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Research Article

What Drives Electric Vehicle Choices? Nepal-Based Mixed-Method Investigation

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ABSTRACT
The study's primary purpose is to analyze consumer purchase decisions for electric vehicles in Nepal. The study employs descriptive and causal design with explanatory sequential mixed method. It collected quantitative data from 400 electric vehicle owners through a structured questionnaire and qualitative data from 15 respondents through interviews. The study adopted SMART PLS-SEM to analyze the direct and indirect effects of independent variables (pre-purchase behavior, financial, environmental, infrastructural, technological, policy, and dealer facilities) on purchase decisions. Research shows that consumer decision was associated with pre-purchase behavior, finance, environment, infrastructure, technology, policy, and dealer services. The purchase decision was influenced by pre-purchase behavior, infrastructure, and technology directly. The purchase decision was affected by financial and environmental factors and dealership services indirectly. However, when attitude dimensions were adjusted, the effects of pre-purchase behavior, infrastructure, and dealership services differed entirely on purchase decisions. Policy mechanisms do not directly or indirectly affect purchase decisions. In conclusion, the government needs to allocate more resources to promote electric vehicles by expanding charging centers collaboratively with dealers to assure customers of social acceptance of electric vehicles in Nepal. Car dealerships need to share charging centers with each other and provide spare parts, warranties, and other services on time as per requirements to boost consumer confidence.

Keywords: Consumer attitude, Consumer purchase decision, pre-purchase behavior

Introduction

Consumer behavior is a field that delves into the intricate dynamics of how individuals, families, and households allocate their time, financial resources, and energy toward consumption activities [1]. Consumer buying behavior is a pivotal factor influencing purchase decisions, involving the actions consumers engage in while seeking, acquiring, utilizing, assessing, and discarding products and services to fulfill their needs [2–6]. It is a fundamental cornerstone underpinning virtually every marketing choice [7]. This domain examines the intricate dynamics of how individuals, families, and households distribute their time, financial resources, and energy toward consumption activities, which constitute the foundation of marketing strategies [8]. Attitude is the behavior, nature, disposition, thought, and method of acting that plays out a vital capacity in buying an item[9]. Attitudes significantly influence

purchase decisions since they embody customers' preferences, tendencies, and assessments of product attributes [10,11].

Nepalese society is shifting because of socioeconomic and technological advancement and growth. The trend of personal vehicle use is increasing because it is a compulsion for professionals. Due to the uncertainty of the time and duration of public transportation, people are interested in using their vehicles for movement. Kathmandu, Nepal, streets are jam-packed with cars, buses, and trucks of all shapes and sizes. Air pollution rises as vehicles on the road increase. Kathmandu Valley has rapidly increased vehicle numbers in the last 15 years. Data have shown that in 2000/1, the number of registered vehicles was 24,003; by 2015/16, it had increased to 7,79,822. The data shows an increment of more than 32 times in the last one and a half-decade [12]. The data clearly shows the increasing number of vehicles, which creates air pollution. Air pollution has enormously burdened Kathmandu's residents, threatening thousands of lives yearly. The scenario is going to be worsen if concerned authorities do not take immediate preventive measures in the coming years [13].

The adverse effects of diesel and gasoline vehicle emissions on human health and the environment are well documented. The transportation sector's pollution contributes to global warming. Hence, alternatives to gasoline and diesel cars should be carefully examined. Electric vehicles are innovative products that are environmentally friendly for the vehicle industry. They are developed with advanced technology, considering green marketing concepts. Introducing electric vehicles (EVs), currently undergoing rapid development, may decrease road transportation's oil dependence and greenhouse gas emissions [14]. Recently, electric two-wheelers and electric cars have been introduced in Nepal as private vehicles. The Electric Vehicle Association of Nepal (EVAN) estimates approximately 6,000 electric two-wheelers and 1,000 electric cars in Nepal [15]. This means that there are approximately 34,400 EVs in the country, accounting for approximately 1% of the total vehicle fleet. Among these, over 80% are three-wheelers operating as public vehicles [16]. Many previous studies have demonstrated the importance of EVs as the market grows because they support reducing reliance on petroleum oil, lowering operating costs, protecting the natural environment and health safety, and increasing national GDP. The study explores the consumer's buying decisions for electric vehicles, considering these problems [13].

