Consumers' Attitude Toward Electric Vehicles in India : Mapping Psychological Antecedents and Consequences

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Abstract

Purpose : Deteriorating air quality, rising carbon footprint, and increasing fuel prices have called for India's automobile industry to gear up for acute transformation. The current study, drawing parallel lines from SOR theory, investigated how the attitude toward EVs was affected by three psychological antecedents—utilitarian shopping value, conspicuous consumption, and lifestyle. Further, the study examined how this attitude impacted the intention of Indian consumers to purchase an EV and their ecological behavior.

Design/Methodology/Approach : The study included 382 Indian consumers of EVs who constituted the sample population. A structured questionnaire was created to gather information from this sample. The SEM (structural equation modeling) approach was applied to draw conclusions from the data.

Findings : The results indicated that out of three antecedents, only utilitarian shopping value had no significant relationship with attitude toward EVs. Also, the attitude was found to be positively related to purchase intention and ecological behavior.

Implications : Manufacturers and marketers of EVs must include lifestyle and conspicuous aspects in their offerings. Moreover, they should work on enhancing the utilitarian value of EVs. Never should a person feel that he/she is paying more than he/she is getting. Special note for conspicuous consumers who are shedding huge resources to make a statement among peers.

Originality Value : The current study was one of the prime ones to draw the impact of lifestyle, conspicuousness, and utilitarian values on attitudes toward EVs. Moreover, the current study provided a one-of-a-kind modified model of SOR theory by including unique stimuli and responses.

Keywords : **utilitarian shopping value, lifestyle, conspicuous consumption, attitude toward EVs (electric vehicles), purchase intention, ecological behavior**

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Ascending fossil fuels prices in India fuel concerns regarding inflation while endangering expansion in Asia's third-largest economy. India is also thought to be the world's third-largest emitter of carbon dioxide, behind China and the US. The country's transportation sector is the major contributor to such carbon emissions (Khurana et al., 2020). In 2019, India was also declared the world's fifth-largest automobile market (India Brand Equity Foundation, 2020; Society of Indian Automobile Manufacturers (SIAM), 2020). This demand for transportation has always seen exponential growth in the past, and the same is premised for the future. Thus, deteriorating air quality, rising carbon footprint, and increasing fuel prices have called for India's automobile industry to gear up for acute transformation. One such exemplary transformational approach seen in the industry is the gravitation from conventional combustion engines to electric vehicles or EVs.

Electric vehicles differ from fuel-led vehicles because they use an electric motor, which propels the vehicle, deriving energy from the rechargeable batteries. Hence, these vehicles are endorsed to be environmentally friendly, emitting zero to minimal carbon footprint and noise (Khurana et al., 2020). Recognizing the need for transportation electrification, "The EV30@30" was launched. "The EV30@30" is a campaign slogan adopted by the 2016 Eighth Clean Energy Ministerial, in which a total of 13 member countries and 23 supporting companies and organizations, including India, reaffirmed their positive intentions toward the adoption of EVs (Saxena et al., 2014). The aim was for EVs (including all the categories) to attain a market share of 30% in India by 2030 (Khurana et al., 2020). In January 2013, India's central government also put forward the NEMMP (National Electric Mobility Mission Plan) to improve national energy security and prevent negative environmental effects from combustion engines equipped vehicles. The mission was to boost the development of domestic manufacturing capabilities for EVs. For this, the government committed approximately ₹ 22,500 crores (Shukla et al., 2014). In addition, other government policies like FAME (Faster Adoption and Manufacture of Hybrid and Electric Vehicles 2015 and 2019) are paving the greener path for the future of EVs. All these efforts gave reassuring boosts to different players to step forward and provide their version of green utilities in the Indian green automotive industry. As a result, according to the Society of Manufacturers of Electric Vehicles (SMEV) (2020), in 2017, the revenue for the Indian electric vehicle market stood at $71.1 million, which is expected to grow to $707.4 million by 2025, resulting in a CAGR of 34.5%. For the year 2022, the total volume of registered EVs (all categories combined) crossed the 1 lakh mark in just the first two months (Dubey, 2022), thus, making this green vehicle or EV segment exceedingly attractive not only to the marketers but also to the academicians and researchers for conducting research studies.

However, not all is green in the Indian automobile industry. The total volume of registered EVs in India (all categories combined) for the calendar year 2021 stood at a mere 3.2 lakh mark as compared to a colossal mark of 183.1 lakh fuel-led vehicles registered for the same year (data based on vahan.nic.in). Hence, we cannot escape from the bigger picture that registrations of EVs in India in 2021 were just 1.7% of total registrations of fuel-led vehicles. This made the researchers formulate a research problem statement as to what comprehends the fencing attitude of consumers toward EVs in India. Studies have attempted to determine how government assistance affects the market uptake of electric vehicles (Gong et al., 2020; Shafiei et al., 2017). In addition, various technical aspects like fuel cost, maintenance cost, charging stations, and retail price on the adoption of EVs (Jansson et al., 2017; Noel et al., 2017; Veneri et al., 2012) have also been researched. But, studies focusing on analyzing the psychological antecedents (as opposed to technical) influencing consumers' attitudes toward EVs are rare.

