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Consumer Attitudes And Purchase Intention Towards Eco-Friendly Products: A Regional Study Of Madhya Pradesh

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Abstract
As environmental sustainability becomes a growing worldwide need, understanding the mental and social components behind eco-friendly buyer behavior is critical, particularly in differing territorial settings like Madhya Pradesh, India. In spite of increased awareness of environmental issues, an outstanding disparity continues between buyer eagerly and genuine eco-friendly purchasing behavior. This study addresses this crevice by looking at five interconnected develops: consumer awareness and knowledge (CAK), attitudes toward eco-friendly products (ATEP), influencing factors, purchase intention (PI), and regional purchase behavior (RPB). Drawing upon behavioral and environmental psychology, a conceptual framework was created and tried utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) on information collected from 207 respondents through an organized overview. The results affirm that CAK altogether improves ATEP, which both ATEP and In case emphatically influence PI. In turn, PI unequivocally predicts RPB, whereas ATEP moreover includes a coordinate impact on RPB, showing both intervened and coordinate pathways. This paper progresses existing models by joining region-specific experiences into eco-conscious consumer behavior. Essentially, the discoveries give significant direction for policymakers and marketers to create focused on interventions and awareness methodologies to drive the adoption of sustainable products in semi-urban Indian markets.

Keywords: *Eco-friendly products; Consumer attitudes; Purchase intention; Regional behavior; Sustainable consumption.*

1. Introduction

The increasing concern over natural degradation, climate change, and unsustainable utilization patterns has driven the global demand for eco-friendly products (Joshi & Rahman, 2021). Governments, businesses, and buyers alike are progressively recognizing the significance of economic utilization practices in accomplishing long-term environmental objectives (Kautish et al., 2020). Eco-friendly products—those designed to have negligible harmful impacts on the environment—have picked up significant consideration among ecologically cognizant buyers (Kushwah et al., 2020). In spite of developing awareness, the degree of adoption and positive customer states of mind towards green items still shifts broadly over districts and financial strata (Rani & Kumar, 2022). In India, the push for sustainability is progressively obvious in open talk, policymaking, and promoting procedures; be that as it may, territorial disparities in awareness and access continue (Saxena & Khandelwal, 2022). Madhya Pradesh, found in central India, may be a state characterized by both urbanizing centers and broad country hinterlands, advertising an interesting setting to investigate shopper behavior toward eco-friendly items (Verma & Singh, 2023). As India's fifth-largest state by area and population, Madhya Pradesh presents a diverse financial and social setting that impacts customer choices in particular ways (Choudhary & Sharma, 2023). Shoppers ' attitudes toward eco-friendly items are generally molded by psychological develops such as environmental concern, perceived buyer adequacy, and belief in green marketing claims (Agarwal et al., 2021). In any case, while states of mind may be favorable, actual buy intentions frequently fall short, demonstrating an attitude–behavior gap commonly watched in green consumption (Mandal & Bhowmick, 2024). This disparity is further widened in districts where awareness, access, and reasonableness of eco-friendly items are restricted, as seen in a few parts of Madhya Pradesh (Gupta & Bansal, 2022). The Theory of Planned Behavior (TPB) offers a strong hypothetical framework for examining eco-friendly purchase behavior, emphasizing the role of attitudes, subjective norms, and perceived behavioral control (Jaiswal & Kant, 2021). Research recommends that a positive

attitude could be a vital but insufficient indicator of behavior unless backed by empowering conditions and social impacts (Kushwah et al., 2020). In semi-urban and rural regions, especially in Madhya Pradesh, variables like family influence, community norms, and educational background altogether direct consumer decision-making (Patel & Sharma, 2021). Additionally, statistical components such as age, sex, salary, and education level are basic in shaping both attitude and intention toward green items (Rani & Kumar, 2022).

For instance, younger and more educated consumers tend to exhibit higher environmental concern and are more likely to consider eco-friendly choices whereas making purchases (Tripathi & Yadav, 2023). Marketing methodologies moreover, play a vital part in affecting consumer perceptions and intentions (Kautish et al., 2020). Brands that viably communicate the environmental benefits of their items, backed by solid eco-labels and certifications, tend to build higher belief and engagement among shoppers (Kushwah et al., 2020). Within the context of Madhya Pradesh, where we believe in corporate communication and item labeling is still developing, the authenticity of green claims becomes paramount (Saxena & Khandelwal, 2022). False or exaggerated environmental claims can lead to customer skepticism and hinder the development of the green advertising (Mandal & Bhowmick, 2024). As such, transparency and clarity in communication are fundamental to cultivating positive attitudes and eagerness among territorial consumers (Agarwal et al., 2021).