Electric cars are one of the best ways to reduce air pollution. Nepal's 2015 Constitution guarantees a clean and healthy environment. Nepal's government also subsidizes taxes and expands bank financing for electric automobiles. Considering the air pollution problems caused by vehicles, electric vehicles are one of the best options to reduce the problem. A clean and healthy environment is given to the people as a primary right in the Constitution of Nepal 2015. Besides, the Nepal Government is promoting the use of electric vehicles by giving subsidies in taxes and increasing the volume of the amount financed by the Bank. Considering these issues, the study explores the consumer's buying decisions for electric vehicles. The study's main objective is to analyze the factors affecting consumer purchasing decisions on electric vehicles through the mediating effect of consumer attitude.

Conceptual Framework

The research employs the principles of consumer choice theory and the ABC model of attitude. Consumer choice theory examines the underlying factors that influence individuals' purchasing decisions. Consumer choice theory provides a framework for understanding how consumers make rational decisions allocating their resources to maximize their satisfaction. This concept is predicated upon three fundamental assumptions about human nature. Initially, consumers make selections based on their pursuit of personal happiness. The notion further posits that regardless of the extent of their shopping activities, individuals will perpetually remain unsatisfied. Thirdly, although increased consumption consistently leads to heightened individual happiness, it concurrently reduces the enjoyment derived from each sound.

The ABC model of attitudes is a fundamental framework in psychology that explains how attitudes are structured and how they influence human behavior. It is often used to analyze and understand how attitudes influence behavior. According to the model, these components are interconnected, and changes in one component can influence the others. The ABC model breaks down attitudes into three key components: affective component, behavioral component, and cognitive component.

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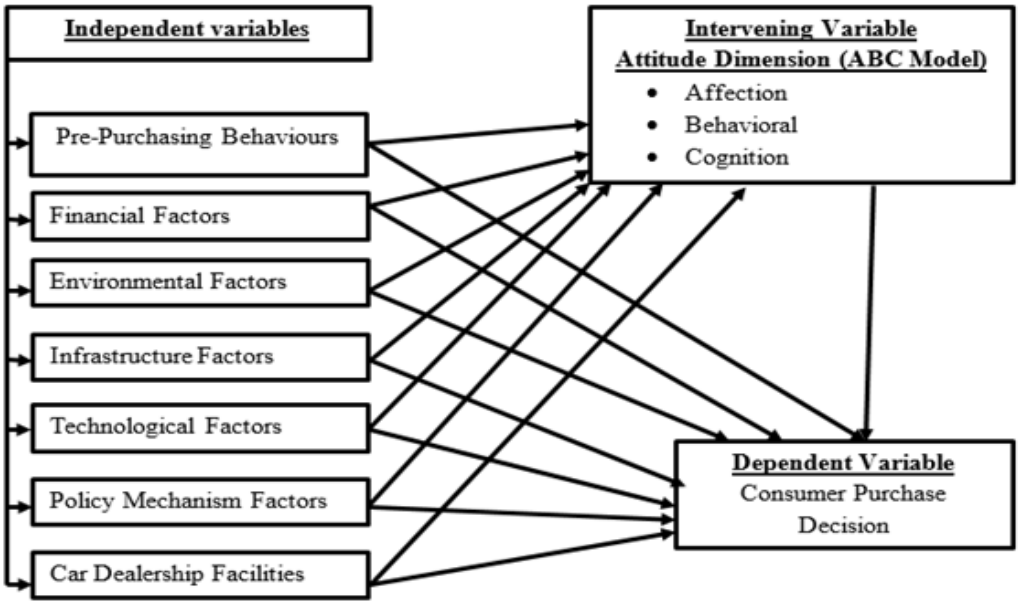

Figure 1: Conceptual Framework

(**Source:** Adapted from Montian, at el. 2019)

The idea of this conceptual framework was designed from the review of related studies. Some of the relevant studies are asl follows:
A PLS-SEM tool was used to test the validity, reliability, and path of advanced modeling. This research showed that expected features, price, and dealer influence significantly influence car buying, and After-sales service does not affect car buying [17]. They found that environmental concerns significantly shaped consumer perspectives on economic benefits, charging infrastructure, and social influences. Cost savings anticipation was the main driver of electric two-wheeler sales. Notably, the study highlighted a greater likelihood of women purchasing electric two-wheelers than men [18].
Structural equation modeling revealed pro-environmental behavior (PEB) partially mediated purchase intent. Surprisingly, financial advantages and costs had no significant impact. The electric vehicle ecosystem strongly influenced purchase intentions. In summary, PEB positively influenced purchase intent, while financial factors played a lesser role [19]. The results of this empirical study reveal that the propensity of Chinese customers to buy electric vehicles is greatly affected by charging infrastructure, government financial incentives, individual environmental consciousness, and perceived social influence. However, the results found no evidence that the price or range of E.V.s affected the likelihood that Chinese consumers would buy one [20].
The study investigated factors impacting EV purchase intentions in Bangkok, Thailand. Statistical methods, including chi-square tests and multiple regression analysis, revealed that finance, technology, infrastructure, and policy mechanisms significantly influenced consumer intentions to purchase EVs. In contrast, factors like environmental concerns, psychology, and car dealership interactions had no significant impact. The study offers recommendations to encourage EV adoption based on these findings [21]. The study conducted electric vehicle (EV) adoption in the Netherlands. The research revealed that the availability of charging stations was the most influential factor, closely followed by concerns about EV range. Positive attitudes toward EV technology contributed positively to adoption, while pricing had a negative effect. This study emphasized the pivotal roles of charging infrastructure and range considerations in shaping EV adoption, with technology beliefs as supporting factors and pricing as a hindrance [22].