Thus, the primary aim that the researchers intend to bridge is analyzing the psychological antecedents affecting consumers' attitudes toward EVs. The researchers also stumbled upon various gaps in the existing literature on EVs, which we tried to address in the current research. First, the present study draws parallel lines with SOR (Stimulus Organism Response) theory. It has taken up the three psychological antecedents, namely lifestyle, utilitarian shopping value, and conspicuous consumption, as the stimulus for analyzing consumers' attitudes toward EVs, which have received minimal attention from researchers in the past. Secondly, the current study not

only aims to examine antecedents but also consequences like purchase intention and ecological behavior as responses to consumers' attitudes toward EVs in India. This unique conceptual framework may provide interesting cognizance to the beneficiaries to serve better. Lastly and crucially, since attitude is influenced by culture, it is particularly interesting to set such a study in the context of the Indian market, where EVs are at the primary stage.

Theoretical Framework for Hypotheses Development

Attitude Toward EVs (AT)

Ajzen (1991) defined attitude as a learned tendency where a consumer develops a positive or a negative mindset for a particular product, service, or brand. It is a particular way in which a consumer evaluates a behavior. Thus, attitude makes a person/consumer develop positive or negative behavior toward an entity. According to Egbue and Long (2012), attitude is a subjective norm that differs in valence (positive or negative), intensity (strong or weak), and levels of conviction. Moreover, knowledge, experience, societal standards, and perceived consequences are requisites of attitude formation. This, in turn, affects behavioral intention. This research considers attitude as either a positive or negative mindset of Indian consumers toward EVs.

The public's attitude toward EVs has drawn considerable interest from various study areas. Researchers have examined the public's acceptance of EVs, the methods used to assess their advantages and hazards, and the variables influencing their feelings about EVs. A few studies consider antecedents, some psychological but mainly technical, affecting attitudes toward EVs. Technical factors include EV supply chain management, battery technology, charging infrastructure, running cost, fuel price, maintenance cost, etc. (Asif et al., 2021; Jansson et al., 2017; Noel et al., 2017; Veneri et al., 2012). For EVs to be commercially successful, they must resolve technological concerns and consumer-related psychological problems. Psychological factors include driving experience, satisfaction, trust, self-image, and social influence (Khurana et al., 2020; Xu et al., 2021; Zhang et al., 2013), which significantly impact how consumers perceive EVs. These technical and psychological antecedents can potentially drive attraction toward or repulsion from an EV.

The mentioned studies have been based chiefly on developed or developing economies other than India. No studies considered utilitarian shopping value and conspicuous consumption as antecedents affecting attitudes toward EVs. In addition, this study is a step further from the rest of the literature as it also studies the consequences of a consumer's attitude toward EVs. These taken antecedents and consequences, along with their relationship with attitudes toward EVs, have been explained later in the study.

Lifestyle and Attitude Toward EVs (LS and AT)

Lifestyle is simply a style of living life. Lifestyle is a mode of living that states a person's characteristics regarding how they live and spend money. In other words, lifestyle includes activities or roles undertaken by a person in his/her normal daily life, which then becomes his/her dominant way of living (Varshneya & Das, 2016). In the marketing world, "lifestyle theory" is practiced wherein a consumer's identity is linked to his/her consumption practices (Axsen et al., 2012). Although lifestyle theory has its roots in sociology, its interventions have also been proven true in some psychological research. Being pro-environmental is also a lifestyle learned after significant alterations in epidemics or pandemics. These tend to significantly alter consumers' cognition regarding buying behavior (Jain, 2022). Studies have shown that people who value or care for the environment express concern in their purchases. For instance, people who identify as pro-environmentalists report more involvement in some pro-environmental behaviors, such as trash reduction and "eco" buying and dining. They tend to have a positive attitude toward green and organic products and look for ways to protect the environment.

In the past literature, many studies (Soroka & Wojciechowska-Solis, 2019; Von Essen & Englander, 2013) have found a link between customers' attitudes about organic food and their commitment to a healthy lifestyle. Taking this postulate, Varshneya and Das (2016) established a positive relationship between lifestyle and green clothing. Even though these studies could give us some insightful information about the organic diet or clothing-based lifestyle, a psychologically significant study based on the experiences of living humans is also required to comprehend consumers' perspectives in the case of EVs. In this regard, Axsen et al. (2012) conducted a study in San Diego, concluding that EVs appeal to pro-environmentalist and technology-oriented lifestyles. Results demonstrated the relevance of lifestyle theory and provided a unique empirical approach that could aid in people's understanding of the benefits and drawbacks of sustainable consumption.

Hence, if the products, services, or brands are inconsistent with an individual's lifestyle, the individual may refuse to adopt those products. However, rarely have studies been conducted that could directly postulate this relationship, especially in the context of EVs. Therefore, we can expect consumers who observe pro-environmental and healthy lifestyles to have a positive attitude toward EVs. This aided in the development of the following hypothesis:

↳ **Ha1 :** Lifestyle has a positive relationship with attitude toward EVs.

