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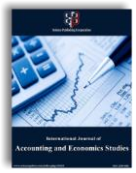

Examining The Mediating Role of Electric Motorbike Purchase Decisions in Medan City, Indonesia

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Abstract

This study seeks to examine and evaluate the effects of brand awareness, pricing, and product quality on consumer purchasing decisions, with perceived value acting as a mediating variable among electric motorbike users in Medan City. The target population comprises all electric motorbike owners currently operating their vehicles in Medan, although the exact population size remains unspecified. A total of 100 respondents were selected as the research sample using the Lemeshow sampling method. Data were gathered through questionnaires, where the researchers engaged directly with participants, and responses were collected via a Google Form. Analytical methods employed in this study include descriptive statistics and path analysis using the Partial Least Squares (PLS) approach. The findings indicate that brand awareness, price, and product quality each significantly affect purchasing decisions. While brand awareness does not significantly impact perceived value, both price and product quality do. Furthermore, perceived value has a direct effect on purchasing decisions. However, when mediated by perceived value, brand awareness does not influence purchasing decisions, whereas both price and product quality-ty do.

Keywords: *Brand Awareness; Price; Product Quality; Perceived Value; Purchase Decision.*

1. Introduction

Air pollution has emerged as a critical issue in many countries, including Indonesia. In mid-2019, concerns about deteriorating air quality became particularly prominent in national discourse [1]. A major contributor to air pollution in Indonesia is motorized vehicles, primarily due to the use of fossil fuels. The reliance on fuel combustion from these vehicles significantly exacerbates environmental problems and contributes to global warming. Global warming refers to the increase in atmospheric temperatures resulting from elevated levels of greenhouse gas (GHG) emissions [2]. Among the main sources of carbon dioxide (CO_2) emissions in 2023 are motorized vehicles, comprising approximately 17 million passenger cars, 241 thousand buses, 5 million freight vehicles, and 125 million motorcycles.

One of the adverse consequences of heavy fossil fuel dependence is the growing allocation of government subsidies for fuel, which perpetuates energy-related challenges and increases CO_2 emissions. In line with the Sustainable Development Goals (SDGs), Indonesia has pledged to reduce carbon emissions by 29% to 41% by 2030. The promotion of electric vehicles (EVs), including electric motorcycles, is viewed as a promising solution to reduce pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_2), hydrocarbons (HC), sulfur dioxide (SO_2), and particulate matter (PM). Battery-powered electric vehicles offer significant advantages over internal combustion engine (ICE) vehicles in reducing both air pollution and greenhouse gas emissions. EVs generally produce little to no direct air pollution compared to traditional ICE vehicles.

Despite this potential, a McKinsey report indicates that the adoption rate of electric vehicles in Indonesia remains low, at just 0.1%, significantly lagging countries like Thailand (0.7%) and India (0.5%) [3]. In response, the Indonesian government issued Presidential Regulation No. 55 of 2019 to accelerate the development of battery electric vehicles. This was followed by Government Regulation No. 73 of 2019, which introduced luxury goods tax (PPnBM) incentives. However, the effectiveness of these initiatives remains limited. Despite a subsidy incentive of IDR 7 million for electric motorcycles, uptake has fallen far short of expectations [4].

According to the Indonesian Electric Motorcycle Industry Association (AISMOLI), as of now, only 8,000 individuals have registered under the subsidy program, far below the total allocated quota of 200,000 motorcycles. A report from Liputan6.com shows that electric motorcycle sales have not met the national target. As of October 2023, only 15,000 units had been sold, significantly below the government's goal of 200,000 units for the year [5].

A survey by Republika revealed that Selis ranked highest among preferred electric motorcycle brands, followed by Gesits, Uwinfly, Volta, Alva One, ECGO, NIU, and Gogoro. This is largely because only Selis, Gesits, and Volta currently benefit from government subsidies, making them more affordable than their competitors [6].

A Kompas R&D survey found that 43.4% of respondents perceived a key disadvantage of electric vehicles to be their limited driving range compared to conventional vehicles. Additionally, 29.8% highlighted the difficulty in locating charging stations, 14.7% cited long charging times, and 12.1% were unaware of specific drawbacks [7]. From a technical standpoint, the battery presents a significant challenge; battery performance accounts for about 65% of an electric vehicle's functionality. However, Indonesia lacks domestic battery manufacturing capabilities, and while research is ongoing, it has yet to reach the stage of mass production readiness [8].

This research is crucial as the failure to meet sales targets for electric motorcycles has not yet led to a reduction in fuel subsidies. Consequently, Indonesia's SDG commitment to reducing CO_2 emissions by 29%–41% by 2030 may not be realized. This study aims to identify the key factors behind the limited consumer adoption of electric motorcycles in Indonesia [9].