Openness and affordability are similarly significant determinants in the green purchase decision-making process (Choudhary & Sharma, 2023). Numerous eco-friendly items are estimated at a premium due to higher generation costs and limited supply chains, which can prevent price-sensitive customers (Patel & Sharma, 2021). In regions like Madhya Pradesh, where disposable earnings and item accessibility shift over areas, this may pose considerable barriers to adoption (Gupta & Bansal, 2022). Nevertheless, a few considerations appear that customers may be willing to pay a higher cost if they see an item to offers prevalent environmental or health benefits (Tripathi & Yadav, 2023). In this way, highlighting both the ecological and individual benefits—such as health security or item durability—can emphatically influence buying intentions (Kautish et al., 2020). Digital platforms and social media are also shaping eco-friendly consumption by spreading awareness and impacting peer behaviors (Verma & Singh, 2023). Especially among the urban youth of Madhya Pradesh, eco-influencers and green communities are playing a developing role in shaping preferences and forming new customer standards (Jaiswal & Kant, 2021). However, for huge sections of the rural population, offline touchpoints like local sellers, community groups, and open campaigns stay more successful in driving green awareness (Patel & Sharma, 2021). This digital separation underlines the requirement for tailored communication techniques that consider territorial access to information and innovation (Saxena & Khandelwal, 2022). Besides, associations between government, non-profits, and businesses can play an instrumental part in enhancing green item accessibility and recognition (Choudhary & Sharma, 2023).

Another rising viewpoint is the passionate and social association with eco-friendly behavior (Agarwal et al., 2021). In regions with conventional practices of asset preservation and reuse, green products may resonate more when situated as expansions of nearby values (Gupta & Bansal, 2022). Moreover, instruction and community engagement initiatives can be effective instruments for forming pro-environmental attitudes, particularly when implemented through local education (Tripathi & Yadav, 2023). Given this background, there's a basic need to empirically look at how attitudes and buying intentions toward eco-friendly items are shaped in a territorial setting like Madhya Pradesh (Jaiswal & Kant, 2021). Whereas national-level studies have given important experiences, territorial studies can reveal localized boundaries, inspirations, and advertise potential (Saxena & Khandelwal, 2022). This investigation thus points to filling this gap by investigating buyer attitudes and intentions through a multidimensional lens, incorporating psychological, social, financial, and social determinants (Mandal & Bhowmick, 2024). The discoveries are anticipated to help policymakers, marketers, and partners in planning region-specific methodologies to advance economic utilization and extend the green advertise in India (Choudhary & Sharma, 2023).

1.1Research Objectives

1. To examine the influence of consumer awareness and knowledge (CAK) on attitudes toward eco-friendly products (ATEP).
2. To investigate the relationship between consumer attitudes toward eco-friendly products (ATEP) and their purchase intentions (PI).

3. To assess the impact of social and external influencing factors (IF) on consumers' purchase intentions (PI) for eco-friendly products.
4. To analyze how purchase intentions (PI) affect actual regional purchase behavior (RPB) of eco-friendly products in Madhya Pradesh.
5. To determine the direct effect of consumer attitudes toward eco-friendly products (ATEP) on actual regional purchase behavior (RPB).

1.2 Research Questions

1. How does consumer awareness and knowledge (CAK) about eco-friendly products influence consumer attitudes (ATEP) in Madhya Pradesh?
2. What is the relationship between consumer attitudes toward eco-friendly products (ATEP) and their purchase intentions (PI)?
3. To what extent do social and external influencing factors (IF) impact the purchase intentions (PI) of consumers toward eco-friendly products?
4. How do purchase intentions (PI) translate into actual regional purchase behavior (RPB) of eco-friendly products in Madhya Pradesh?
5. Does a favorable attitude toward eco-friendly products (ATEP) directly lead to increased eco-friendly product purchases (RPB) in Madhya Pradesh?

2. Literature Review

2.1Review of relevant theory

The Theory of Planned Behavior (TPB), initially created by Ajzen (1991), has become a widely accepted system for clarifying and forecasting human behavior across different spaces, including economic utilization. It is especially important for understanding customer behavior toward eco-friendly items, because it focuses on three essential determinants of behavioral deliberation: attitude toward the behavior, subjective standards, and perceived behavioral control (Ajzen, 1991; Paul et al., 2021). Later investigations have illustrated TPB's strength in clarifying why customers select to buy ecologically neighborly items (Yadav & Pathak, 2020).

2.2Customer Awareness and Attitudes

H1: Higher awareness and knowledge about eco-friendly items lead to more favorable customer attitudes.

Consumer awareness and knowledge (CAK) are broadly recognized as foundational drivers in forming favorable attitudes toward eco-friendly items (ATEP). When people understand the environmental results of consumption, they are more inclined to bolster green options (Kautish & Sharma, 2020). Environmental education not as it were helps shoppers translate eco-labels and certifications but moreover builds belief in green brands (Nguyen et al., 2020). In India—particularly in diverse districts such as Madhya Pradesh—public awareness campaigns have been instrumental in reshaping consumption designs (Sharma & Foropon, 2020). Yadav and Pathak (2021) confirm that shoppers with more eco-conscious nature with eco-certifications tend to create more grounded pro-environmental demeanors. In this way, CAK acts as a catalyst for inside value alignment, shaping the attitudinal base for future green behaviors.

2.3Attitudes Drive Purchase Intentions

H2: More positive attitudes toward eco-friendly items increase consumers' purchase intentions.

