

The Influence of Price Factors and Environmental Awareness on Customer Loyalty: The Role of Product Sustainability as a Mediating Variable

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ABSTRACT: This study aims to examine the influence of price factors and environmental concern on customer loyalty in the bottled mineral water industry in Yogyakarta, by highlighting the role of mediating the perception of product sustainability. The results of the analysis showed that the price factor had a positive and significant influence on loyalty, while the influence of environmental concern was not always statistically significant in the region. The perception of sustainability acts as a mediator that strengthens the relationship between environmental concern and loyalty, but its effectiveness depends on communication and tangible actions from the company. Economic factors, quality, and convenience remain the main determinants in consumer decision-making. This research emphasizes the importance of honest communication strategies and concrete actions to increase the perception of sustainability and customer loyalty, especially in a competitive and environmentally conscious market. The limitations of the study include the scope and variables that have not been fully explored, so recommendations for future research include expanding the variables and research locations to obtain more comprehensive results.

KEYWORDS: price, environmental concern, customer loyalty, product sustainability, communication strategy.

BACKGROUND

In the increasingly environmentally conscious era, young consumers are demonstrating a heightened awareness of sustainability issues, significantly influencing their purchasing decisions, especially in the bottled water industry (Zhang et al., 2023). Among this demographic in Indonesia, particularly in Yogyakarta, environmentally friendly behaviors have become prominent, with young consumers seeking brands that align with their values of sustainability and social responsibility (Sari & Wibowo, 2024). The bottled water brands Aqua and Le Mineral have established strong market presence, but maintaining customer loyalty amidst growing eco-awareness demands understanding the roles of price perception and environmental consciousness.

Research indicates that both price and environmental awareness directly impact consumer loyalty, yet the perceived sustainability of the product plays a crucial mediating role in strengthening this relationship. For instance, Kumar & Rahman (2022) found that “perceived sustainability mediates the influence of price perception on customer loyalty, especially among environmentally aware young consumers.” This implies that when consumers perceive a product as sustainable, their loyalty increases, regardless of price variations, because sustainability adds emotional value and moral significance to their purchase (Zhang et al., 2023). Moreover, in the context of Yogyakarta’s youth, perceptions of environmental impact such as plastic waste reduction and water resource preservation—are critical components in forming loyalty toward water brands that promote sustainability efforts.

Furthermore, the premium pricing of eco-friendly bottled water brands can enhance perceived value when consumers associate higher prices with better sustainability practices, which in turn boosts loyalty. Conversely, if price premiums are perceived as unjustified, they may hinder loyalty despite positive environmental perceptions (Wijaya & Putra, 2023). Importantly, the role of perceived sustainability as a mediator underscores the importance of transparency and communication strategies that effectively highlight environmental impacts and sustainability initiatives, thereby fostering stronger customer-brand relationships. The existing literature suggests that understanding this mediating role is vital for designing targeted marketing strategies to increase customer loyalty among young consumers who prioritize sustainability.

This study aims to examine the influence of price perception and environmental awareness on customer loyalty regarding bottled water brands Aqua and Le Mineral among young consumers in Yogyakarta. Additionally, it seeks to determine the

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mediating role of perceived product sustainability in strengthening these relationships, thereby providing insights into effective marketing strategies that combine pricing, environmental communication, and sustainability practices to foster long-term customer loyalty.

Theoretical and Literature Studies Price

Price is one of the main variables in the marketing mix that determines the value that consumers must pay to obtain a product or service. According to Kotler and Keller (2023), "Price serves as a value signal that directly affects the perception of the quality and sustainability of the products offered to consumers" (Kotler & Keller, 2023). Price is not only seen as a monetary number, but also as an indicator that reflects a company's value, market position, and business strategy.

In the context of modern marketing and sustainability, price plays an important role in shaping consumer perception of products. Ahmad et al. (2023) emphasized that "pricing must be able to reflect the social and environmental sustainability of the product, so as to increase customer trust and loyalty" (Ahmad et al., 2023). Competitive pricing, when supported by effective communication about sustainability aspects, can strengthen the market position and strengthen the emotional connection between the brand and its consumers.