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Research Gap

In Nepal, the recent rise in electric vehicle adoption has led to a growing need for research. Structural equation modeling was used to link between celebrity endorsements and purchase intentions [17]. Similarly, consumer behavior in the automotive industry was studied [23], while focused on pre-purchase behavior was surveyed in car buying [24]. Likewise, factors influencing vehicle purchases in urban areas was studied using PLS-SEM [17]. However, there's still a gap in understanding factors influencing four-wheel electric vehicle purchases. This study has utilized an explanatory quantitative design for data collection and analysis. The present study employed the innovative PLS-SEM methodology for quantitative data analysis. The utilization of such software for the analysis of quantitative data in the context of the same study conducted in Nepal has yet to be documented by any previous researchers, as indicated in the study review above.

Research Methodology

This study adheres to the principles of consumer choice theory and employs the ABC model as its framework. This study is grounded in the post-positivist philosophy and applied descriptive and causal-comparative research design. This research encompasses a diverse group of individuals involved in the electric vehicle industry in Nepal, including electric car owners, sales managers, technical engineers, assistant managers, sales executives, chairpersons, environmental officers, electric vehicle advocates, and environmental lawyers. A total of 400 samples were obtained through a random sampling technique. The researcher conducted additional interviews with two vehicle dealer executives as reported in newspapers. The primary source of data for the study was obtained through field surveys. To gather primary data from participants, a structured closed-ended questionnaire was employed, utilizing a 5-point Likert Scale encompassing the response options of strongly disagree, disagree, neutral, agree, and strongly agree. The data analysis utilized inferential statistics, such as correlation and one-way ANOVA. Partial Least Squares Structural Equation Modeling (PLS-SEM) is a statistical technique that examines independent variables' direct and indirect impacts on purchasing decisions.

Results and Analysis

6.1 Measurement Model

Construct, scale items, standardized factor loadings, Cronbach's Alpha, Rho- Average, Composite Reliability, and average variance extracted (AVE) are summarized in Table 1. Three indices were proposed for determining whether or not measurement items have convergent validity: (a) the item reliability of each measure, also known as the square multiple correlation; (b) the composite reliability of each construct; and (c) the average variance extracted [25]. The composite reliability of all of the indicators in a construct is referred to as the internal consistency in reliability that it possesses.

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Table 1 - Evaluation of the Measurement Model

Constructs	Scale Items	Loadings	Cronbach Alpha	Rho Ave	Comp Reliability	AVE
Affection	AFF5	0.799	0.815	0.820	0.878	0.642
	AFF6	0.803				
	AFF7	0.800				
	AFF8	0.803				
Behavioral	BEH4	0.758	0.808	0.850	0.885	0.720
	BEH5	0.914				
	BEH6	0.866				
Car Dealers Factors	CAD3	0.847	0.896	0.9	0.920	0.657
	CAD4	0.802				
	CAD5	0.802				
	CAD6	0.762				
	CAD7	0.784				
	CAD8	0.864				
Cognition	COG5	0.834	0.898	0.899	0.925	0.710
	COG6	0.850				
	COG7	0.858				
	COG8	0.836				
	COG9	0.834				
Environmental Factors	EVF2	0.821	0.693	0.749	0.815	0.596
	EVF4	0.782				
	EVF5	0.710				
Financial Factors	FIF6	1.000	1.000	1.000	1.000	1.000
Infrastructure Factors	INF4	0.811	0.629	0.658	0.841	0.727
	INF5	0.892				
Policy Mechanism	POM1	0.774	0.885	0.978	0.906	0.659
	POM2	0.833				
	POM3	0.818				
	POM4	0.846				
	POM5	0.786				
Pre-Purchase Behavior	PRE1	0.833	0.899	0.931	0.929	0.765
	PRE5	0.914				
	PRE6	0.908				
	PRE8	0.841				
Purchase Decision	PUD3	0.775	0.864	0.863	0.908	0.711
	PUD6	0.849				
	PUD7	0.869				
	PUD8	0.876				
Technological Factors	TEC2	0.753	0.878	0.881	0.908	0.623
	TEC3	0.810				
	TEC4	0.743				
	TEC5	0.830				
	TEC6	0.807				
	TEC7	0.788				