Utilitarian Shopping Value and Attitude Toward EVs (UT and AT)

Zeithaml (1988) defined "shopping value" as a compromise between expenses and advantages. Thus, value is defined as what benefits a customer acquires and what they sacrifice to acquire those benefits. Babin et al. (1994), in their study, defined the two types of shopping value that a customer might have—utilitarian and hedonic. Utilitarian shopping value is an outcome of some conscious actions toward an intended result, while hedonic shopping value results in fun and playfulness through a spontaneous shopping experience. The current research focuses mainly on utilitarian shopping value because consumers buying EVs by shedding huge resources have specific goals and purposes in mind. Therefore, they try to evaluate and achieve maximum satisfaction from the product they are looking at as opposed to attaining mere fun, enjoyment, and pleasure.

Han et al. (2017) suggested that functional values correlated highly with utilitarian values. According to them, consumers in China buy EVs because they enjoy and get thrilled by the fast performance of the car category. The utility one derives from functions specific to an EV is referred to as the functional value for that particular EV. Most of these functions are derived from EVs' observable traits or qualities. The benefits of lower fuel, running, and maintenance costs associated with adopting EVs add to consumers' monetary value, while government support and incentives add to the convenience value (Gong et al., 2020). For encouraging the usage of EVs among consumers, there is a need to inculcate monetary incentives with practical policies. Therefore, when customers embrace EVs, they may not only get additional benefits in terms of money or convenience, but also benefit from functional values like performance (Zhang et al., 2013). Issac et al. (2022) took their study a step forward and postulated that apart from the utilitarian aspect, the hedonic aspect also positively correlated with the adoption of EVs.

Applying this logic to the issue of EVs' adoption intentions, we can hypothesize that these perceived values have a positive influence on EVs' adoption intentions. Moreover, abundant literature showed that functional or utilitarian value is the most important factor contributing to the purchase intention of green products (Gonçalves et al., 2016; Schuitema et al., 2013). This contributed to the formation of the following hypothesis:

↳ **Ha2 :** Utilitarian shopping value has a positive relationship with attitude toward EVs.

Conspicuous Consumption and Attitude Toward EVs (CC and AT)

Thorstein Veblen first discussed the concept of conspicuous consumption. Trigg (2001) suggested conspicuous consumption as a behavioral aspect that triggers a person's propensity to spend on the consumption of goods and services that can publically display their wealth. Roy Chaudhuri et al. (2011) defined conspicuous consumption as: "Conspicuous consumption is a deliberate engagement in symbolic and visible purchase, possession and usage of products and services imbued with scarce economic and cultural capital with the motivation to communicate a distinctive self-image to others" (p. 217). The bottom line of these definitions suggests that any expenditure incurred just for others to notice an individual is covered under conspicuous consumption. Saldanha and Aranha (2022) substantiated the claims of the self-signaling theory that people aim to reveal something about their character and personality when they make a decision, both to themselves and especially to others. Consumers generally tend to buy luxury goods to signal their wealth to others. However, this practice is now just not limited to luxury goods only. Green goods are considered a luxury, indicating social standing (Premi et al., 2021). Johnson et al. (2018) claimed that customers frequently engage in "conspicuous pro-social consumption" to demonstrate their pro-social behavior to others. Hence, their propensity to absorb all those products, which either reduce the negative impact or generate a positive impact on the environment, increases. For example, Beall et al. (2021) concluded that consumers willingly engage in eco-tourism to satisfy their status-enhancement goals.

Similarly, cars are the prime conspicuous goods signaling status and wealth after cigarettes (Heffetz, 2011). According to Noel et al. (2019), conspicuousness derives diffusion of innovation by taking an example of innovative and tech-savvy electric vehicles. Tang et al. (2014) concluded that those Chinese consumers, who wished to signal their conspicuous pro-environment self, had a favorable attitude toward eco-friendly items. This aided in the development of the following hypothesis:

↳ **Ha3 :** Conspicuous consumption has a positive relationship with attitude toward EVs.

Attitude and Purchase Intention Toward EVs (AT and PI)

The theory of planned behavior (TPB) is the first research evaluating the relationship between attitude and behavior (Ajzen, 1991). This theory aids in creating a chain of events that begins with a consumer's evaluation of a certain product and ends with the formation of a specific attitude. This attitude affects behavior intentions, which ultimately affect the actual behavior. Thus, attitude can effectively be an antecedent to behavior intention (Linge et al., 2022). Attitude and perception have significant power to influence consumers' buying behavior. Abdelkhair et al. (2023) substantiated that a positive attitude (created through sales promotion or any other way) can have positive behavioral intentions regarding a consumer's purchase decision. However, Laheri (2020) stated the existence of an attitude-behavior gap. This can be due to attitude not matching the intentional and actual behavior since consumers tend to either overestimate or underestimate attitude.

Consumer attitudes toward environmental challenges and solutions to reduce environmental harm are typically positive. Such consumers even demand companies make more pro-environment products (Afroz et al., 2015). Thus, a direct association exists between a positive attitude and purchase intention toward greener products. For example, studies that align with Wee et al. (2014) validated the previously mentioned relation in the case of organic food, while studies like Varshneya and Das (2016) proved this postulate in the case of organic and green clothing. In addition, Oliver and Rosen (2010) mentioned that consumers projecting greater environmental concerns while buying cars were likelier to purchase greener (environment-friendly) cars because of their favorable attitude. This aided in the development of the following hypothesis:

↳ **Ha4 :** Attitude toward EVs positively correlates with the likelihood of purchasing an EV.