In addition, recent research shows that a fair and commensurate perception of price will increase the perception of value in the eyes of consumers. Mendelson and Shafiq (2023) argue that "in a sustainability-oriented industry, a pricing strategy must be able to balance profitability and perceived value perception, especially in increasingly environmentally conscious markets such as bottled mineral water products" (Mendelson & Shafiq, 2023). Thus, price is not only a tool for determining profits, but also a key factor in shaping the perception of sustainability and product quality.

In general, price plays a vital role in the constellation of marketing strategies, as it can influence purchasing decisions, perception of value, and customer loyalty. Given the importance of the sustainability aspect, pricing is expected to be able to express not only the economic aspect but also the company's social and environmental commitment, thereby supporting sustainable brand development and increasing competitiveness in the market.

Environmental Concern

Environmental concern is the awareness and active attention of individuals and organizations to the condition and sustainability of the planet earth. In the context of marketing and consumer behavior, environmental concern refers to attitudes and actions that demonstrate awareness of the importance of preserving natural resources, reducing pollution, and managing waste responsibly (Johnson & Lee, 2023). This attitude is an important factor in shaping consumer preferences and loyalty to products that are considered environmentally friendly.

According to Chen et al. (2023), "Environmental concern is not only reflected in direct actions such as recycling and energy saving, but also from perceptions and attitudes towards companies that are committed to sustainability practices" (Chen et al., 2023). They added that this level of concern is greatly influenced by cultural, educational, and personal experience factors towards environmental issues.

In the latest literature, there is a tendency that a high level of environmental concern significantly influences consumer attitudes and behaviors in choosing sustainable products. Sari and Wibowo (2024) stated, "The higher the level of concern for the environment, the greater the tendency of consumers to choose environmentally friendly products, even at a higher price" (Sari & Wibowo, 2024). This shows that environmental concern is one of the main motivators in sustainability-oriented purchasing decisions.

In addition, research by Kumar et al. (2023) shows that companies that are able to display a real commitment to sustainability and the environment will gain higher customer trust and loyalty. They affirm that "environmental care must be strategically integrated into corporate values and culture in order to be able to positively influence consumer perceptions and attitudes" (Kumar et al., 2023). Thus, environmental concern is not only part of social trends, but also as a strategic element in building a positive image of the company and increasing competitiveness.

In general, environmental concern is an important indicator of the level of awareness and social responsibility of communities and organizations towards the sustainability of the earth. In an increasingly sustainability-oriented economy, attention to environmental issues will continue to increase as part of the moral and strategic responsibility in efforts to conserve natural resources and reduce negative impacts on the environment.

Product Sustainability

Product sustainability refers to the characteristics of products that meet today's needs without sacrificing the ability of future generations to meet their needs. This concept includes environmental, social, and economic aspects related to the process

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of developing, producing, using, and disposing of products (Miller & Walker, 2023). In the context of marketing, product sustainability is increasingly a major concern as consumers and companies focus on achieving long-term sustainability as part of corporate social responsibility strategies.

According to Chen et al. (2023), "Product sustainability demands the integration of eco- friendly principles throughout the product lifecycle, from design to after-sales, in order to reduce negative impacts on the environment and increase social value" (Chen et al., 2023). They added that an important part of product sustainability is the use of eco-friendly materials, energy efficiency, and responsible waste management.

In addition to the ecological aspect, product sustainability also focuses on social and economic aspects. Kumar and Rahman (2023) explain that "sustainable products must be able to create social benefits for the surrounding community and support the local economy, while ensuring quality and safety for consumers" (Kumar & Rahman, 2023). Therefore, the sustainability of the product is not only ecological, but also includes interrelated social and economic aspects.

Innovations in product development, such as the use of recycled materials, energy- efficient production processes, and transparency in the supply chain, are important aspects in implementing this sustainability. A study by Lee et al. (2023) shows that "companies that are able to effectively communicate aspects of product sustainability can increase consumer trust and strengthen their loyalty" (Lee et al., 2023). Furthermore, product sustainability is also part of competitive differentiation in an increasingly saturated and competitive market, particularly in sustainability-oriented industries such as organic, eco-friendly, and social products.