Methods of measuring convergent and discriminant validity, as well as testing the measurement model's internal reliability, were employed [26]. Composite reliability (CR) calculated using Dijkstra and Henseler's rho A for all constructs is greater than 0.70, and all loadings on indicators are above 0.7. [27, 25, 28, 29]. Over the past few years, rho A's value has surpassed that of Cronbach's Alpha [29]. All of

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the constructs in this study have an average variance extracted (AVE) score greater than 0.5, indicating convergent validity.
Each standardized factor loading, as indicated in Table 1, is between 0.71 and 1, which is a fair range. This indicates that all inquiries are valid in the same way. The constructs' composite reliabilities range from 0.82 to 1 above. It was recommended value of 0.7 [30], suggesting that all constructs are internally consistent. In conclusion, the average variance extracted (AVE) values range from 0.60 to 1, exceeding the 0.5 value proposed [31] and Fornell and Larcker, indicating that all constructs have adequate convergent validity [25, 31].

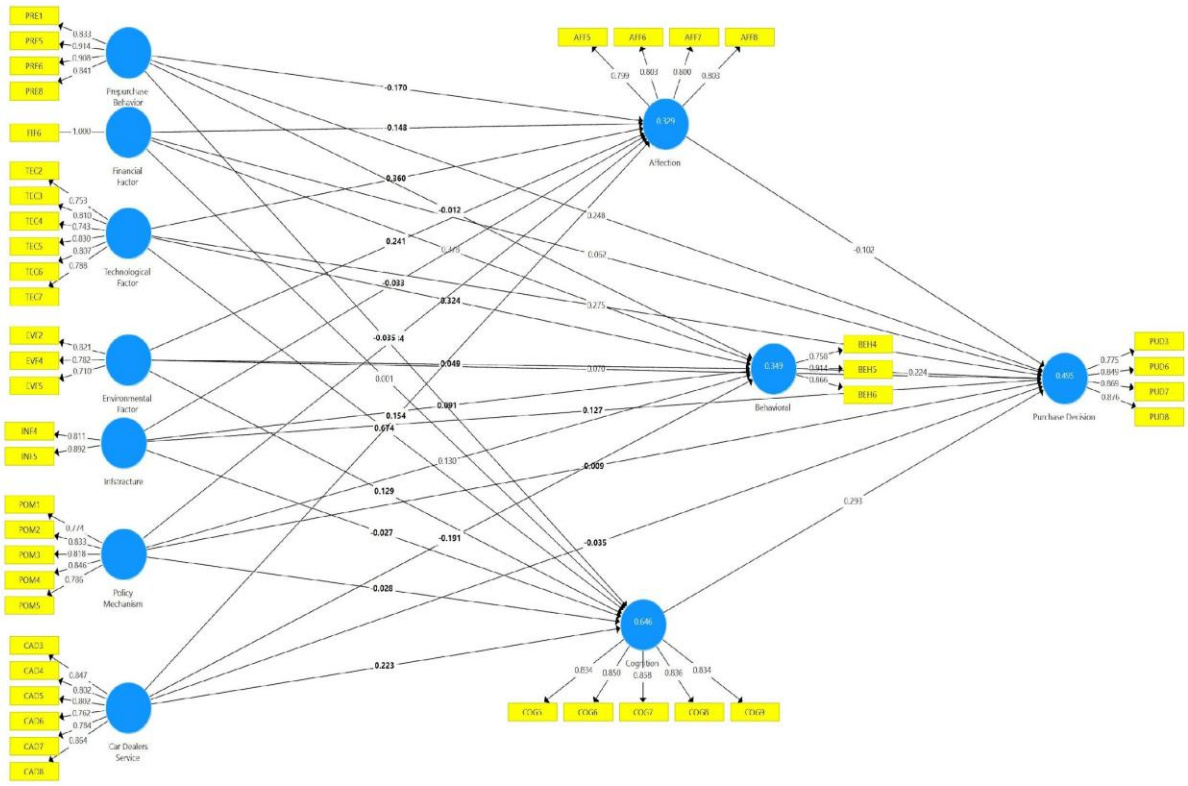

Figure 1: Measurement Model

Figure 1 shows the coefficient of determination value for the model. The coefficient of determination value for affection is 0.329 or 33 percent, behavioral is 0.349 or 35 percent, cognition is 0.646 or 65 percent, and purchase decision is 0.495 or 50 percent. The effect of predictor variables like pre-purchase behavior, financial factors, environmental factors, infrastructural factors, technological factors, policy mechanisms, and dealership facilities influence affection by 33 percent, behavior by 35 Percent, cognition by 65 Percent, and purchase decision by 50 percent. Similarly, affection influenced purchase decisions by 33 Percent, behavior by 35 percent, and cognition by 65 Percent. Finally, the consumer purchase decision is affected by 50 percent of all the independent variables as pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, car dealers' facility, affection, behavior, and cognition.

6.2 Discriminant Validity - Fornell-Larcker Criterion

Discriminant validity is shown by the fact that measurements of things that, in theory, shouldn't be significantly related to each other are not found to be significantly related to each other. In practice, the size of the discriminant validity coefficients should be much smaller than the size of the convergent validity coefficients [32]. In their well-known paper on how to test structural equation models, discriminant validity is shown when a latent variable explains more of the difference between its

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associated indicator variables than it does between itself and other constructs in the same model. To meet this requirement, the average variance extracted (AVE) of each construct must be compared to its squared correlations with other constructs in the model [25].

Table 2 - Discriminant Validity