Several studies in other countries have addressed similar topics. Brahma Priyanka (2022), for example, used Structural Equation Modeling (SEM) to examine electric motorcycles in India and found that social image had a significant positive influence on behavioral intention. Another study [10] in Australia employing descriptive analysis found that in Norway, only 1% of BEV owners would not repurchase an EV—indicating that policy efforts such as incentives and education are effective in increasing acceptance. Research conducted in Malaysia using multiple regression analysis [11] revealed that perceived quality positively but insignificantly affects motorcycle purchase intention. Meanwhile, a study in Taiwan [12] concluded that the low diffusion rate of electric motorcycles impacts adoption, and being an early adopter enhances one's social status, thus increasing purchase intention.

In Indonesia, related studies have been conducted as well. One study [13] in the Jabotabek area using Partial Least Squares (PLS) analysis found a positive but insignificant relationship between brand awareness and purchase intention. Another study [14] in Solo, utilizing mixed logit estimation, reported that over half of the respondents did not prefer electric motorcycles regardless of price or quality, and that these vehicles only address emission issues without considering other negative effects. In Jakarta, a study [15] using multiple regression found that product quality, price, and service each significantly influenced purchasing decisions. In Mataram [16], another multiple regression analysis showed that price and word-of-mouth recommendations partially influenced purchasing decisions.

While previous research has predominantly explored how perceived value affects interest in purchasing electric vehicles, limited attention has been given to how perceived value directly influences actual purchasing decisions. The novelty of this study lies in investigating the role of perceived value in shaping purchasing decisions for electric motorcycles—an area that has not been extensively examined in prior research.

2. Literature Review

2.1. Purchasing Decision

Decision-making represents a critical component of managerial functions, occurring routinely in the context of business operations. Understanding what constitutes a decision, how decisions are made, their classifications, and types is essential. A purchasing decision refers to the process by which consumers determine whether to buy a product, which is shaped by prior evaluations and considerations. Furthermore, purchasing decisions can manifest through consumer preferences for specific brands. According to [17], purchasing decisions are part of consumer behavior studies, which analyze how individuals, groups, and organizations select, purchase, utilize, and derive satisfaction from goods, services, ideas, or experiences. This process involves several stages, ultimately leading to a decision to make a purchase or not. [18] Similarly, describe purchasing decisions as a reflection of how consumers interact with products and services to fulfill their needs and wants. The decision-making process entails a series of cognitive evaluations wherein consumers identify needs, assess alternatives, and select the most suitable option [19].

2.2. Perceived Value

Consumers consistently seek optimal value in their transactions. "Value" encompasses the entire experience associated with the purchase and use of a product, often understood as a trade-off between benefits and costs [20]. According to [21], perceived value refers to how consumers assess a product's ability to meet their needs and expectations, especially in comparison to competing products. It is essentially the consumer's impression of the value derived from using the product. This concept is significant for businesses, as consumers tend to maximize perceived value, considering limitations in cost, knowledge, mobility, and income [22 Perceived value can thus be defined as a consumer's assessment of the balance between the benefits gained and the sacrifices made in acquiring a product or service [23]. According to [24], this value results from a personal comparison between perceived advantages and efforts or costs involved, making it inherently subjective [25].

2.3. Brand Awareness

Brand awareness reflects a consumer's ability to recognize or recall a brand under varying conditions. This awareness includes both recognition and recall of the brand name or logo, and is a key component of brand equity [26]. It denotes the ability of potential consumers to identify and remember a brand within a specific product category. The strength of brand awareness significantly impacts brand equity, depending on how effectively the brand is embedded in consumers' memory [27]. This suggests that brand awareness is a core objective of marketing communications, as higher awareness increases the likelihood that the brand will be considered when a consumer recognizes a need. He defined brand awareness as the extent to which consumers are familiar with a brand as part of a certain product class. In essence, brand awareness is a fundamental aspect of brand equity, representing how well a brand is recognized and recalled.

2.4. Price

Price plays a vital role in influencing consumer purchasing behavior. It is often seen as the monetary value required to acquire a combination of goods and services. Consumers frequently use price as a key indicator of value—products with higher prices are perceived as premium, while lower prices are often associated with affordability. Price perception is an important external cue, providing essential information that shapes consumer decisions. According to [28], price represents the total value consumers are willing to exchange for the

benefits provided by a product or service. Broadly, price can be viewed as the cumulative worth attributed by consumers to the advantages derived from owning or using a product [29]. As noted by[30], consumers are typically sensitive to price changes; excessive pricing may lead them to abandon a product and seek alternatives. [31] highlights that price is a critical marketing variable that can significantly affect purchasing decisions. Setting market-appropriate prices can influence consumer interest and drive sales.