A well-established relationship in green marketing literature is that attitudes toward eco-friendly items emphatically impact purchase intentions (PI). Grounded within the Theory of Planned Behavior (TPB), this association proposes that favorable attitudes increase behavioral intent (Ajzen, 2020). Customers who relate eco-friendly items with superior wellbeing results, societal benefits, or environmental conservation are more likely to purchase them (Kautish et al., 2021). Indian research further bolsters this claim, highlighting that positive ATEP—especially among educated and urban demographics—enhances the probability of obtaining green items (Prakash & Pathak, 2021). Essentially, Bukhari et al. (2021) observed a direct interface between favorable environmental

attitudes and green buying behavior. In this way, attitudes act not only as internal inspirations but moreover as reliable predictors of intent.

2.4Social and External Influencee

H3: Social and external influencing factors positively influence consumers' purchase intentions.

Social and external influencing factors (If), such as peer standards, family support, promotion, and digital endorsements, play a noteworthy part in forming consumers' buying decision intentions. According to TPB, subjective norms—individuals' perceptions of social pressure—can be as compelling as individual attitudes in deciding behavior (Ajzen, 2020). In both urban and semi-urban areas of India, including Madhya Pradesh, consumers often demonstrate their eco-behavior based on peers, influencers, and social patterns (Joshi & Rahman, 2021). Celebrity promotion and social media activism increase the perceived validity and allure of eco-products (Dabija et al., 2020). Moreover, activities driven by the government and advanced influencers have made a difference embed supportability into mainstream consumer awareness, particularly among youth (Muralidharan et al., 2021). This demonstrates that Ifs work as a effective vehicle for norm-based influence and social approval.

2.5From Intentions to Regional Behavior

H4: Stronger purchase intentions lead to increased regional eco-friendly product purchases in Madhya Pradesh.

While purchase intention (PI) could be a dependable forerunner to behavior, real buying patterns—particularly in territorial settings like Madhya Pradesh—are influenced by viable imperatives such as openness, reasonableness, and framework. Verma and Chandra (2021) noted that gaps regularly exist between consumers' expressed intentions and their real-world activities due to logistical and monetary boundaries. However, Singh et al. (2022) found that when eco-products are effortlessly accessible and competitively priced, buyers in urban India are more likely to follow through on their green intentions. Sadiq et al. (2022) emphasized that repeated positive reinforcement of green intentions can result in behavioral habits, particularly if upheld by an appropriate framework. Therefore, indeed in spite of the fact that PI does not ensure activity, it altogether increases the likelihood of RPB when outside conditions are favorable.

2.6Direct Attitudinal Impact on Behavior

H5: Positive attitudes toward eco-friendly products directly influence regional purchase behavior.

Beyond influencing intention, attitudes toward eco-friendly items can directly shape genuine customer behavior. Nguyen et al. (2020) argue that emphatically internalized natural convictions can bypass the purposeful stage inside and out, leading to coordinated behavior. This can be especially evident among buyers with high levels of inherent motivation, such as environmental concern or moral identity. Kautish et al. (2021) emphasized that when attitudes are aligned with the core of individual values, they show in coordinated behavioral activity. Yadav and Pathak (2021) found that such attitudinal quality is common among Indian youth, who frequently act upon their values indeed without the need for outside support. Hence, ATEP can act as both a mediator and a direct indicator of feasible behavior, especially in value-driven sections.

3. Methodology

This study utilizes the Theory of Planned Behavior (TPB) (Ajzen, 1991) as the foundational system to explore eco-friendly shopper behavior in Madhya Pradesh through a quantitative, theory-driven approach. TPB's legitimacy over domains like green showcasing and sustainability lies in its capacity to anticipate behavior based on attitudes, subjective norms, and perceived behavioral control (Chaudhary & Bais, 2018; Suki, 2016). To bridge the frequently observed attitude–intention–behavior gap in sustainable utilization, the demonstration is amplified by joining five key developments: Customer Awareness and Knowledge (CAK), Attitudes Toward Eco-friendly Items (ATEP), Influencing Factors (If), Purchase Intention (PI), and Regional Purchase Behavior (RPB) (Paul et al., 2016; Ranjbarshamsi et al., 2022). Recognizing the significance of relevant factors, region-specific

variables such as reasonableness, product accessibility, and social impact were coordinated to upgrade TPB's illustrative control in Madhya Pradesh (Mandal & Bhowmick, 2024; Gupta & Bansal, 2022).
A organized cross-sectional overview was conducted among 207 educated consumers aged 18–50 from urban, semi-urban, and rural locales utilizing convenience sampling (Saxena & Khandelwal, 2022; Etikan et al., 2016). The instrument utilized Likert-scale items adapted from earlier green behavior literature (Kushwah et al., 2020; Tripathi & Yadav, 2023), with particular constructs measuring environmental knowledge (Joshi & Rahman, 2021), attitudes and perceived product benefits (Agarwal et al., 2021), social influence (Patel & Sharma, 2021), purchase intentions (Suki, 2016), and later buying behavior (Choudhary & Sharma, 2023). Data were analyzed utilizing PLS-SEM via SmartPLS 4.0, a strategy appropriate for hypothesis testing in small to medium samples and for handling complex models (Hair et al., 2019; Sarstedt et al., 2017). The two-stage approach evaluated both measurement and structural models, with bootstrapping (5,000 subsamples) affirming the significance of hypothesized relationships. This regionally grounded TPB system reinforces the theory's flexibility to diverse customer markets in India (Jaiswal & Kant, 2021; Verma & Singh, 2023).