	Affection	Behavioral	Car Dealers	Cognition	Environmental	Financial Fac	Infrastructural	Policy Mechanism	Pre Purchase	Purchase Decision	Tech Factor
Affection	0.801										
Behavioral	0.223	0.849									
Car Dealers	0.279	0.096	0.811								
Cognition	0.451	0.384	0.47	0.843							
Environmental Factor	0.351	0.166	0.207	0.289	0.772						
Financial Factor	0.009	0.467	0.255	0.231	0.193	1					
Infrastructural Factor	0.023	0.238	0.187	0.159	0.05	0.249	0.852				
Policy Mechanism	0.195	0.23	0.375	0.221	0.174	0.208	0.128	0.812			
Pre-purchase Behavior	-0.111	0.096	0.372	0.022	-0.149	0.226	0.269	0.539	0.875		
Purchase Decision	0.19	0.458	0.309	0.557	0.152	0.269	0.333	0.292	0.285	0.843	
Technical Factor	0.442	0.408	0.369	0.764	0.169	0.251	0.224	0.245	0.023	0.561	0.789

The discriminant validity of the study has been calculated. Table 2 shows that the average square root variance obtained from each diagonal line construct (bold) is greater than its correlation with the other constructs, confirming the validity of discriminating and separating each construct from the others.

6.3 Discriminant Validity: Heterotrait-Monotrait (HTMT) Criterion

The heterotrait-monotrait correlation ratio was proposed as a new method for testing discriminant validity (HTMT) [33]. The HTMT is a measure of the similarity of latent variables. If the HTMT is less than one, discriminant validity is established. In many real-world scenarios, a threshold of 0.85 reliably separates discriminant valid latent variable pairings from those that are not. The superior classification performance of the HTMT is supported by Monte Carlo simulations [34]. The discriminant validity was then tested using the heterotrait-monotrait criterion.

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Table 3 - Discriminant Validity- Heterotrait-Monotrait Criterion

	Affection	Behavioral	Car Dealers	Cognition	Env Factor	Financial	Infrastructure	Policy Mechanism	Pre-Purchase Behavior	Purchase Decision	Technical
Affection											
Behavioral	0.272										
Car Dealers	0.321	0.113									
Cognition	0.521	0.433	0.516								
Environmental Factor	0.416	0.2	0.265	0.349							
Financial Factor	0.106	0.512	0.279	0.243	0.247						
Infrastructural Factor	0.153	0.318	0.234	0.211	0.116	0.308					
Policy Mechanism	0.208	0.23	0.405	0.172	0.2	0.215	0.208				
Pre-purchase Behavior	0.15	0.108	0.399	0.091	0.195	0.239	0.347	0.652			
Purchase Decision	0.226	0.53	0.337	0.629	0.163	0.288	0.449	0.279	0.305		
Technical Factor	0.512	0.459	0.413	0.86	0.208	0.271	0.298	0.228	0.13	0.64	

The ratio of average indicator correlations between constructs is determined by Heterotrait-Monotrait (HTMT), split by indicator correlations within the same construct [33] A maximum 0.9 threshold is suggested in the literature [27, 33, 35 (Hair et al., 2017; Henseler et al., 2015; Henseler et al., 2009). The HTMT matrix in which values below 0.9 indicate sufficient discriminant validity [27, 33, 35]. As the same, the value of all constructs presented in Table 4 has less than 0.9 threshold value so it ensures that there is discriminant validity in each construct.