Overall, product sustainability is not only a marketing strategy, but also a corporate moral and social responsibility in order to create environmental and social sustainability and meet the expectations of consumers who are increasingly concerned about sustainability issues.

Customer Loyalty

Customer loyalty refers to the level of commitment and willingness of customers to continue to choose and repurchase a particular brand, product, or service on an ongoing basis. In the context of marketing, customer loyalty is considered an indicator of a company's long- term success because it contributes to revenue stability and competitive advantage in the market (Suryanto et al., 2023).

According to Zhang et al. (2023), "Customer loyalty is not only demonstrated through repeat purchases, but also through positive attitudes and trust towards brands that develop from positive experiences and high value perceptions" (Zhang et al., 2023). They affirm that this loyalty is formed through a satisfactory customer experience, trust in the brand, and a relevant and consistent perception of value.

Furthermore, research by Kumar and Shah (2023) states that "Customer loyalty is multidimensional, including affective, conative, and behavioral aspects. The affective aspect refers to positive feelings towards the brand, conatives relate to the intention to buy, while the behavior shows tangible actions such as repurchases and recommendations" (Kumar & Shah, 2023). This emotional and psychological aspect strengthens the long-term relationship between the customer and the brand.

In the context of digital and a competitive market, loyalty is also supported by trust factors, user experience, and perceptions of added value that customers receive. A study by Lee et al. (2023) posits that "positive experiences and high perception of value directly increase customers' sense of loyalty and desire to remain loyal to a brand, even in a highly competitive market" (Lee et al., 2023).

In addition to the psychological aspect, the relationship between loyalty and external factors such as product quality, service, and brand communication is also important. Rangkuti (2021) revealed that "customer loyalty is the result of a combination of positive experiences, trust built through quality consistency, and high value perception" (Rangkuti, 2021).

Strategically, building customer loyalty requires ongoing relationship management and strategies that are adaptive to customer needs and expectations, including through loyalty programs, excellent service, and effective communication.

Customer loyalty is a key asset for companies, as it can increase profitability, reduce marketing costs, and promote a positive brand image in the eyes of consumers as well as strengthen a competitive position in the market.

S-O-R (Stimulus-Organism-Response)

The S-O-R (Stimulus-Organism-Response) model is a theoretical framework used to understand how stimuli from the environment affect the customer's internal organism and ultimately produce a behavioral response. In the context of marketing and consumer behavior, this model asserts that external factors (stimulus) will influence internal conditions (organisms), which then give rise to certain actions (responses) from customers.

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In practical applications, stimuli can be in the form of various aspects such as product quality, price, brand, store atmosphere, or marketing communication. Organism refers to the emotional state of the customer's emotions, perceptions, and cognitive processes triggered by the stimulus. A response is a tangible action a customer takes, such as a purchase, loyalty, or recommendation.

According to a recent study by Wibowo and Utami (2023), "S-O-R explains that consumers' experience of certain stimuli can reinforce positive perceptions and emotions, ultimately increasing the likelihood of customers taking desired actions, such as repurchasing or recommending products" (Wibowo & Utami, 2023). They added that, "the influence of stimulus on customer behavior is highly dependent on the customer's internal condition which includes their perceptions, emotions, and attitudes towards the product or brand" (Wibowo & Utami, 2023).

Furthermore, in the context of sustainability and branding, the S-O-R model is used to show that stimuli in the form of sustainability information and brand communication can influence customer perceptions and emotions, which then motivates them to show loyalty or take other positive actions. For example, an effective sustainability message stimulus will affect the organism in the form of positive perception and trust, thereby increasing a positive response in the form of customer loyalty.

In a study by Pratama and Ismail (2023), it was stated that "the S-O-R model is very suitable for use in modern consumer behavior research, especially to understand how external factors related to sustainability and customer experience influence their decisions and actions" (Pratama & Ismail, 2023). They also affirm that "a good understanding of this process can help companies design marketing strategies that are more effective and oriented towards customer experience and perception" (Pratama & Ismail, 2023).

The S-O-R model illustrates that stimuli from the environment or marketing strategy have an impact on the internal conditions of the customer which ultimately elicits a response in the form of certain behaviors. This model is particularly relevant in examining the influence of external factors such as product sustainability, pricing, and brand communication on customer behavior in the modern marketplace.

