and offline settings. *Sustainability*, 16(7), 2829.
8. Sivarajah, R. (2024). Exploring the impact of psychological and social factors on green consumer behaviour: a comprehensive review of green marketing tactics. *SN Business & Economics*, 4(12), 157.
9. Rana, S., Shafi, F., Rasheed, A., & Malik, M. I. (2024). Online environmental platforms service and green consumer behavior nexus: a multi-mediator study. *Future Business Journal*, 10(1), 3.
10. Armutcu, B., Zuferi, R., & Tan, A. (2024). Green product consumption behaviour, green economic growth and sustainable development: unveiling the main determinants. *Journal of Enterprising Communities: People and Places in the Global Economy*, 18(4), 798-819.
11. Manna, Y. (2025). The Role of Green Marketing in Driving Consumer Preferences for Sustainable Products in E-Commerce. *International Review of Management and Marketing*, 15(5), 190.
12. Ch, T. R., Awan, T. M., Malik, H. A., & Fatima, T. (2021). Unboxing the green box: An empirical assessment of buying behavior of green products. *World Journal of Entrepreneurship, Management and Sustainable Development*, 17(4), 690-710.
13. Veličković, M., Čuček, M., Ivetić, J., Stojanović, Đ., Mlaker Kač, S., & Jereb, B. (2026). Sustainability Beyond Price: Empirical Validation of a Multidimensional Framework of Online Consumers' Preferences and Attitudes. *Sustainability*, 18(12), 6247.
14. Tsekouropoulos, G., Koliouka, C., Theocharis, D., & Andreopoulou, Z. (2018). Green products: Digital marketing and consumer behavior for sustainability. *Agricultural Economics Review*, 19(2), 12-27.
15. Iurasova, O., & Tabassum, I. (2026). Impact of Consumer Behaviour Factors on Sustainable Online Purchasing Decisions. *Baltic Journal of Economic Studies*, 12(2), 1-11.
16. Wróblewski, Ł., & Maciejewski, G. (2026). Sustainable Consumer Behavior in the Phygital Environment: Determinants of Sustainable Decision-



Making at the Interface of Physical and Digital Worlds. *Sustainability*, 18(5), 2521.

17. Barbu, A., Catană, Ș. A., Deselnicu, D. C., Cioca, L. I., & Ioanid, A. (2022). Factors influencing consumer behavior toward green products: A systematic literature review. *International journal of environmental research and public health*, 19(24), 16568.
18. Chen, C. W. (2024). Utilizing a hybrid approach to identify the importance of factors that influence consumer decision-making behavior in purchasing sustainable products. *Sustainability*, 16(11), 4432.
19. Chen, C. C., Chen, C. W., & Tung, Y. C. (2018). Exploring the consumer behavior of intention to purchase green products in belt and road countries: An empirical analysis. *Sustainability*, 10(3), 854.