Attitude Toward EVs and Ecological Behavior (AT and EB)

Behaviors consciously seeking to minimize environmental harm through actions are ecological behaviors (Geiger et al., 2018). It also covers behaviors that allow people to engage themselves in making good on the already done environmental harm. Mohd Suki (2013) defined ecological behavior as something related to a consumer's conscious sensitivity and responsibility toward environmental concerns. Thus, all those actions related to the preservation and conservation of the environment through the purchase of green products constitute consumers' ecological behavior. According to trends, many consumer segments now consider environmental sustainability when deciding what products to buy (Giri et al., 2022).

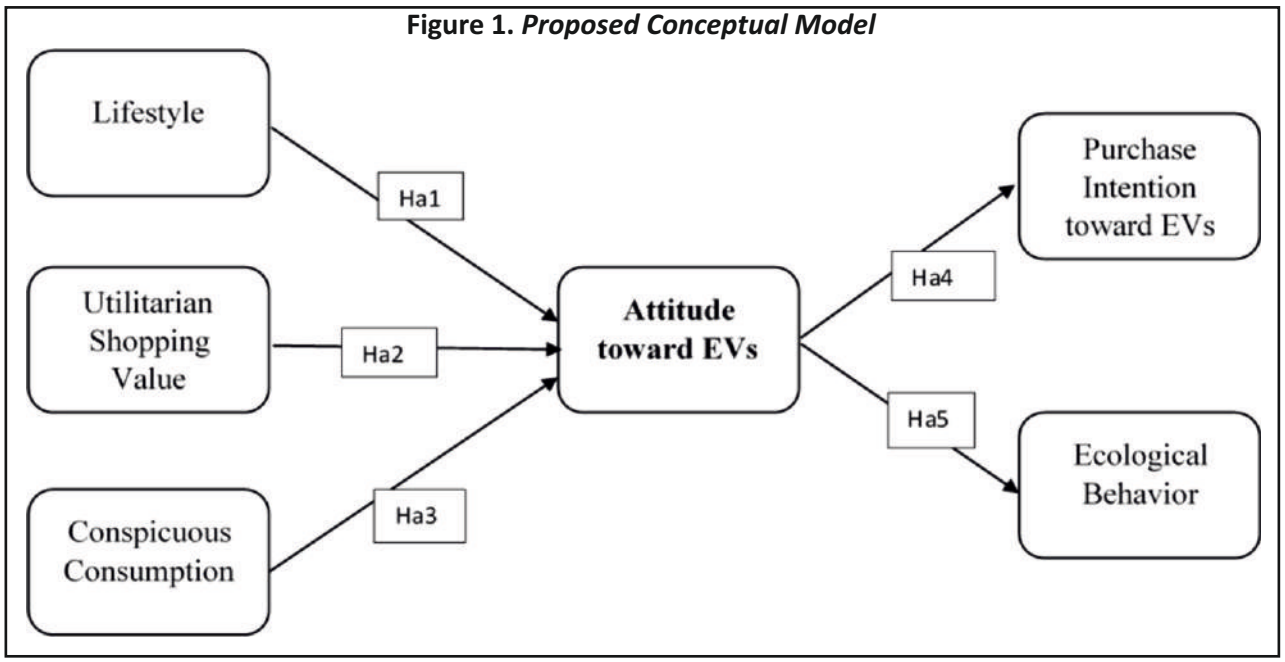
A person's self-concept, which reflects basic values and beliefs, is believed to form the basis of their environmental concern and influences their views toward particular environmentally friendly items (Bennett & Vijaygopal, 2018). Communicating and positioning a product as eco-friendly, according to Bhatti and Negi (2018), helps formulate a positive attitude toward a product offering and benefits attaining a competitive advantage. Ecological behavior covers different consumption areas, including food, clothing, and transportation (Geiger et al., 2018). Tobler et al. (2011) proved that consumers' willingness to adopt ecological food consumption is affected by their positive perception and attitude toward organic food. Environmental awareness is a crucial component that drives both consumer and product-centered attitudes and helps determine a new product's success or failure (Kourav & Sharma, 2023).

Similarly, Varshneya and Das (2016) concluded in their study that consumers who exhibit positive attitudes toward organic/green clothing tend to show more ecological behavior. Thus, attitude becomes one of the direct predictors of ecological behavior. Therefore, we can postulate the same for consumers buying EVs. This aided in the development of the following hypothesis:

- **Ha5 :** Attitude toward EVs has a positive relationship with ecological behavior.

The proposed conceptual framework is depicted in Figure 1.

Figure 1. ***Proposed Conceptual Model***



Research Methodology

The research design used in this study was descriptive. Descriptive research is a method that would describe a certain phenomenon or certain characters of that very concerned phenomenon. In this section, we outlined the different profiles of EV consumers to be targeted and the way to approach them. After that, we developed a survey to collect information from customer profiles, which we paired with their attitudes toward Electric Vehicles to evaluate the research's central premise.

Measures

The constructs in the present study and their scales to measure them were chosen from the existing literature. The scales were changed to fit the needs of the present research.