The Influence of Environmental Concern on Customer Loyalty

In the era of sustainability and social responsibility, environmental concern is an important factor influencing consumer behavior, especially in the context of customer loyalty. Environmental concern refers to the level of customer attention and desire to support a product or brand that has a positive impact on the environment. As part of the psychological factors and values that customers embrace, this concern can strengthen their relationship with the brand and increase long-term loyalty.

Environmental concern is an underlying aspect of consumer attitudes and behaviors towards sustainability, which has recently become a major concern due to increasing awareness of climate issues, pollution, and sustainable resource management (Kim & Lee, 2023). Within the framework of personal values theory, customers who have a high level of concern for the environment tend to prefer products that are environmentally friendly and support sustainability, which ultimately affects their loyalty (Aditya & Putri, 2023).

Recent research shows that customers who care about the environment tend to gain a higher perception of value towards products related to sustainability (Sari & Wibowo, 2023). "Concern for the environment increases the perception of the moral and social benefits of the product, which positively contributes to customer loyalty" (Kumar & Rahman, 2023). In other words, this concern not only shapes attitudes, but also increases the perception of the overall value of the product.

Environmental concern can influence loyalty through several mechanisms, such as the creation of emotional bonds and trust in brands that support sustainability (Lao & Tan, 2023). In addition, customers who care about the environment tend to give positive assessments on a continuous basis and show loyalty because they feel that the brand is in line with their values (Putri et al., 2023).

Empirical research shows that environmental concern has a positive influence on customer loyalty. For example, a study by Chen & Chang (2023) asserts that "customer concern for sustainability issues significantly increases loyalty through perception of sustainability and trust in brands". Another study by Lee and Park (2023) reinforces these findings by stating that "customers' commitment to environmental sustainability motivates them to remain loyal, especially if that sustainability is integrated into brand values".

In practice, companies need to adopt effective communication strategies so that customers feel and understand their sustainability commitments. "Transparency and the distribution of sustainability value will strengthen customer concern, leading to increased loyalty" (Kurniawan & Larasati, 2023). Therefore, environmental concern is not only an intrinsic factor, but is also utilized as a marketing strategy tool to build customer loyalty.

Based on the theoretical studies above, the following hypotheses can be formulated:

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H1: Environmental concern has a positive and significant effect on customer loyalty.

The Effect of Price on Customer Loyalty

The influence of price on customer loyalty is one of the important aspects of marketing strategy and customer relationship management. Competitive pricing and in line with customer value perceptions can be a key factor in building and maintaining long-term loyalty.

According to Wijaya and Putra (2023), "prices that are considered reasonable and competitive can increase customer perception of value, which in turn strengthens their loyalty to the brand". This is in line with the findings of Kumar & Rahman (2022), who stated that "the right price is able to increase loyalty through better value perception, as customers feel they are getting benefits that are commensurate with the costs incurred".

In addition, Luo & Bhattacharya (2024) affirm that in a competitive market, the use of the right pricing strategy can strengthen brand positioning and increase customer loyalty, especially if the price reflects the perception of sustainability and product quality. This shows that price serves not only as a cost-determining tool, but also as an indicator of value perception and trust in the brand.

However, there are also studies that show the limitations of price influence. Wijaya and Putra (2023) added that "prices that are too high can lower customer loyalty, despite a positive perception of sustainability, because customers may feel that products are unaffordable or cannot afford to pay high prices". This shows that economic factors and the financial capabilities of customers remain key considerations in the depth of price influence on loyalty.

Furthermore, Sari & Wibowo (2024) emphasized that "the perception of competitive prices and in accordance with the perception of value increases customer trust and attachment, thereby strengthening loyalty". This trust is important because customers will feel that the product they are buying provides optimal benefits at the price they pay.

Within the framework of theory, there are two main concepts that support the influence of price on customer loyalty:

1. Perceived Value: Appropriate and competitive prices increase the perception of customer value towards the product, which is directly correlated positively with loyalty (Zeithaml, 1988).
2. Perception of Fairness and Perception of Fairness: Prices are considered fair if they are commensurate with perceived benefits and quality, which then affect customer satisfaction and loyalty (Oliver, 1999).