2.5. Product Quality

Product quality refers to the inherent and perceived attributes of a good or service that fulfill consumer needs. [17] Describe it as a set of characteristics that determine a product's ability to meet or exceed expectations, encompassing factors such as durability, reliability, precision, and ease of maintenance. Product quality can be interpreted as the total value derived from production outcomes, as evaluated by consumers. According to [32], product quality encompasses all features that influence a product's capacity to satisfy explicit or implicit demands. [18] extends this view by emphasizing the product's ability to perform its intended function, including resilience, operational ease, accuracy, and reparability. [22] Also affirm that quality is closely linked to functional performance, and consumers often weigh this against price, especially when competing products offer similar capabilities.

2.6. The effect of Brand Awareness on Purchasing Decisions

Brand awareness, as defined by Aaker, refers to the capacity of prospective customers to identify or recall a certain brand within a particular [13]; [29]; [30]; it has been determined that brand awareness has a favorable and noteworthy impact on consumer purchasing choices. According to the findings of this investigation, the researcher has a strong inclination towards the following hypotheses:
H1: Brand awareness positively and significantly affects purchasing decisions for electric motorbikes.

2.7. Price Effect on Purchasing Decisions

Price is the most important factor in consumers' purchasing decisions. So that consumers are satisfied and producers or companies benefit proportionally, there are steps, stages, techniques, or strategies to determine the appropriate price [31]. Based on research conducted by [22]; [33 - 39]; [10]; [14], the results of which found that price has a positive and significant effect on purchasing decisions. Based on the results of this study, the research hypothesis is:
H2: There is a positive and significant effect of price on purchasing decisions for electric motorbikes

2.8. Effect of Product Quality on Purchasing Decisions

According to Kotler and Keller, product quality is the ability of a product to provide results that match and even exceed what is desired. A quality product is a product that has benefits and complementary attributes that can increase the value of a product being sold. Based on research conducted by [14]; [40 - 48]; [10]; [49]; [50]; [40], the results state that product quality has a positive and significant effect on consumer purchasing decisions. Thus, the research hypothesis is:
H3: Product quality has a positive and significant effect on purchasing decisions for electric motorbikes.

2.9. The Effect of Brand Awareness on Perceived Value

According to Aaker, brand awareness is the ability of potential consumers to recognize or remember a brand or a brand in a certain category. Based on research conducted by [51], [52], [53], the results state that there is an influence between brand awareness variables on perceived value. Based on the results of this study, the hypothesis is:
H4: Brand awareness has a positive and significant effect on purchasing decisions for electric motorbikes.

2.10. Price Effect on Perceived Value

Price is the sum of money billed for a product or service, which is determined by comparing the benefits or benefits obtained from a product or service purchased by consumers. Price is also a determining factor in the value perception process; if the price offered is of good quality, it will be of positive value to consumers. Based on research conducted by [54] [55 - 57], the results state that there is a positive influence between price and perceived value. Based on the results of this study, the research hypothesis is:
H5: There is a positive and significant effect of product price on the perceived value of electric motorbikes

2.11. Effect of Product Quality on Perceived Value

According to Kotler and Keller, product quality is the ability of a product to provide results that match and even exceed what is desired. A quality product is a product that has benefits and complementary attributes that can increase the value of a product being sold. Based on research conducted by [22] [58] [55], the results state that product quality has a positive effect on perceived value. Based on the results of this study, the research hypothesis is:
H6: Product quality has a positive and significant effect on purchasing decisions for electric motorbikes.

2.12. The Effect of Perceived Value on Purchasing Decisions

[26], Consumer perceived value is the difference between the value obtained by consumers by using a product or service and the cost of obtaining the product or service. Meanwhile, perceived value is the determination of value or price based on the purchase perception of the product or service offered. Based on research conducted by [22] [59 - 61], the results state that perceived value has a positive and significant effect on purchasing decisions. Based on the results of this study, the research hypothesis is:
H7: There is a positive and significant effect of perceived value on purchasing decisions for electric motorbikes.

2.13. The Effect of Brand Awareness on Purchasing Decisions through Perceived Value

Brand awareness is whether the brand name comes to mind when consumers think of a particular product category, and how easily that name appears. A better brand can provide benefits and added value and create its impression on consumers [28]; [62]; [63]; [10]. The results of his research state that perceived value can mediate brand awareness in consumer purchasing decisions. Based on the results of this study, the research hypothesis is:
H8: Brand awareness positively and significantly influences purchasing decisions through the perceived value of electric motorbikes.