For measuring attitudes toward electric vehicles (EVs), scale items were taken from the study by Bhattacharya (2011). Similarly, the items for assessing utilitarian shopping value were taken from Picot-Coupey et al. (2021). For assessing lifestyle and conspicuous consumption, items from Fraj and Martinez (2006) and Chung and Fischer (2001) were taken. Finally, measured ecological behavior and purchase intention toward EVs were taken from the study by Maloney et al. (1975) and Spears and Singh (2004). The items in the components were evaluated using a five-point Likert scale ranging from 1 for "*strongly disagree*" to 5 for "*strongly agree*."

Sampling and Data Collection

The entire questionnaire had two segments, the first segment mapped the demographic profile, and the second segment included questions about the constructs used. The population of the study was north-Indian consumers of EVs residing in Delhi/NCR, Punjab, and Haryana, with a valid driver's license, meaning 18 years and above (Asadi et al., 2021). Bahal and Dave (2018) stated that north India is the major contributor in region-wise spending on lifestyle products like cars, accounting for 40% share. Additionally, in north India, the clusters of Delhi/NCR have the highest consumption rates, followed by Punjab and Haryana. That's why our study was restricted to these geographical boundaries.

The study employed a non-probability sampling approach because many elements in the population could not be recognized and were unknown (Smith, 2012). The current consumers of Electric Vehicles (both two and four-wheelers) were approached using the purposive sampling technique (Daniel, 2012) directly at showrooms, service centers, and dealerships. Hence, the researchers continuously visited various dealerships, showrooms, exhibitions, and service centers to intercept consumers at these locations for an approximate period from August 2021–February 2022. The structured questionnaire was given to the respondents to complete. Out of 391 responses, 382 were deemed to be fit for analysis. Table 1 shows the profile of the respondents.

Table 1. ***Demographic Profile of Respondents***

Gender	Male	309
	Female	73
Age	18–25 years	43
	25–35 years	98
	35–45 years	152
	45–55 years	81
	55 and above	8

Education	Higher Secondary	9
	Graduation	197
	Post-Graduation	155
	Any other higher qualification	21
Annual Income	Up to 3 Lakhs	56
	3–15 Lakhs	102
	15–30 Lakhs	113
	30–45 Lakhs	79
	Above 45 Lakhs	32

Analysis and Results

The associations between the variables are investigated using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) in AMOS version 24 and SPSS version 23.

Exploratory Factor Analysis (EFA)

EFA using Varimax rotation is carried out on all six variables. Table 2 shows the results of EFA. All independent and dependent variables have Cronbach's alpha value above 0.70, as shown in Table 3 (Hair et al., 2012). The validity —convergent and discriminant—is achieved when the factor loadings of all the remaining 30 indicators (reduced from 42 indicators originally) are above the threshold of 0.50 (significant at $p < 0.01$) with no strong cross-loadings (Hair Jr. et al., 2017). The six-factor model explained 65.756% of the total variance.

Table 2. ***Summary of EFA with Discriminant and Convergent Validity***

Factors	Number of Items (reduced)	Factor Loadings	Mean	*SD*
Lifestyle	5	0.631–0.868	2.929	0.761
Conspicuous Consumption	4	0.655–0.714	2.772	0.794
Utilitarian Shopping Value	5	0.744–0.877	2.292	0.801
Attitude toward EVs	7	0.648–0.888	4.024	0.605
Purchase Intention	4	0.557–0.633	3.967	0.546
Ecological Behavior	5	0.563–0.860	3.816	0.623

Note. Two items from the utilitarian scale, four items from the lifestyle scale, one from the attitude scale, four from the ecological behavior scale, and one from the purchase intention scale are deleted due to low factor loadings.

Measurement Model

A confirmatory factor analysis (CFA)-based measurement model investigates the soundness of constructs in the model. It investigates the loadings of observable constructs on latent constructs and the validity estimation of indicators and constructs.

Finding the measurement model's fit is the first stage in our investigation. A model is considered satisfactory if

Table 3. ***Reliability and Convergent Validity***

Constructs	Items	Standardized Regression Weights	Cronbach's Alpha	Composite Reliability	Average Variance Explained
Lifestyle	*LS_3*	0.86	0.911	0.903	0.651
	LS_4	0.79			
	LS_6	0.77			
	LS_7	0.79			
	LS_8	0.81			
Utilitarian Shopping Value	*UT_1*	0.81	0.934	0.934	0.741
	UT_3	0.85			
	UT_4	0.90			
	UT_5	0.87			
	UT_7	0.86			
Conspicuous Consumption	*CC_1*	0.73	0.817	0.817	0.527
	CC_2	0.75			
	CC_3	0.70			
	CC_4	0.72			
Attitude Toward EVs	*AT_1*	0.85	0.943	0.943	0.703
	AT_2	0.89			
	AT_4	0.91			
	AT_5	0.93			
	AT_6	0.84			
	AT_7	0.76			
	AT_8	0.70			
Purchase Intention	*PI_1*	0.78	0.849	0.849	0.584
	PI_3	0.75			
	PI_4	0.77			
	PI_5	0.76			
Ecological Behavior	*EB_1*	0.77	0.901	0.896	0.634
	EB_2	0.83			
	EB_4	0.80			
	EB_7	0.85			
	EB_9	0.73			

CMIN/*DF* < 5; PCLOSE > 0.05; CFI and IFI > 0.9; RMSEA < 0.05 (Barrett, 2007; Byrne, 2010; Hu & Bentler, 1999; Marsh & Hocevar, 1985). The chi-square divided by the degree of freedom for our proposed model is 1.696. The other fit indices, like CFI = 0.966, IFI = 0.969, GFI = 0.894, RMR = 0.023, RMSEA = 0.043, and PCLOSE = 0.985, maintained well within their respective thresholds. These model fit metrics demonstrated how well the model suited the data (Byrne, 2013).