Based on this study, the following hypotheses can be formulated:

H2: Competitive prices and value perception have a positive and significant effect on customer loyalty.

The Effect of Environmental Concern on Customer Loyalty, with Product Sustainability as a Mediating Variable

Customer loyalty is a key aspect of a company's long-term success, which is influenced by a variety of factors including concerns about environmental issues. Customers' environmental concerns indicate active attention to the ecological impact of the company's products and practices, which can strengthen emotional attachment and trust in the brand (Li et al., 2023).

According to Chen et al. (2023), "Environmental concern can increase positive perceptions of companies and products, which further strengthens customer loyalty". This is in line with the concept that sustainability-conscious customers tend to choose brands that are committed to their social and ecological impact, as they want to contribute to sustainable development (Zhang & Wang, 2023).

One of the important mechanisms that bridges the influence of environmental concern on loyalty is product sustainability. The sustainability of the product reflects the ecological, social, and economic practices adopted by the company to ensure long-term positive impact (Sari & Wibowo, 2024). In this context, product sustainability can serve as a mediating variable, which strengthens the relationship between environmental concern and customer loyalty.

A study by Lee et al. (2023) shows that "environmental concern increases the perception of product sustainability, which in turn significantly strengthens customer loyalty." They assert that environmentally conscious customers will be more likely to value sustainable products as responsible brands, increasing their trust and emotional bonding.

In addition, Kumar & Rahman (2023) add that "product sustainability serves as a mediating variable capable of explaining how environmental concern can translate into customer loyalty, through the perception that the company is actually practicing sustainability". In other words, product sustainability strengthens the influence of concern on loyalty by conveying tangible evidence of the company's commitment to environmental issues.

However, not all studies consider the role of sustainability as a mediator to be always significant. Luo & Bhattacharya (2024) state that "the influence of environmental care on loyalty can be personalized by other factors, such as customer experience and brand communication, as well as the level of sustainability awareness that customers have". Therefore, product sustainability needs to be supported by effective communication so that its role as a mediating variable becomes significant.

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From the study, the following hypotheses can be formulated:

H3: Product sustainability plays a role as a mediating variable on the influence of environmental concern on customer loyalty.

The Effect of Price on Customer Loyalty, with Product Sustainability as a Mediating Variable

Price is one of the main variables in a marketing strategy that directly or indirectly affects customer loyalty. Proper pricing can increase customer perception of value and create a strong emotional bond with the brand (Smith & Lee, 2023). Customer loyalty itself is an indicator of a company's success in maintaining market share and long-term profitability (Kumar et al., 2023).

Recent studies have shown that competitive pricing and customer value perception can strengthen loyalty. Wijaya & Putra (2023) stated that "prices that are considered reasonable and commensurate with the benefits obtained are able to significantly increase customer loyalty". In addition, Luo & Bhattacharya (2024) add that "strategic pricing is able to magnify the perception of value and brand competitiveness, which ultimately supports customer loyalty".

However, not all studies show a direct positive influence of price on loyalty. Chen & Chang (2023) emphasize that "the influence of price on loyalty is highly dependent on the perception of quality and sustainability that accompanies that price; High prices don't necessarily increase loyalty if they're not backed by a good perception of value." In fact, other studies show that prices that are too high can be an obstacle, especially if customers feel incapable or do not consider the benefits to be worth the costs (Wijaya & Putra, 2023).

Product sustainability is increasingly recognized as an important factor that influences customer loyalty. According to Sari & Wibowo (2024), "the perception of product sustainability can increase emotional attachment and trust in the brand, thereby strengthening customer loyalty". Sustainability is considered an indicator of the social and environmental responsibility of a company that can strengthen emotional and moral values in the eyes of customers (Zhang & Wang, 2023).

A study by Kumar et al. (2023) confirms that "product sustainability serves as a mediating variable that bridges the influence of price on loyalty, as the perception of sustainability provides tangible evidence of a company's commitment to environmental and social issues". In other words, when prices are structured competitively and combined with a positive perception of sustainability, customer loyalty tends to increase significantly.