2.14. The Effect of Price on Purchasing Decisions is Mediated by Perceived Value

Price is the most important factor in consumers' purchasing decisions. So that consumers are satisfied and producers or companies benefit proportionally, there are steps, stages, techniques, or strategies to set the appropriate price [65]. Based on the results of research conducted by [22], [61], [54], which state that there is a positive but insignificant influence between price and purchasing decisions through perceived value. Based on the results of this study, the hypothesis is:
H9: Price positively and significantly affects purchasing decisions through the perceived value of electric motorbikes.

2.15. The Effect of Product Quality on Purchasing Decisions through Perceived Value

Product quality is defined as a collection of features and characteristics of a product that contribute to its ability to meet certain requirements. Based on the results of research conducted by [40] [560 [63], the results of their research state that there is an influence on product quality on purchasing decisions through perceived value. Based on the results of this study, the hypothesis is:
H10: Product quality has a positive and significant effect on purchasing decisions due to the perceived value of electric motorbikes.

3. Research Method

Medan, recognized as a metropolitan area and the third-largest city in Indonesia, has an estimated population of approximately 3 million residents. This study adopts an associative-causal research design, targeting individuals who own electric motorcycles within Medan City. Due to the absence of precise data regarding the total number of such users, the sample size was determined using the Lemeshow formula, resulting in a calculated minimum of 96.4 respondents, which was rounded up to 100 participants. According to existing methodological literature, a sample size of 100 respondents is generally considered adequate for quantitative studies utilizing SEM-PLS, as this approach is robust for small to medium samples and prioritizes the accuracy of path coefficient estimation over large sample requirements [91]. Data were collected through direct interviews, with respondents completing a structured questionnaire distributed via Google Forms. The study utilizes Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach—an alternative method that is particularly suited for situations where data do not meet the assumptions of multivariate normality [64].

4. Result and Discussion

4.1. Descriptive Analysis

Table 1 shows the characteristics of respondents based on age, which are dominated by male gender, with as many as 78 respondents, and the remaining 22 are female. Respondents based on age are dominated by 20-30-year-olds, as many as 54 people. Furthermore, respondents aged 30-40 were 34 people, and those aged 40-50 years were 12 people.

Table 1: General Description of Respondents

Characteristics	Categories	f	%
Gender	Male	78	78%
	Female	22	22%
Age	20 – 30 years	54	54%
	30 – 40 years	34	34%
	40 – 50 years	12	12%
Occupation	Student	9	9%
	Unemployment	5	5%
	Government Employment	4	4%
	Businessman	4	4%
	Private Sector Employment	1	1%
	Online Transportation Driver	77	77%
Income per month	< IDR 5 Million	92	92%
	IDR 5 – 10 million	7	7%
	IDR 10 – 20 million	1	1%
	> IDR 20 Million	-	-

4.2. Item Reliability

The assessment of item reliability, also referred to as indicator validity, involves evaluating the strength of association between each indicator and its corresponding construct using outer loading values. These values reflect the degree to which an indicator accurately represents its construct. Ideally, outer loading values should exceed 0.70 to confirm strong indicator reliability, though values above 0.50 are still acceptable [64]. The analysis results indicate that all outer loading values exceeded the 0.70 threshold, thereby confirming that the indicators and variables used in the study are valid.

Table 2: Outer Loading Results

	Brand Awareness	Price	Product Quality	Perceived Values	Purchase Decisions
BA1	0.801				
BA2	0.769				
BA3	0.763				

	Brand Awareness	Price	Product Quality	Perceived Values	Purchase Decisions
BA4	0.816				
BA5	0.878				
P1		0.807			
P2		0.880			
P3		0.807			
P4		0.899			
P5		0.878			
PQ1			0.819		
PQ2			0.854		
PQ3			0.852		
PQ4			0.848		
PQ5			0.877		
PV1				0.800	
PV2				0.916	
PV3				0.912	
PV4				0.889	
PV5				0.881	
DC1					0.748
DC2					0.818
DC3					0.884
DC4					0.841
DC5					0.835

4.3. Composite Reliability

Construct or composite reliability is assessed using indicators such as Cronbach's alpha. Cronbach's alpha provides a conservative estimate, serving as the lower bound for construct reliability, while composite reliability delivers a more precise measure of the construct's internal consistency. According to commonly accepted standards, both Cronbach's alpha and composite reliability values should exceed 0.60. Thus, values above this threshold are indicative of strong construct reliability [64].

Table 3: Composite Reliability Results

	Cronbach's Alpha	Rho A	Composite Reliability
Brand Awareness	0.875	0.911	0.921
Price	0.908	0.925	0.919
Quality Product	0.904	0.953	0.960
Buying Decision	0.883	0.912	0.922
Perceived Value	0.924	0.938	0.944

Table 3 displays the composite reliability scores for each construct, showing values of 0.875 for Brand Awareness, 0.908 for Price, 0.904 for Product Quality, 0.833 for Purchase Decision, and 0.924 for Perceived Value. These results indicate that all five constructs exceed the recommended threshold of 0.6 for both Cronbach's alpha and composite reliability, confirming the strong reliability of the measurement instruments [65].