Additionally, convergent and discriminant validity tests are conducted, with the results summarized in Table 3. Convergent validity is examined in three ways, as examined by Florenthal and Arling (2011). First, all the

Table 4. *Discriminant Validity*

	Purchase Intention	Utilitarian Shopping Value	Lifestyle	Conspicuous Consumption	Attitude Toward EVs	Ecological Behavior
Purchase Intention	0.764					
Utilitarian Shopping Value	0.234	0.861				
Lifestyle	0.417	0.384	0.807			
Conspicuous Consumption	0.294	0.426	0.394	0.726		
Attitude Toward EVs	0.580	0.234	0.361	0.303	0.838	
Ecological Behavior	0.754	0.234	0.310	0.190	0.580	0.796

standardized regression weights for the estimates are above 0.7 (Hair et al., 2006). Second, the measuring items' composite reliability (CR) and Cronbach's alpha (CA) are computed for internal consistency, which is above 0.7 (Fornell & Larcker, 1981; Nunnally, 1978). Finally, the average variance explained (AVE) is calculated above 0.5 (Fornell & Larcker, 1981). Each construct's AVE has a square root bigger than its correlation with other constructs, indicating discriminant validity, as shown in Table 4, highlighting that each construct is distinct from others (Fornell & Larcker, 1981).

Moreover, SPSS version 23 is used to run Harman's Single Factor test to identify common method bias. The command is set in for factor analysis to extract one factor. The extraction process revealed a variance of 30.243%, which is much less than the 50% requirement (Kock, 2015). This demonstrates that the study's data are free of the bias caused by the common method and are suitable for additional examination. The details of statement items used for the variables in Table 3 are included in the Appendix.

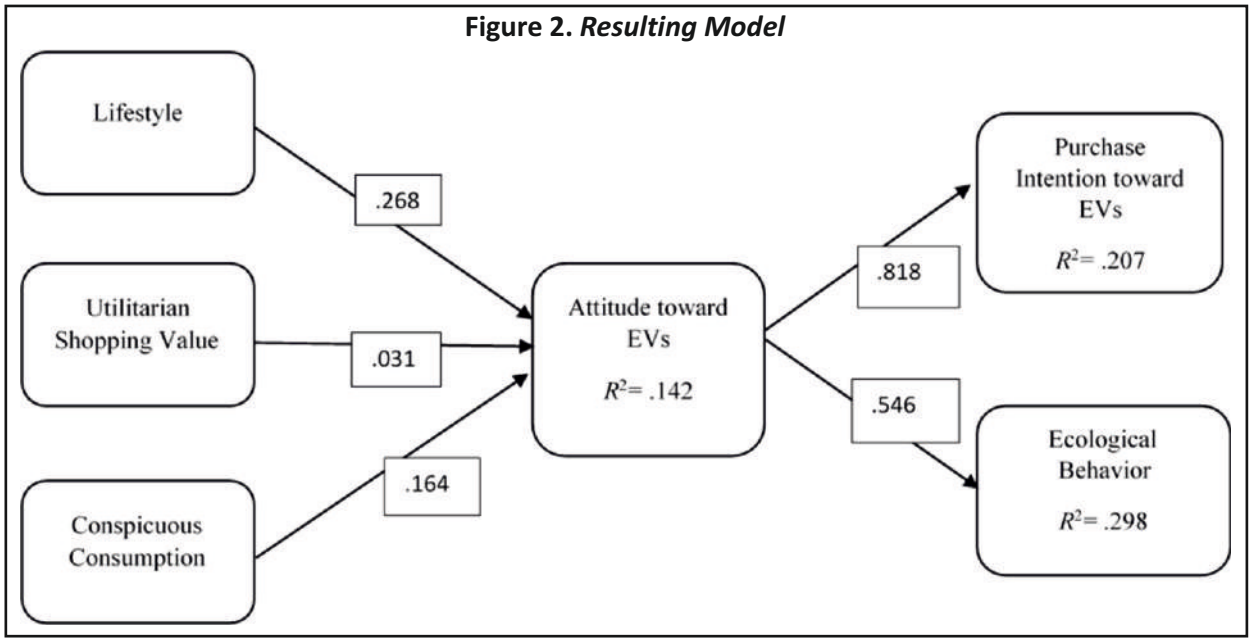
Structural Model

The study's proposed model shows how lifestyle, utilitarian shopping value, conspicuous consumption, attitude toward EVs offered by Indian SMEs, purchase intention, and ecological behavior are related. The structural model represents the route analysis, identifying the connections between the abovementioned elements. The issue of multi-collinearity has been nonexistent in the present study, as evidenced by VIFs of UT = 1.291, LS = 1.337, CC = 1.272, and AT = 1.166, which are well below 5.0 (Hair et al., 2011). The model fit indices are chi-square divided by degree of freedom is 3.886 within the threshold of 5 (Marsh & Hocevar, 1985). Moreover, CFI = 0.978, IFI = 0.979, and GFI = 0.984 are all > 0.9 (Byrne, 2010), while PCLOSE = 0.056 is acceptable as it is more than