6.4 Structural Model

The structural model assesses the path coefficient relationship between pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, car dealers' facility on affection, and behavior Likewise, It examines the coefficient relationship between pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, car dealers facility, affection, behavioral and cognition on consumer purchase decision constructs. Hypotheses were tested using the bootstrapping method to 5000 resamples at a 5 percent level of significance.

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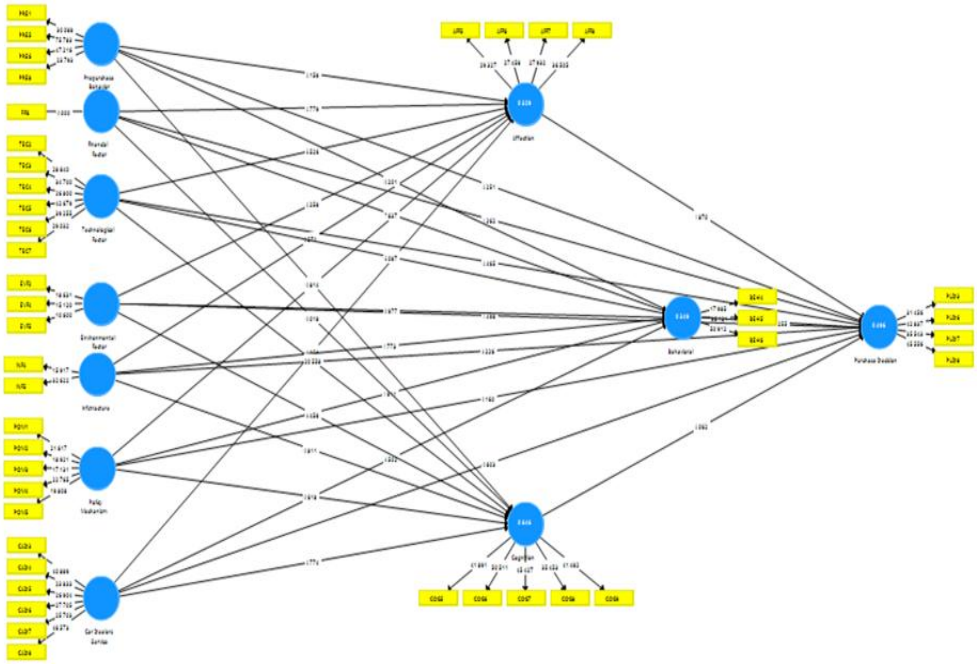

Figure 2: Structural Model

Figure 2 shows the items that serve as indicators and the path coefficients for t-values. At the 5% significance level, the path coefficient (β) and t-statistics values of more than 1.96 were used to test the relationships between endogenous and exogenous constructs [26]. The R2 value was used to figure out how much of the structural model's variance came from the "exogenous constructs" [33]. Here, the value of R square for this model means that a certain percentage of the variation in the dependent variable can be explained by the independent and moderating variables. The R square values for affection, behavior, cognition, and consumer purchasing decisions are 0.329, 0.349, 0.646, and 0.495, respectively. The result showed that a 33% variation in affection was explained by independent variables like pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, and car dealer's facility. Similarly, 35% variation in behavior was explained by independent variables like pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, and car dealer's facility. Likewise, 65% variation in cognition was explained by independent variables like pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, and car dealer's facility. Finally, a 50% variation in purchase decisions was explained by independent variables like pre-purchase behavior, financial factors, environmental factors, institutional factors, technological factors, car dealer's facility, and intervening variables affection, behavior, and cognition.

Table 4 - R Square value

Constructs	R Square
Affection	0.329
Behavioral	0.349
Cognition	0.646
Purchase Decision	0.495

6.5 Mediation Analysis of Various Factors on Purchase Decision

The study did a statistical analysis of the indirect effect of various factors about affection, behavior, and cognition on purchase decisions. The study studied the direct effect of independent variables on purchase decisions.