In addition, the Average Variance Extracted (AVE) is used to evaluate how well each construct explains the variance of its indicators relative to measurement error. An AVE value above 0.5 is considered evidence of good convergent validity. Therefore, the findings suggest that each latent variable accounts for more than 50% of the variance in its respective indicators, confirming that the constructs meet the criteria for convergent validity.

Table 4: Results of Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Brand Awareness	0.627
Price	0.625
Quality Product	0.748
Buying Decision	0.628
Perceived Value	0.736

As shown in Table 4, the Average Variance Extracted (AVE) values for the constructs are as follows: Brand Awareness (0.627), Price (0.625), Product Quality (0.748), Purchase Decision (0.628), and Perceived Value (0.736). All of these AVE scores exceed the minimum acceptable threshold of 0.5, indicating strong convergent validity for each construct. This suggests that, on average, the latent variables account for more than 50% of the variance in their associated indicators [64].

4.4. Discriminant Validity

Discriminant validity refers to the degree to which a construct is distinct and not overlapping with other constructs, thereby confirming its uniqueness. The most widely accepted contemporary approach for assessing discriminant validity is the Heterotrait-Monotrait Ratio (HTMT). A construct is considered to exhibit adequate discriminant validity if its HTMT value is below 0.90 [64].

Table 5: Herriet-Monotoroit Ratio (HTMT)

	Brand Awareness (X1)	Price (X2)	Quality Product (X3)	Purchase Decision (Y)	Perceived Value (Z)
Brand Awareness					
Price	0.295				
Quality Product	0.168	0.627			
Buyer Decision	0.236	0.513	0.628		
Perceived Value	0.126	0.597	0.671	0.678	

As shown in Table 5, the HTMT values for all variables and their respective indicators are below the 0.90 threshold, indicating that the indicators are appropriately assigned to their corresponding constructs and confirming adequate discriminant validity [64].

4.5. Test The Inner Model

4.5.1. Model goodness test (goodness of fit)

The evaluation of the overall structural model is conducted using the Goodness of Fit (GoF) index, which serves as a comprehensive metric to assess the combined performance of both the measurement and structural components of the model. The GoF value is calculated by taking the square root of the product of the average AVE and the R^2 values of the model. This index ranges from 0 to 1, with benchmarks commonly interpreted as follows: 0.10 indicates a small GoF, 0.25 reflects a moderate GoF, and 0.36 or higher denotes a large GoF [64]. A higher GoF score suggests a better overall model fit to the observed data. The following section outlines the results of the goodness-of-fit calculation for the model:

Table 6: Average Communalities Index Results

Variable	AVE	R Square
Brand Awareness	0.647	0.717
Price	0.645	0.713
Quality Product	0.737	0.729
Buyer Decision	0.649	0.719
Perceived Value	0.726	0.720
Average	0.681	0.719
GOF	0.7	

As shown in Table 6, the average communality value is 0.681. This figure, when multiplied by the model's R^2 value and then square-rooted, yields a Goodness of Fit (GoF) score of 0.7. Since this value exceeds the commonly accepted threshold of 0.36, it is categorized as a large GoF, indicating that the model demonstrates a strong ability to explain the observed empirical data.

4.5.2. Coefficient of determination test (r-square)

The R-square (R^2) statistic serves as an indicator of the extent to which variance in an endogenous variable is explained by its associated exogenous variables. According to [65], an R-square value of 0.70 reflects a strong (substantial) model fit, whereas values of 0.50 and 0.25 represent moderate and weak explanatory power, respectively. The R-square values derived from the analysis are presented in Table 7, based on data processed using the Smart PLS 4.0 software.

Table 7: R-Square Test Results

	R-square	R-square adjusted
Buying Decision (Y)	0.719	0.738
Perceived Value (Z)	0.720	0.731

The variables of brand awareness (X1), price (X2), product quality (X3), and perceived value (Z) collectively account for 73.8% of the variance in purchasing decisions (Y), indicating that the model demonstrates a strong explanatory power. Similarly, brand awareness (X1), price (X2), and product quality (X3) explain 73.1% of the variance in perceived value (Z), also signifying a well-performing model. The remaining 26.9% of variance in perceived value is attributed to other factors not included in the model.

4.5.3. F2 test (size effect / F-squared)

The F-square (F^2) statistic is employed to evaluate the relative contribution of exogenous variables to the variance of endogenous variables. According to established guidelines, an F^2 value of 0.02 indicates a small effect, 0.15 signifies a moderate effect, and 0.35 reflects a large effect [65]. The F^2 values generated through data analysis using Smart PLS 4.0 are summarized in Table 8.