Data Analysis

Table 1: Sample Characteristics

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	60	29
	Female	147	71
Age	18–20	80	39
	21–25	52	25
	26–30	40	19
	31–50	35	17
Education	Undergraduate	125	60
	Postgraduate	60	29
	Other	22	11
Area	Urban	141	68
	Semi-urban	66	32

3.1Measurement model assessment

3.1.1 Reliability and validity test

All constructs exhibit strong internal consistency, with Cronbach's alpha values ranging from 0.810 (IF1) to 0.906 (PI), and composite reliability (CR) values ranging from 0.885 to 0.941, all exceeding the recommended 0.70 threshold (Hair et al., 2019). Convergent validity is also confirmed, as each construct's Average Variance Extracted (AVE) surpasses the minimum recommended value of 0.50, with AVE values ranging from 0.719 (IF1) to 0.842 (PI).

Table 2: Reliability and validity test

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
ATEP	0.896	0.935	0.828
CAK	0.864	0.917	0.786
IF1	0.810	0.885	0.719
PI	0.906	0.941	0.842
RPB1	0.813	0.889	0.727

3.1.2 Multicollinearity Assessment (VIF Test Analysis)

To assess multicollinearity, both outer and inner VIF values were examined. All outer VIF values range between 1.538 (IF1) and 3.831 (ATEP3), while all inner VIF values fall between 1.000 (CAK → ATEP) and 2.352 (ATEP → RPB1; PI → RPB1). As all VIF values are below the recommended threshold of 5—and more conservatively, below 3.3—there is no indication of multicollinearity among the constructs (Sarstedt et al., 2017). These results further validate the robustness and stability of the measurement and structural models.

Table 3: Outer VIF

	VIF
ATEP1	2.552
ATEP2	2.699
ATEP3	3.831
CAK1	2.101
CAK2	2.170
CAK3	2.629
IF1	1.538
IF2	2.069
IF3	1.975
PI1	2.979
PI2	3.058
PI3	2.835
RPB1	1.995
RPB2	2.025
RPB3	1.567

Table 4: Inner VIF

	VIF
ATEP -> PI	2.101
ATEP -> RPB1	2.352
CAK -> ATEP	1.000
IF1 -> PI	2.101
PI -> RPB1	2.352

3.1.3 Outer Loading

All items exhibit strong outer loadings on their respective constructs, indicating high indicator reliability. Each loading exceeds the recommended threshold of 0.70 (Hair et al., 2019), with values ranging from 0.822 (IF3) to 0.944 (ATEP3). Specifically, the items measuring attitudes toward eco-friendly products (ATEP) range from 0.890 to 0.944, while those measuring consumer awareness and knowledge (CAK) range from 0.868 to 0.923. For the construct social and external influencing factors (IF1), all loadings are between 0.822 and 0.862. Items for purchase intention (PI) and regional purchase behavior (RPB1) also display strong loadings, with PI ranging from 0.906 to 0.927 and RPB1 from 0.840 to 0.860.

These results confirm that all observed variables contribute significantly to their latent constructs, supporting the measurement model's indicator reliability. As recommended by Hair et al. (2019), such high loadings reflect a strong association between items and their underlying constructs, thereby ensuring measurement validity.

Table 5: Outer Loadings

	Outer loadings
ATEP1 <- ATEP	0.890
ATEP2 <- ATEP	0.896
ATEP3 <- ATEP	0.944
CAK1 <- CAK	0.869
CAK2 <- CAK	0.868
CAK3 <- CAK	0.923
IF1 <- IF1	0.862
IF2 <- IF1	0.859
IF3 <- IF1	0.822
PI1 <- PI	0.920
PI2 <- PI	0.927
PI3 <- PI	0.906
RPB1 <- RPB1	0.859
RPB2 <- RPB1	0.860
RPB3 <- RPB1	0.840

3.1.4 R Square & f-square

The analysis of the R Square (R^2) and F Square (f^2) values reveals key insights into the strength and explanatory power of the proposed structural model. The R^2 values indicate that the model explains 58.9% of the variance in Attitudes Toward Eco-friendly Products (ATEP), 65.9% in Purchase Intention (PI), and 61.9% in Regional Purchase Behavior (RPB1). These values reflect moderate explanatory power for attitudes and substantial explanatory power for both purchase intention and regional behavior, suggesting the model is robust in predicting eco-friendly behavioral outcomes.

The F Square (f^2) values further clarify the magnitude of individual relationships within the model. The largest effect size is observed between Consumer Awareness and Knowledge (CAK) and ATEP ($f^2 = 1.431$), indicating a very strong influence—highlighting the crucial role of awareness and education in shaping eco-friendly attitudes. The paths from ATEP to PI ($f^2 = 0.288$), IF1 (external influences) to PI ($f^2 = 0.246$), ATEP to RPB1 ($f^2 = 0.165$), and PI to RPB1 ($f^2 = 0.231$) all exhibit medium effect sizes, suggesting that consumer attitudes and external factors significantly influence both purchase intentions and actual behavior. Collectively, the model demonstrates a strong theoretical alignment with consumer behavior frameworks such as the Theory of Planned Behavior, affirming that increasing awareness and addressing social influences are effective strategies for enhancing eco-friendly purchase intentions and behavior.