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Table: 6- *Mediation Analysis of Various Factors on Purchase Decision*

Path	Beta	t-statistics	Sig	Indirect	Direct
Pre-purchase Behavior -> Affection -> Purchase Decision_	0.017	1.268	0.205	NS	S
Pre-purchase Behavior -> Behavioral -> Purchase Decision_	-0.003	0.195	0.846	NS	S
Pre-purchase Behavior -> Cognition -> Purchase Decision_	-0.01	0.794	0.427	NS	S
Financial Factor -> Affection -> Purchase Decision_	0.015	1.603	0.109	NS	NS
Financial Factor -> Behavioral -> Purchase Decision_	0.085	3.83	0.000	S	NS
Financial Factor -> Cognition -> Purchase Decision_	0	0.032	0.975	NS	NS
Environmental Factor -> Affection -> Purchase Decision_	-0.025	1.825	0.068	NS	NS
Environmental Factor -> Behavioral -> Purchase Decision_	0.011	0.911	0.362	NS	NS
Environmental Factor -> Cognition -> Purchase Decision_	0.038	2.474	0.013	S	NS
Infrastructure -> Affection -> Purchase Decision_	0.003	0.525	0.599	NS	S
Infrastructure -> Behavioral -> Purchase Decision_	0.02	1.543	0.123	NS	S
Infrastructure -> Cognition -> Purchase Decision_	-0.008	0.813	0.416	NS	S
Technological Factor -> Affection -> Purchase Decision_	-0.037	1.765	0.078	NS	S
Technological Factor -> Behavioral -> Purchase Decision_	0.073	3.506	0.000	S	S
Technological Factor -> Cognition -> Purchase Decision_	0.197	3.901	0.000	S	S
Policy Mechanism -> Affection -> Purchase Decision_	-0.014	1.14	0.254	NS	NS
Policy Mechanism -> Behavioral -> Purchase Decision_	0.029	1.707	0.088	NS	NS
Policy Mechanism -> Cognition -> Purchase Decision_	-0.008	0.574	0.566	NS	NS
Car Dealers Service -> Affection -> Purchase Decision_	-0.016	1.304	0.192	NS	NS
Car Dealers Service -> Behavioral -> Purchase Decision_	-0.043	2.641	0.008	S	NS
Car Dealers Service -> Cognition -> Purchase Decision_	0.065	3.263	0.001	S	NS

Affection is influenced by multiple factors, except infrastructural ones, and behavior is affected by several variables except pre-purchase behavior and environmental factors. Cognition is influenced by

environmental and technological factors and dealer facilities, excluding pre-purchase behavior, financial factors, infrastructural factors, and policy mechanisms.
The study highlights the significant impact of consumer attitudes on purchase decisions regarding electric vehicles (EVs). It also reveals that purchase decisions are directly influenced by pre-purchase behavior, infrastructure factors, and technological aspects, except financial factors, environmental factors, policy mechanisms, and car dealership services. Notably, it is influenced by financial factors, environmental factors, and car dealership services indirectly. However, results are fully different in the effect of pre-purchase behavior, infrastructure, and car dealership services on consumer purchase decisions when attitude dimensions are adjusted as intervening variables. The result also shows that it is neither directly nor indirectly affected by policy mechanisms.

Findings and Discussion

The study's findings indicate that all of the independent variables, except infrastructure variables, significantly influence affection. The research findings indicate that the various independent variables significantly impact behavior, except pre-purchase and environmental variables. The study additionally discovered that cognition is impacted by environmental factors, technological advancements, and the quality of service provided by car dealers. However, the remaining variables were found to have no significant influence on cognition. These findings align with previous research by [36], highlighting the positive and substantial link between a country's electric vehicle market share and factors such as financial incentives, charging infrastructure, and local production facilities.
The study's results underscore the substantial influence of consumer attitudes on purchasing decisions, mirroring of [18], which highlighted the impact of consumer attitudes on electric two-wheeler purchases. This result aligns with [37] that adopting electric cars hinges on individual attitudes toward both environmental and non-environmental factors. Qualitative data analysis revealed a consistent uptrend in electric vehicle demand, with daily increases. Additionally, the study found that pre-purchase behavior directly influenced purchase decisions, though not indirectly when accounting for factors like affection, behavior, and cognition. The study found a notable need for knowledge about state and city incentives [38], study in Nanjing, China, highlighting the need for increased consumer awareness regarding electric vehicles [39].
The results of this study indicate that financial factors did not impact the purchase decision. The influence of financial factors on consumer purchase decisions was insignificant when examined directly. However, it was observed that these factors indirectly impacted consumer choices when adjustments were made. The research conducted by [20] elucidated that financial incentives and individual environmental awareness significantly influence the purchasing decisions of Chinese consumers regarding electric vehicles.
The results of this study indicate that environmental factors did not have a significant impact on purchase decisions. The influence of environmental factors on consumer purchase decisions was found to be non-significant when examined directly. However, it was observed that these factors indirectly impact consumer decision-making when cognitive processes are taken into account. The study demonstrated the significant influence of environmental awareness and perceived social influence on the purchasing intentions of Chinese consumers toward electric vehicles [20]. The qualitative findings of this study provided support for the quantitative data findings.
This study reveals the substantial impact of infrastructure factors on purchase decisions, with a direct but not indirect influence when considering variables like affection, behavior, and cognition. These findings resonate with [21] research, highlighting the significant role of technology and infrastructure in consumer purchase intention. The previous study identified charging infrastructure, financial incentives, and perceived social influence as influential factors in Chinese consumers' electric vehicle purchasing decisions [20]. This aligns with previous study [40] study, emphasizing the pivotal role of charging infrastructure in electric vehicle adoption and underscoring the importance of appropriate measures in this context.
The results of this study indicate that technological factors exerted an influence on purchase decisions. Technological factors exerted a substantial influence on consumer purchase decisions in a direct manner but not in an indirect manner when controlling for affective variables. The present finding is consistent with the study conducted with [21], which demonstrated that consumer purchase intention is significantly influenced by technology and infrastructure. The results of this study indicate that policy