Table 8: F-Square Value

	F-square	
	Buying Decision (Y)	Perceived Value (Z)
Brand Awareness	0.037	0.106
Price	0.042	0.112
Quality Product	0.071	0.243
Buying Decision		
Perceived Value	0.176	

Table 8 presents a detailed overview of the F^2 values, illustrating the influence of specific variables on purchase decisions. The F^2 value of 0.037 for Brand Awareness reflects a small effect, as do the F^2 values of 0.042 for Price and 0.071 for Perceived Value—each indicating a relatively weak influence on purchasing decisions.
Furthermore, the mediating role of Perceived Value in the relationships between Brand Awareness and Purchase Decision, Price Perception and Purchase Decision, as well as Product Quality and Purchase Decision, yielded F^2 values of 0.106, 0.112, and 0.243, respectively. These results indicate that Perceived Value exerts a small effect in all three mediating relationships.

4.6. Hypothesis Test

Path coefficient analysis is conducted to assess the significance of the relationships within the structural model, covering both direct and indirect effects among variables. The data were processed using the PLS 3.0 software, and the results are illustrated in the corresponding path coefficient diagram.

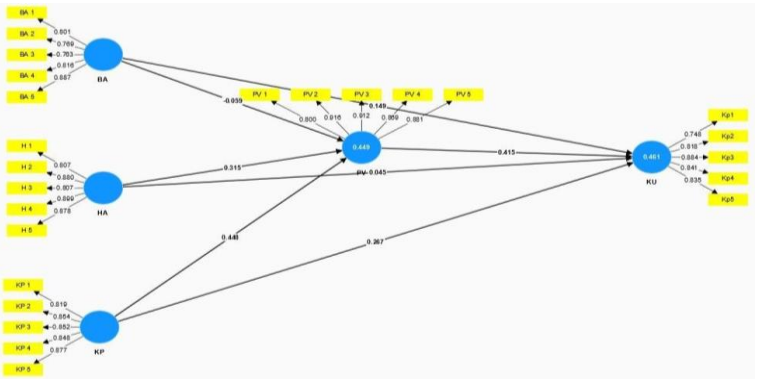

Fig. 2: Path Coefficient.

The results of the direct influence hypothesis test can be seen in the following path coefficient table:

Table 9: Path Coefficient

	Original Sample	P-Values
Brand Awareness -> Purchase Decision	0.149	0.299
Brand Awareness -> Perceived Value	-0.059	0.558
Price -> Purchase Decision	0.045	0.676
Price -> Perceived Value	0.315	0.001
Quality Product -> Purchase Decision	0.267	0.011
Quality Product -> Perceived Value	0.448	0.000
Perceived Value -> Purchase Decision	0.415	0.001

The effect of Brand Awareness on Purchase Decision is indicated by a path coefficient of 0.149. However, the corresponding p-value of 0.299 ($p > 0.05$) suggests that this positive relationship is not statistically significant. Similarly, the relationship between Brand Awareness and Perceived Value is represented by a path coefficient of -0.059, with a p-value of 0.559 ($p > 0.05$), indicating a negative but also statistically insignificant effect.

The path coefficient for the relationship between Price and Purchase Decision is 0.045, with a p-value of 0.676 ($p > 0.05$), showing a positive but non-significant influence. In contrast, the impact of Price on Perceived Value is both positive and statistically significant, with a path coefficient of 0.315 and a p-value of 0.001 ($p < 0.05$).

Regarding Product Quality, the analysis reveals a strong and significant effect on Purchase Decision, reflected by a path coefficient of 0.627 and a p-value of 0.0116 ($p < 0.05$). Similarly, Product Quality also exerts a significant positive effect on Perceived Value, as shown by a path coefficient of 0.488 and a p-value of 0.000 ($p < 0.05$).

Lastly, Perceived Value demonstrates a significant positive influence on Purchase Decision, with a path coefficient of 0.415 and a p-value of 0.001 ($p < 0.05$), confirming its role as a key determinant in the consumer decision-making process (see Table 9).