Table 6: R Square- Coefficient of Determination

Endogenous Construct	R-square (R^2)	Adjusted R-square	Interpretation
ATEP	0.589	0.587	Moderate explanatory power
PI	0.659	0.655	Substantial explanatory power
RPB1	0.619	0.616	Substantial explanatory power

Table 7: F Square- Effect Size of Predictors

Path	f-square (f^2)	Effect Size	Interpretation
CAK → ATEP	1.431	Large	Very strong effect of awareness/knowledge on attitudes
ATEP → PI	0.288	Medium	Moderate effect of attitudes on purchase intention
IF1 → PI	0.246	Medium	Moderate effect of external influences on purchase intention
ATEP → RPB1	0.165	Medium	Moderate effect of attitudes on regional purchase behavior
PI → RPB1	0.231	Medium	Moderate effect of purchase intention on regional purchase behavior

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3.2Structural Model Assessment

The structural model assessment demonstrates strong and statistically significant relationships among all hypothesized paths, confirming the robustness of the proposed model. Hypothesis H1 is strongly supported, as consumer awareness and knowledge (CAK) have a very strong and significant effect on attitudes toward eco-friendly products (ATEP), with a high path coefficient of 0.767, a T-statistic of 17.026, and a p-value of 0.000. This finding highlights the foundational role of environmental awareness in shaping favorable consumer attitudes. Hypothesis H2 is also supported, showing that positive consumer attitudes significantly influence purchase intentions (PI), with a path coefficient of 0.454 and strong statistical significance (T = 5.289, p = 0.000). Similarly, H3 confirms that social and external influencing factors (IF1) play a crucial role in shaping purchase intentions, as reflected by a path coefficient of 0.420 (T = 4.809, p = 0.000), suggesting that peer pressure, cultural norms, and media exposure can meaningfully drive consumer decision-making. Furthermore, Hypothesis H4 demonstrates that purchase intentions are strong predictors of actual regional purchase behavior (RPB1), with a path coefficient of 0.454, a T-statistic of 5.698, and a p-value of 0.000. This supports the widely accepted notion in behavioral theories that intention precedes behavior. Finally, Hypothesis H5 reveals a direct and significant relationship between consumer attitudes and regional purchase behavior, independent of purchase intention, with a path coefficient of 0.384 (T = 4.755, p = 0.000). This suggests that strong positive attitudes alone may be sufficient to drive consumers toward eco-friendly purchasing actions, even without a deliberate intention phase. Collectively, the model confirms that both internal cognitive factors (awareness and attitudes) and external social influences significantly affect eco-friendly consumer behavior, providing valuable insights for designing effective sustainability-focused marketing and policy interventions.