mechanisms did not have a significant impact on purchase decisions. The impact of policy mechanisms on consumer purchase decisions, both directly and indirectly, was not statistically significant when controlling for variables related to effect, behavior, and cognition. The present discovery is incongruent with [21], who demonstrated that Infrastructure and policy mechanisms exert the most significant influence on consumer purchase intention.

This study's results indicate that the presence or quality of car dealership facilities did not have a significant direct impact on consumer purchase decisions. However, there was an indirect influence when considering adjustments in behavior and cognition. These findings align with [15] , which showed that dealers/showrooms have a substantial impact on car purchasing decisions. However, they contrast with [21] study, which suggested that dealership factors do not significantly influence consumers' intentions to purchase electric vehicles. This study analyzed the impact of various independent variables on purchase decisions, with all variables except the policy mechanism showing a direct or indirect influence. The result is consistent with consumer choice theory examines the underlying factors that influence individuals' purchasing decisions. Consumer choice theory assists in how consumers make rational decisions allocating their resources to maximize their satisfaction. The result is also supported by the finding of qualitative findings. The study shows that attitude dimensions play a major role as an intervening variable in influencing the purchase decision. The result is in line with the ABC model that also explains how attitude influences behavior. The result is also supported by the finding of qualitative findings.

Conclusion

At present, electric vehicles (EVs) in Nepal encounter various limitations regarding their utilization, primarily due to the absence of a substantial direct impact of financial factors on consumer choices. The study reveals that financial factors, while not directly impacting consumer choices regarding electric vehicles in Nepal, do exert an indirect influence on consumer decisions through behavior adjustments. To promote EV adoption, the government should manage collaboratively with dealers providing financial services and incentives like road tax and import tax subsidies, along with low-interest bank loans. In contrast, the direct influence of environmental factors on consumer decisions was found to be non-significant. However, these factors did indirectly impact choices through cognitive adjustments. Recommending awareness programs becomes crucial to enhance EV understanding and encourage a sense of responsibility among individuals, emphasizing the importance of recognizing E.V. benefits.

Infrastructure factors were found to directly influence consumer decisions, underscoring the need for government incentivization to establish rapid charging centers every 100 kilometers and necessary service stations. Technological factors had a substantial direct impact on consumer decisions, highlighting the importance of specific provisions to encourage EV adoption.

Surprisingly, the policy mechanism factor had no direct or indirect impact on consumer decisions, indicating that customers in Nepal do not heavily rely on government policies. Consistency in policies is advised, with necessary revisions to effectively cater to customer requirements. Lastly, the presence of dealers' facilities did not directly impact consumer decisions, but it did exert an indirect influence through the adjustment of consumer behavior and cognition. Dealers should assure clients of timely component delivery, provide essential information, and prioritize customer preferences and requirements over their interests. In conclusion, the government must allocate additional resources towards fostering social acceptance of electric vehicles by expanding infrastructure to meet the customers' expectations. The adoption of electric vehicles would assist in preventing various respiratory ailments such as asthma, lung cancer, chest pain, congestion, throat inflammation, cardiovascular disease, and respiratory disease.

Implications

The government should encourage dealers to expand charging centers with DC fast charging and decrease the cost of electricity. The car dealers need to share their charging stations. The financial services, and electricity power, along with the provision of subsidies, are recommended. Car dealerships should be responsible for managing all spare parts for electric vehicles. Additionally, they should provide warranties for all types of parts to consumers to purchase electric vehicles. To enhance the

adoption of electric vehicles, it is recommended that future researchers employ alternative methodologies with distinct samples.

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