Table 10: Indirect Effect

	Original Sample	Sample Mean	Standard Deviation	P-values
X1 -> Y -> Z	-0.024	-0.023	0.043	0.574
X2 -> Y -> Z	0.131	0.124	0.051	0.011
X3 -> Y -> Z	0.186	0.188	0.076	0.017

Based on the results presented in Table 10, the following conclusions regarding indirect effects can be made:

1) The study finds that Brand Awareness does not have a significant indirect effect on Purchase Decisions through the mediation of Perceived Value in the context of electric motorbike purchases in Medan City, as indicated by a p-value of 0.574 ($p > 0.05$).
2) Price is shown to have a significant indirect effect on Purchase Decisions via Perceived Value, supported by a p-value of 0.011 ($p < 0.05$), suggesting that Perceived Value mediates the relationship between Price and Purchase Decisions.
3) Similarly, Product Quality exerts a significant indirect influence on Purchase Decisions through Perceived Value, with a p-value of 0.017 ($p < 0.05$), indicating that Perceived Value acts as a mediating variable in this relationship.

4.7. Discussion

4.7.1. The effect of brand awareness on purchasing decisions

The influence of the brand awareness variable on the purchasing decision variable shows a direct effect value of 0.149 with a significance of 0.299> 0.05, meaning there is a positive and insignificant influence between brand awareness and purchasing decisions. This can happen because consumers buy electric motorbikes generally for limited activities and close/limited distances (still within the housing/residential complex, for example, shopping at the nearest minimarket, taking children to the nearest school, etc.). In other words, the people of Medan City, Indonesia, still do not trust electric motorbike products for long trips, such as going to the office, business/trading matters, going to cafes, traveling, etc.

The results of this study are in line with the results of research from [13];[66]; [34], which found that brand awareness does not have a significant influence on purchasing decisions. These results mean that the existence of brand awareness does not affect the level of purchasing decisions; in previous research conducted by [67], wherein the research he conducted it was said that brand awareness had a positive but insignificant effect on consumer purchasing decisions for Honda Scoopy automatic motorbikes in Banjarmasin.

4.7.2. The effect of brand awareness on purchasing decisions

The results reveal that brand awareness does not have a significant effect on perceived value (Original Sample = –0.059, p-value = 0.558). This suggests that, in the context of electric motorcycle users in Medan, familiarity with a brand or the ability to recall it easily does not

necessarily translate into a higher perception of its value. One possible explanation is that consumers may prioritize tangible product attributes—such as quality and price—over mere brand recognition when evaluating the worth of electric motorcycles. This aligns with previous research indicating that in certain markets, particularly for emerging or less-established product categories, perceived value is more strongly shaped by functional and experiential factors rather than brand familiarity alone [20]; [88].

4.7.3. Price effect on purchasing decisions

The effect of price on the purchasing decision variable shows a direct effect value of 0.045 with a significance of 0.676> 0.05. It is known that the effect of price and purchasing decisions is positive but not significant. This happens because electric bicycle consumers still do not believe in the reliability of electric motorbikes, which are still low-speed, minimalist, and impractical models. After all, they must wait for battery charging, so the impact of electric motorbike sales has not reached the government's target, although the government has subsidized prices. This is contrary to research that has been conducted by previous studies, such as [22]: [41]; [68];[34];[35]; [46]; [48]; [69]; [9]; [39]; [14]

4.7.4. The effect of product quality on purchasing decisions

The effect of product quality on purchasing decision variables shows a direct effect value of 0.267 with a significance of 0.011 <0.05. It is known that the influence of product quality on purchasing decisions is positive and significant. This happens because respondents are electric motorbike users who generally use it for activities that are not far away (still limited to housing and in cities where distance and travel time are limited. They generally assume that the motorbike products purchased are of good quality. The results of this study are in line with previous research conducted by [41]; [70 - 75]; [46]; [48 - 50]; [14]; [9].

4.7.5. Influence price on perceived value

The influence of price variables on perceived value variables shows a marked direct effect as big as 0.315 with its significance 0.001<0.05. It is known that the influence of price and perceived value is positive and significant. The results of this study align with the results of previous studies conducted by [22]; [54], where study which he did it is said that price influences positive and significant perceived value.

4.7.6. Influence the quality of the product on perceived value

The influence of product quality variables on perceived variable values shows a direct effect as big as 0.448, with its significance 0.000<0.05. This is the influence of quality products and perceived value, which is positive and significant. The results of this study are in line with the results of research from [73]; [53]; [54]; and [77], which concluded that quality products influence positive perceptions of perceived value.

4.7.7. Influence perceived value on purchase

On the influence of perceived value variables on purchase decision variables, which shows a marked direct effect as big as 0.415 with a significance of 0.001<0.05, it is known that the influence of perceived value on the decision to purchase is significant. Furthermore, this research is also supported by previous research that has been done by [13]; [78 - 81]
and [9].