Fig 1: Structural Model

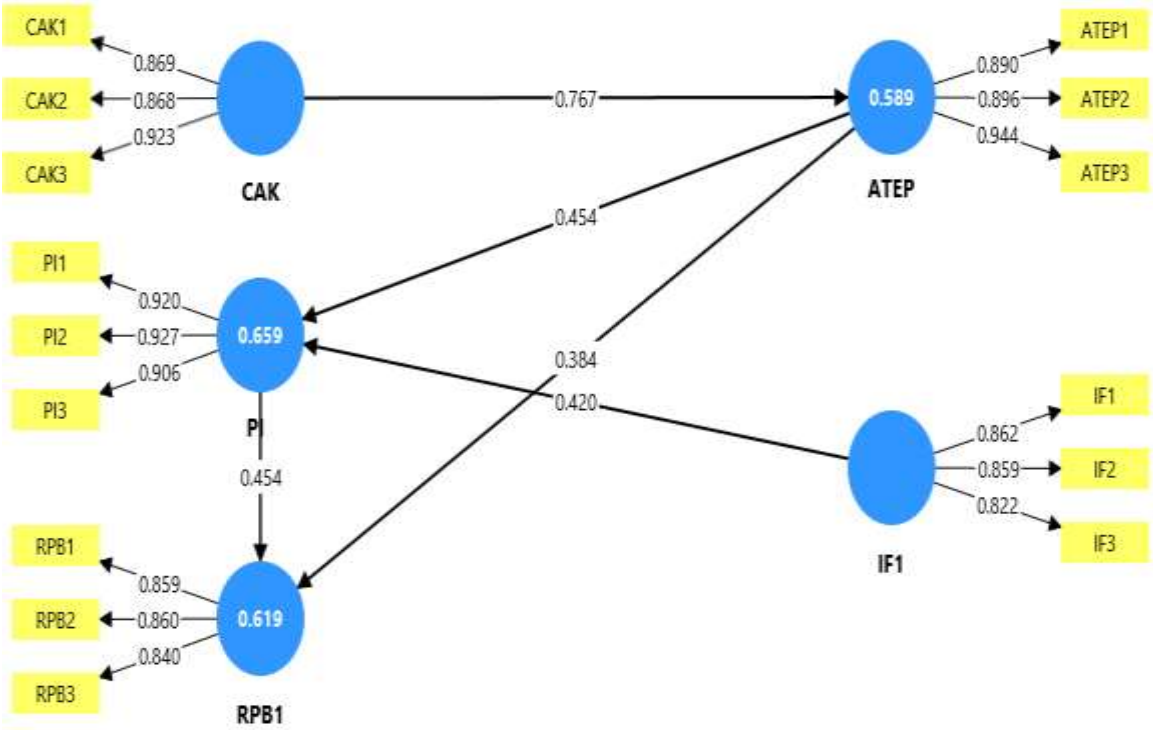

Table 8: Structural Model Hypothesis Results

Hypothesis	Structural Path	Path Coefficient (O)	T-Statistic	P-Value	Significance	Interpretation
H1	CAK → ATEP	**0.767**	17.02s6	0.000	Supported	Consumer awareness and knowledge have a **very strong and significant** effect on attitudes toward eco-friendly products.
H2	ATEP → PI	**0.454**	5.289	0.000	Supported	Positive consumer attitudes lead to **significant increases** in purchase intentions.
H3	IF1 → PI	**0.420**	4.809	0.000	Supported	Social and external influencing factors significantly influence purchase intentions.
H4	PI → RPB1	**0.454**	5.698	0.000	Supported	Purchase intentions **strongly predict** actual regional purchase behavior of eco-friendly products.
H5	ATEP → RPB1	**0.384**	4.755	0.000	Supported	Attitudes also have a **direct effect** on regional purchase behavior, independent of intention.

3.2.1 Specific Indirect effects & Total effects

The analysis of the specific indirect effects and total effects provides valuable insights into the mediating mechanisms that drive eco-friendly consumer behavior. The specific indirect effects show how key constructs influence one another through intermediary variables, highlighting the importance of both direct and indirect pathways. For instance, the indirect effect of attitudes toward eco-friendly products (ATEP) on regional purchase behavior (RPB1) through purchase intention (PI) is 0.206, confirming that positive attitudes lead to behavior via strengthened intention. Similarly, the influence of social and external factors (IF1) on behavior is entirely mediated by purchase intention, with an indirect effect of 0.191, indicating that such factors play a crucial role in shaping intent, which subsequently drives behavior. Consumer awareness and knowledge (CAK) exhibit multiple indirect effects. CAK significantly influences purchase intention through attitudes (0.348), and also affects behavior via attitudes alone (0.295), as well as through the combined path of attitudes and intention (0.158). These findings emphasize that awareness does not directly translate into behavior but does so by shaping attitudes and intentions, which are critical mediating variables in the behavioral decision-making process.

The total effects further reinforce the importance of these constructs. CAK has a strong total effect on attitudes (0.767), and notable effects on both purchase intention (0.348) and regional behavior (0.453), indicating that knowledge and awareness are foundational to driving eco-friendly actions. Attitudes have a total effect of 0.454 on intention and a higher total effect of 0.591 on behavior, suggesting that attitudes influence behavior both directly and indirectly through intention. Purchase intention itself strongly predicts behavior, with a total effect of 0.454. Additionally, social and external influences (IF1) affect intention (0.420) and indirectly impact behavior (0.191), highlighting their role in shaping eco-conscious purchasing decisions.

Overall, the analysis confirms a well-structured and theoretically grounded model in which awareness, attitudes, and social factors interact through intention to influence actual purchasing behavior. These findings underscore the importance of integrated strategies that not only inform consumers but also shape positive attitudes and foster supportive social environments to encourage sustainable consumption.

Table 9: Specific indirect effects

	Specific indirect effects
ATEP -> PI -> RPB1	0.206
IF1 -> PI -> RPB1	0.191
CAK -> ATEP -> PI	0.348
CAK -> ATEP -> RPB1	0.295
CAK -> ATEP -> PI -> RPB1	0.158

Table 10: Total effects

	Total effects
ATEP -> PI	0.454
ATEP -> RPB1	0.591
CAK -> ATEP	0.767
CAK -> PI	0.348
CAK -> RPB1	0.453
IF1 -> PI	0.420
IF1 -> RPB1	0.191
PI -> RPB1	0.454

4. Discussion

The results of this study support the applicability and robustness of the extended Theory of Planned Behavior (TPB) in explaining environmentally responsible behavior among young Indian consumers. Most notably, the strong influence of **Consumer Awareness and Knowledge (CAK)** on **Attitudes Toward Eco-Friendly Products (ATEP)** (path coefficient = 0.767, f^2 = 1.431) underscores the central role of cognitive factors in initiating pro-environmental behavior. This aligns with foundational literature, which has long asserted that knowledge serves as a necessary precursor to environmental concern and sustainable action (Kollmuss & Agyeman, 2002; Paul et al., 2016). Equally significant is the influence of **Social and External Influencing Factors (IF1)** on **Purchase Intention (PI)** (path coefficient = 0.420, f^2 = 0.246), reflecting the increasing impact of peer dynamics, digital networks, and societal norms on consumer behavior. This finding resonates with recent studies (Suki, 2016; Ranjbarshamsi et al., 2022), suggesting that eco-friendly behavior is not merely a product of individual cognition, but also shaped by community expectations and social validation. As a result, green marketing strategies should prioritize socially-driven narratives and influencer-led campaigns to encourage broader adoption of sustainable products. Furthermore, the direct and significant effect of **Purchase Intention (PI)** on **Regional Purchase Behavior (RPB1)** (path coefficient = 0.454, f^2 = 0.231) confirms the mediating power of intention in the decision-making process—an essential insight for addressing the widely recognized intention–behavior gap. This finding supports Vermeir and Verbeke's (2008) argument that intention is not merely a byproduct of attitude but a pivotal mechanism that channels cognitive and social inputs into observable action. Interestingly, the model also reveals that **Attitudes Toward Eco-Friendly Products (ATEP)** directly influence **Regional Purchase Behavior (RPB1)** (path coefficient = 0.384, f^2 = 0.165), suggesting that strong positive attitudes can sometimes translate into action without a formalized intention stage. This dual pathway—from ATEP to behavior both directly and indirectly via intention—reflects the complexity of consumer psychology and underscores the need for multifaceted intervention strategies. Despite the model's explanatory power (R^2 = 0.659 for PI and 0.619 for RPB1), it also reveals certain limitations inherent in the TPB framework. As highlighted by Kollmuss and Agyeman (2002), behavioral outcomes are not solely the product of rational deliberation but are often influenced by emotional, habitual, and situational factors.