Table 5. *Hypothesis Testing*

Hypothesized Relationship	Standardized Regression Weights	*p*-value	Hypotheses (95% confidence level)
Ha1: *AT* ← *LS*	0.268	0.000	Accepted
Ha2: *AT* ← *UT*	0.031	0.522	Rejected
Ha3: *AT* ← *CC*	0.164	0.000	Accepted
Ha4: *PI* ← *AT*	0.818	0.000	Accepted
Ha5: *EB* ← *AT*	0.546	0.000	Accepted

Figure 2. ***Resulting Model***



0.05. RMSEA of 0.087 is considered acceptable, as MacCallum et al. (1996) viewed 0.08 – 0.1 as an acceptable fit. Thus, the results show that the model fits the data well (Byrne, 2013) for further hypothesis testing.

The relationships between the constructs (Ha1–Ha5) are evaluated results, which are shown in Table 5 and Figure 2.

Discussion

The present study investigates the impact of three antecedents—lifestyle, utilitarian shopping value, and conspicuous consumption—on the attitude of Indian consumers toward Electric Vehicles. Also, the effect of attitude toward EVs on outcomes, such as its desire to purchase and ecological behavior, has been investigated. Thus, inferences are drawn from SOR (Stimulus Organism Response) theory. Five hypotheses were developed, as represented in the conceptual framework in Figure 1. These hypotheses were tested using SEM, the results of which are mentioned in Table 5 and Figure 2.

Results depict that lifestyle positively influences Indian consumers' attitudes toward Electric vehicles ($\beta = 0.268$, $p < 0.05$), which is in line with the findings of Varshneya and Das (2016). This depicts that consumers use EVs to implement their environment-friendly lifestyle through electric choices of their vehicles; thus, Ha1 is accepted. The results also depict that utilitarian shopping value has no relationship with Indian consumers' attitudes toward electric vehicles ($\beta = 0.031$, $p < 0.05$). Hence, Ha2 is rejected. This may be because Indian consumers' cognition may not let them justify buying an EV by shedding larger resources, and that too on a product that has a long road ahead. On the other hand, conspicuous consumption positively relates to attitude toward EVs ($\beta = 0.164$, $p < 0.05$). Thus, Ha3 is supported. This suggests that EV owners tend to pay a higher value for environment-friendly products, which signals their status standing to others, as supported by Beall et al. (2021). Both Ha5 and Ha6 are also supported ($\beta = 0.818$, $p < 0.05$ and $\beta = 0.546$, $p < 0.05$ respectively). This leads to the conclusion that Indian consumers' favorable attitude toward green products (EVs in the current study) leads to positive intentions to purchase that product and positive ecological behavior, as supported by Hawkins and Mothersbaugh (2015) and Varshneya and Das (2016).

Theoretical Implications

This study contributes theoretically in three major ways. Firstly, the study used the SOR (stimulus organism response) theory to draw the conceptual framework for the entire investigation. Many studies in the context of EVs can be traced, which use the most used technical models like TAM (technology acceptance model). The same models of UTAUT (unified theory of acceptance and use of technology) (Singh et al., 2021) have also been traced in the existing literature, but studies based on the basic SOR theory are sparse.

Secondly, studies related to eco-friendly products, especially if we talk about EVs, focus on the technical factors (Jansson et al., 2017; Noel et al., 2017; Veneri et al., 2012), which might affect the cognition and adoption of EVs. Hence, huge scope exists for exploring various psychological antecedents affecting attitudes toward EVs. In addition, this study is unique in the factors considered. This could be the prime study, which uses utilitarian shopping value, lifestyle, and, most importantly, conspicuous consumption as factors affecting attitude, especially in the context of EVs. Unique consequences like purchase intention and ecological behavior are also traced with the EV product category.

Lastly, the study is set in a culturally diverse economy of India, where EVs are still contemporary and generally more expensive than fuel-led vehicles. This will provide a massive base for further investigation by the beneficiaries.

Managerial Implications

The study reveals various managerial implicates too. According to the study results, utilitarian shopping value has no relation to attitude toward EVs. This could mean that consumers of EVs do not find much utility in buying these green vehicles. Thus, manufacturers of EVs need to enhance the product utility. They should focus on building the product's efficacy by providing utilities like vast charging infrastructure, larger range, affordability, and functionality, which could easily justify consumers' expenditure. Future charging could be more practical due to technological advancements like wireless and automated charging and high-tech charging stations. Government can also ramp up efforts in the research and development of EVs through financial support. The cost-benefit ratio of an EV must be enhanced. Never should a customer feel they are paying more than they are getting.