4.7.8. Influence brand awareness to decision purchase through perceived value

The results of this data analysis test showed no significant influence. brand awareness variables on purchasing decision variables in perceived value because the indirect effect value is -0.024 with a significance of 0.574>0.05, which means there is no significant influence between brand awareness and purchasing decisions mediated by perceived value.
The results of this study are supported by the fact that electric motorcycle consumers buy branded products made in China because only Chinese products receive subsidies from the Indonesian government. Even though the price is low, consumer perception still considers Japanese brand products to be of better quality. Thus, consumers of electric motorcycles in Medan, Indonesia, are still hesitant to buy electric motorcycles with high speeds/high cc engines, so consumers have not purchased high-speed electric motorcycles. The results of this study are in line with the results of previous studies conducted by [31]. Based on the results of the research conducted by [82 - 85].

4.7.9. Influence the price to influence purchase decision through perceived value

In the results of this data analysis test, there is a significant influence of the variable's price on purchasing decision variables in perceived value because the indirect effect value is 0.131 with a significance of 0.011>0.05, which means there is a positive and significant influence of prices to purchasing decisions that affect perceived value. This means that perceived value can mediate the relationship between price and consumer purchasing decisions for electric motorcycles. Although consumer perception of Chinese products is still low, it turns out that the government's price subsidy policy still tempts consumers to buy electric motorcycles. The results of this study are in line with the results of previous studies conducted by [22]; [86]; [54].

4.7.10. Influence the quality of the product on the decision to purchase through perceived value

In the results of this data analysis test, there is a significant influence of the variable product quality. on purchasing decision variables in perceived value, as shown on mark, the indirect effect is 0.186 with significance 0.017<0.05, which means there is a positive and significant influence of product quality on purchasing decisions mediated by perceived value. Facts in the field support these results. Chinese-made electric motorbikes subsidized by the government have low engine capacity, so they can only be used for short-distance activities. Therefore, consumers still consider the quality of the product purchased to be reasonable/realistic, despite its limited engine performance. The results of this study are in line with the results of previous studies conducted by [62], [54], [87].

5. Conclusion

Based on the analysis carried out in this study, it can be concluded that brand awareness has a positive but statistically insignificant effect on the purchasing decisions of electric motorbikes in Medan. Similarly, price also shows a positive yet insignificant influence on purchase decisions. However, product quality demonstrates a positive and significant relationship with purchasing decisions, indicating that consumers in Medan are more influenced by the perceived quality of the product than by brand familiarity or pricing alone.

About perceived value, the analysis reveals that brand awareness has a negative and insignificant impact. In contrast, both price and product quality exhibit a positive and significant effect on perceived value, suggesting that consumers perceive greater value when the product is competitively priced and offers high-quality features. Furthermore, perceived value itself significantly and positively influences purchasing decisions, highlighting its mediating role in the decision-making process.

The study also confirms that perceived value serves as a significant mediator between brand awareness, price, and product quality on purchasing decisions. This means that even if brand awareness or price alone does not directly impact the decision to purchase, their influence becomes significant when filtered through the lens of perceived value. Consumers are more likely to make a purchase when they believe that the product offers strong value, which is shaped by the combination of quality, price, and brand perception.

Considering these findings, several recommendations can be proposed. First, the government should consider expanding its incentive programs to include established Japanese motorcycle brands, as their participation could help improve public trust and accelerate the adoption of electric motorbikes in Indonesia. The failure to achieve the national electric motorbike sales target reflects lingering consumer skepticism, particularly toward Chinese-made electric motorcycles, which are often perceived as having lower quality. To address this, manufacturers should engage in consistent product education and public awareness campaigns aimed at correcting misconceptions and building consumer confidence. Such campaigns could include public demonstration events, test-ride programs, and partnerships with local community organizations to enhance outreach and engagement.

Additionally, since many consumers associate low prices with inferior quality, producers should strengthen their after-sales services and provide robust warranty guarantees. Product innovation must also be prioritized to improve the image of Chinese electric motorcycles, particularly in terms of performance, reliability, and design. Moreover, investment in affordable and fast battery charging technologies is essential to meet consumer expectations. Offering long-term battery performance guarantees would further reassure buyers and enhance product attractiveness. Parallel to these manufacturer-led initiatives, policy interventions should focus on accelerating the development of charging infrastructure, ensuring adequate coverage across urban and rural areas. Infrastructure readiness is a critical determinant in the adoption of electric vehicles, as it directly impacts perceived convenience and usability.

Finally, the government should consider increasing the subsidy amount provided for electric motorbike purchases. Enhancing financial incentives, particularly for lower-income consumers, would not only stimulate demand but also support the overall quality improvement of locally produced electric motorcycles. However, subsidies should be integrated into a broader policy framework that addresses both perception and practical barriers, combining financial support with infrastructure development, consumer education, and market diversification strategies to ensure long-term sustainability of the electric vehicle market in Indonesia. By addressing both perception and practical concerns, these measures could significantly contribute to achieving the national goals for electric vehicle adoption and carbon emissions reduction.

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