For instance, consumers may express strong eco-friendly attitudes yet default to unsustainable habits due to convenience, guilt avoidance, or lack of emotional resonance. The TPB does not fully account for these affective and identity-based drivers, which are better addressed in frameworks like the **Value-Belief-Norm (VBN) theory** or **Moral Norm Activation Model**. Future research should consider integrating such models to enrich the predictive depth of eco-behavioral analyses. The **mediation analysis** further highlights how indirect effects shape behavior. CAK influences PI and RPB1 primarily through ATEP (indirect effects = 0.348 and 0.295, respectively),

and the combined path from CAK → ATEP → PI → RPB1 (indirect effect = 0.158) illustrates a layered decision-making process. These results confirm that awareness alone is insufficient—it must be translated into favorable attitudes and intentions to generate action. Similarly, the impact of IF1 on RPB1 is entirely mediated by PI (indirect effect = 0.191), reinforcing the role of intention as a psychological conduit between antecedents and behavior. In sum, this study affirms that promoting eco-friendly consumer behavior requires a **multi-pronged strategy**: elevating environmental knowledge, shaping positive attitudes, fostering social influence, and ensuring structural enablers such as access and affordability. Future studies should delve deeper into emotional and normative motivators—such as **eco-identity**, **moral obligation**, and **environmental guilt**—which may bridge the intention-action divide. Longitudinal or experimental designs could provide stronger causal inferences and uncover how these motivators evolve over time. Moreover, investigating how visual cues (e.g., eco-labels, certifications, sustainability scores) and affective messaging influence consumer decision-making can offer practical insights for policymakers and marketers alike.

5. Implications

5.1Theoretical Implications

This study enriches the Theory of Planned Behavior (TPB) by empirically validating the role of *consumer awareness and knowledge* and *external social influence* as pivotal antecedents in eco-friendly consumer behavior. While TPB traditionally emphasizes attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991), our findings provide strong support for integrating cognitive (awareness) and contextual (social influence) variables into the model. Specifically, the significant effect of *Consumer Awareness and Knowledge (CAK)* on *Attitudes Toward Eco-friendly Products (ATEP)* ($\beta = 0.767$, $f^2 = 1.431$) demonstrates that knowledge-based constructs are foundational to developing pro-environmental attitudes. This aligns with contemporary literature that calls for the inclusion of knowledge-driven and context-specific variables to enhance TPB's explanatory power in sustainability research (Paul et al., 2016; Han et al., 2010). Moreover, the structural model confirms both direct and indirect effects of *attitudes* on *behavior*, consistent with dual-path influence models. Methodologically, the use of SmartPLS 4 in this study also contributes to the growing body of literature promoting variance-based SEM approaches as flexible and robust alternatives for complex behavioral models with moderate sample sizes (Hair et al., 2021; Sarstedt et al., 2017).

5.2Managerial Implications

The findings offer several practical insights for managers, marketers, and retail strategists seeking to boost the adoption of eco-friendly products among young consumers. First, campaigns should prioritize tangible environmental knowledge—not just awareness—by educating consumers about product benefits (e.g., biodegradable packaging) and how to identify credible eco-labels. Since knowledge significantly shapes attitudes and intentions, educational content embedded in marketing (e.g., social media reels, QR-code info) can elevate consumer readiness. Second, the notable influence of *social and external factors (IF1 → PI: $\beta = 0.420$, $f^2 = 0.246$)* highlights the power of peer influence and cultural norms. Brands should therefore leverage *influencer marketing*, *peer ambassadors*, and *user-generated eco-content* to build social proof and community validation. Third, the direct and indirect impact of *attitudes* and *intentions* on behavior suggests that improving product accessibility—including availability in local stores, online platforms, and affordability via green pricing or student discounts—can close the intention-behavior gap. These strategies echo the assertions by Chughtai and Awan (2020), who emphasize that "raising awareness alone is insufficient if perceived cost and accessibility barriers remain unaddressed."