According to the current study, since lifestyle positively affects attitude toward EVs, marketers must create a segmentation strategy based on consumers following eco-friendly consumption patterns. Such eco-friendly consumption patterns form their lifestyle, and consumers must be made aware that EVs could be the best commuting mode. Advertisers can enhance the ecological appeal, which could highlight that by purchasing EVs, consumers are doing their essential bit for the environment. The messages of the advertisement must whirl around issues related to a healthy lifestyle, environment consciousness, health, and ecological values.

Another pertinent memo the study makes is regarding the practice of conspicuous consumption. Consumers tend to make considerable expenditures to show their status to others. In the current study context, people spend more resources to establish their apparent pro-environment consumption behavior, which helps them in their status enhancement goal. This situation can be an opportunity for manufacturers of EVs but a point of caution for consumers. Such practice can lead to poverty traps for consumers by shedding huge resources to make a statement. The situation intensifies for middle-class consumers who tend to forgo their savings and investment for such objectives. Thus, major implications for consumers can be drawn.

On the contrary, manufacturers and marketers of EVs can cash the scenario. They could trap such conspicuous consumers by creating awareness of the social image one can enjoy through different pro-environmental purchase choices. One way to give such consumers conspicuousness is by organizing rallies specifically for EV owners. Thus, they can make EV owners gather at an event to facilitate their pro-environmental product choice, which can

be an ego inflator for such consumers. Furthermore, they can emphasize the positive feedback created through such products.

At last, marketers must also try to build relations with consumers with favorable attitudes toward EVs, as they tend to have high intentions to purchase such products. Marketers can undertake various actions through continuous feedback, promotional campaigns, and social media outreach. They can even approach opinion leaders for trying to influence and even change consumers' attitudes in favor of EVs. But, of course, changing attitudes must also be accounted for.

Limitations of the Study and Scope for Future Research

The study is set only in India. Hence, the results cannot be universalized for other economies. Further study could have been conducted on other psychological antecedents apart from these three for more in-depth conclusions. In addition, probabilistic sampling techniques could have been employed with a larger sample size. Future researchers are invited to conduct research on EVs and other product categories such as organic food, organic clothing, eco-tourism, organic health, and skin care products based in Indian settings.

Authors' Contribution

The mind behind the idea to research electric vehicles was Pushpinder Singh. He also developed the qualitative and quantitative design for such an empirical study. Pushpinder Singh extracted research papers based on keywords. Dr. Amar Inder Singh landed his supervision on the concept. He proved to be the showrunner throughout the entire research work. Dr. Inderpreet Sandhu helped collect data by approaching the respondents and conducting the interviews whenever necessary. Pushpinder Singh analyzed the data and interpreted the results in consultation with Dr. Amar Inder Singh. He also wrote the manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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Appendix

Utilitarian (Picot-Coupey et al. 2021)

- *UT_1* - I accomplished just what I wanted to while shopping for an EV.
- *UT_3* - I have bought what I really needed.
- *UT_4* - While shopping for an EV, I found just the items/utilities I was looking for.
- *UT_5* - I feel buying an EV was a successful shopping spree.
- *UT_7* - I feel really smart about buying an EV.

Lifestyle (Fraj & Martinez, 2006)

- *LS_3* - I prefer consuming recycled products.
- *LS_4* - I throw garbage in selective containers.
- *LS_6* - I participate in environment conservation tasks.
- *LS_7* - I worry about the human activity consequences on climatic change and act consistently.
- *LS_8* - I try to make an arranged and methodical life.

Ecological Behavior (Maloney et al., 1975)

- *EB_1* - I guess I've never actually bought a product because it had a lower polluting effect.
- *EB_2* - I make a special effort to buy ecofriendly/recyclable products.
- *EB_4* - I have switched to an EV for ecological reasons.
- *EB_7* - I read ecological publications or news related to environmental issues.
- *EB_9* - I have never attended a meeting related to ecology.

Purchase Intention (Spears & Singh, 2004)

- *PI_1* - I will definitely buy an EV.
- *PI_3* - I definitely intend to buy an EV.
- *PI_4* - I have a very high interest in purchasing an EV.
- *PI_5* - I will probably buy an EV.

Conspicuous Consumption (Chung & Fisher, 2001)

- *CC_1* - It is important to know what friends think of brands/EVs I am considering.
- *CC_2* - It is important to know what kinds of people buy brands/EVs I am considering.
- *CC_3* - It is important to know what others think of people who use brands/EVs I am considering.
- *CC_4* - It is important to know what brands/EVs to buy to make a good impression on others.

Attitude (Bhattacharya, 2011)

- *AT_1* - It is worthwhile to spend more on eco-friendly products like an EV.
- *AT_2* - In general, eco-friendly products like EVs are of good quality.
- *AT_4* - Green products like EVs are priced non-reasonably higher than their non-green counterparts.
- *AT_5* - Green products like EVs do not provide any extra benefits compared to non-green products.
- *AT_6* - Sufficient information should be collected before buying green products like EVs.
- *AT_7* - Brands with eco-friendly labels are more trustworthy.
- *AT_8* - I search for information intensively before purchasing eco-friendly products like an EV.

About the Authors

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