5.3Policy Implications

At the policy level, this study reinforces the urgency of integrating **environmental education** into academic curricula—especially at the tertiary level—to foster long-term eco-consciousness. Government bodies, in collaboration with educational institutions and NGOs, should introduce green literacy programs that target the psychological pathways from awareness to behavior. Moreover, the findings advocate for **policy incentives**—such as subsidies, tax reductions, and grants—for businesses producing or retailing eco-friendly products. This can increase market supply and affordability, facilitating actual purchase behavior (RPB1), especially in regional settings. Additionally, the results highlight the need for **credible eco-labeling systems** to reduce consumer

skepticism and encourage informed purchasing decisions. From an accounting and sustainability reporting perspective, firms should consider incorporating **behavioral indicators** (e.g., consumer awareness scores, social influence metrics, and green purchase intentions) into **Environmental, Social, and Governance (ESG) reports**. These indicators can reflect not only environmental performance but also **consumer-side sustainability engagement**. Furthermore, **green cost-benefit accounting frameworks**—based on consumer preference and behavior models—can support decisions to adopt sustainable practices such as biodegradable packaging or carbon-neutral supply chains. Aligning with calls for integrated reporting, such initiatives would ensure transparency and facilitate stakeholder trust in the company's environmental performance. As Vermeir and Verbeke (2008) and Paul et al. (2016) emphasize, "Educational interventions and policy reforms that reduce the economic and psychological barriers to green adoption should be central to any effective sustainability strategy."

5.4Limitations of the Study

Although this study presents significant insights into the predictors of eco-friendly purchasing behavior among youth in Madhya Pradesh, several limitations must be acknowledged. First, the use of a non-probability convenience sampling method restricts the generalizability of the results beyond the surveyed respondents. The study predominantly focuses on college students, thereby excluding other potentially relevant demographic segments such as working professionals, elderly consumers, and rural populations, whose eco-friendly behavior patterns may differ. Future research should consider stratified or random sampling techniques to improve the external validity and representativeness of the findings. Second, the cross-sectional design limits the ability to establish causal relationships and track changes in attitudes or behaviors over time. A longitudinal approach would allow for the examination of how eco-conscious attitudes evolve into actual purchase behaviors and whether such behaviors are sustained. Additionally, employing experimental or quasi-experimental methods could help assess the real-world impact of interventions such as eco-labels, green advertising, or peer influence mechanisms. Third, while Smart PLS 4 provided a flexible and powerful platform for modeling the relationships among latent constructs, the absence of a comparison with covariance-based structural equation modeling (CB-SEM) may constrain the methodological robustness of the findings. CB-SEM could offer stronger validation for the reflective constructs used and help triangulate results. Lastly, the study emphasizes cognitive and social predictors but omits emotional and normative dimensions that often influence pro-environmental behavior. Variables such as environmental guilt, moral obligation, green identity, and personal values were not included, even though prior literature suggests they significantly contribute to sustainable consumer decisions. Incorporating these constructs could enhance the model's explanatory capacity and offer a more holistic understanding of eco-friendly behavior.

5.5Future Directions for Research

To extend the scope and applicability of the current findings, future research should consider including more diverse and representative samples that span different age groups, socio-economic strata, and geographic regions, including rural communities. Longitudinal studies are recommended to assess changes in eco-friendly attitudes and behaviors over time and to determine the long-term effects of awareness-building interventions. Incorporating additional psychological and affective constructs—such as environmental concern, green self-identity, perceived behavioral control, and moral obligation—could deepen the theoretical understanding of eco-friendly consumption. Experimental studies testing behavioral nudges, green labeling, or gamification strategies could provide stronger evidence of causal pathways between marketing stimuli and consumer responses. Moreover, cross-cultural or interstate comparative studies within India and beyond could test the universality and cultural specificity of the extended TPB framework. This would help in identifying context-specific determinants of eco-friendly behavior and tailoring interventions accordingly. Finally, future studies should employ CB-SEM or hybrid modeling approaches alongside PLS-SEM to enhance methodological rigor and confirm the robustness of the observed relationships.

6. Conclusion

This study applies an extended Theory of Planned Behavior (TPB) framework to investigate the psychological and social drivers of eco-friendly purchasing behavior among Indian youth, with a regional focus on Madhya

Pradesh. The empirical findings affirm that consumer awareness and knowledge (CAK), attitudes toward eco-friendly products (ATEP), and social and external influences (IF1) significantly shape purchase intentions (PI), which in turn serve as strong predictors of actual regional purchase behavior (RPB1). Furthermore, both direct and indirect effects suggest that attitudes and intentions function as critical mediators in the behavioral decision-making process. The model explains a substantial portion of variance in purchase intention (65.9%) and regional purchase behavior (61.9%), indicating strong predictive power. The findings are consistent with the theoretical propositions of TPB and reinforce the importance of targeting awareness and social influence as levers to drive sustainable consumer behavior. Importantly, the use of Smart PLS 4 enabled a robust validation of both the measurement and structural models.

By integrating specific regional and cognitive factors, the study offers a nuanced and pragmatic framework for understanding eco-friendly consumer behavior in emerging markets. It contributes to both academic theory and practical application by identifying actionable drivers of green consumption among Generation Z. For policymakers, educators, and marketers, the results suggest that enhancing environmental knowledge, fostering favorable attitudes, and leveraging social influence are key strategies to promote sustainable consumption. Ultimately, the study serves as a roadmap for designing effective interventions that can align individual purchasing behavior with broader environmental and developmental goals.

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