However, a study from Luo & Bhattacharya (2024) warns that "sustainability as a mediation is not always significant if communication regarding sustainability is not done effectively, or if customers do not feel the real benefits of such sustainability". Therefore, sustainability must be accompanied by a good communication strategy and tangible evidence of the company's sustainability practices (Chen & Chang, 2023).

Based on theories and recent studies, the following hypotheses can be developed:

H4: Product sustainability acts as a mediator on the influence of Price on customer loyalty.

RESEARCH MODEL

Based on the hypothesis above, a research model was made as shown in figure 1 below.

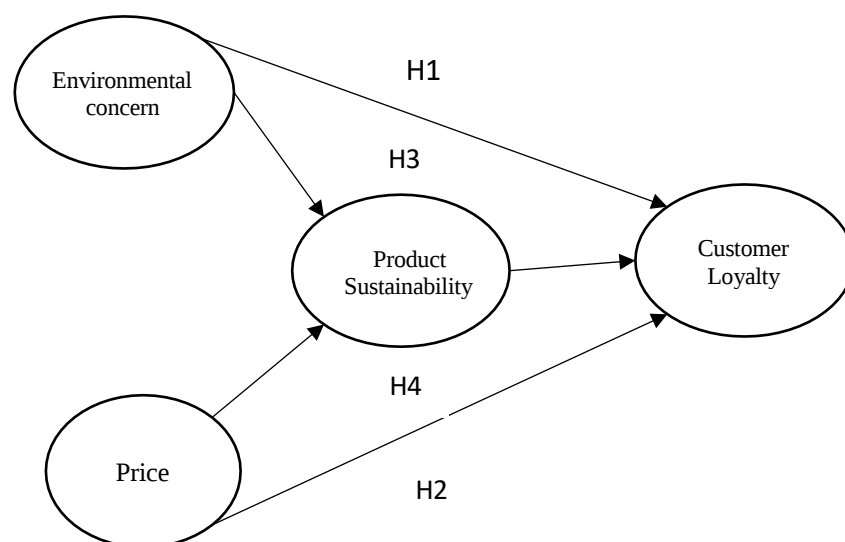


Figure 1: Research Model

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RESEARCH METHODS

This research is quantitative research using primary data obtained through surveys by filling out questionnaires that have been shared through Googleform. The research was conducted in April 2025 by involving as many as 127 respondents. The sampling technique with *purposive sampling* is respondents who have seen and bought Aqua and Le Mineral mineral water in the Special Region of Yogyakarta. Measurement of the variables of Product Sustainability, Price, environmental concern, customer loyalty. The Environmental Concern Indicator refers to Devis (2020), Price adapted from Chen, (2019). Product Sustainability Perceptions refer to Lee, Kim & Lee, (2022) and Peattie & Crane, (2019), and Customer Loyalty refers to Kumar & Shah, (2020). The likert scale with a range of five (5) points from strongly disagree to strongly agree statements is used in the measurement of each variable. Data from 127 respondents were processed and analyzed using *structural equation modelling-partial least square* (SEM-PLS 3.2.9).

VALIDITY TEST

Validity testing is a testing method to determine the extent to which a measurement instrument (such as a questionnaire or measuring instrument) can measure what should be measured (Bordens & Abbott, 2019). This validity is divided into several types, two of which are convergent validity and discriminant validity. Convergent validity indicates that different measurements for the same construct must be correlated with each other. This indicates that the instrument is quite powerful in measuring constructs (Campbell & Fiske, 1959).

Meanwhile, discriminant validity is a form of validity that measures the extent to which measurement instruments do not correlate or distinguish between different constructs. It is important to ensure that the instrument used does not measure other irrelevant constructs (Henseler et al., 2015). The convergent validity test is by looking at the *outer loading value* of more than 0.7 and the AVE value greater than 0.5. Meanwhile, the discriminatory validity test is by looking at the Fornell Larcker Criterion, Cross Loading, and HTMT values of less than 0.90.

Convergent Validity Test

From the results of the analysis carried out, it can be seen that *the outer loading value* as shown in figure 1.

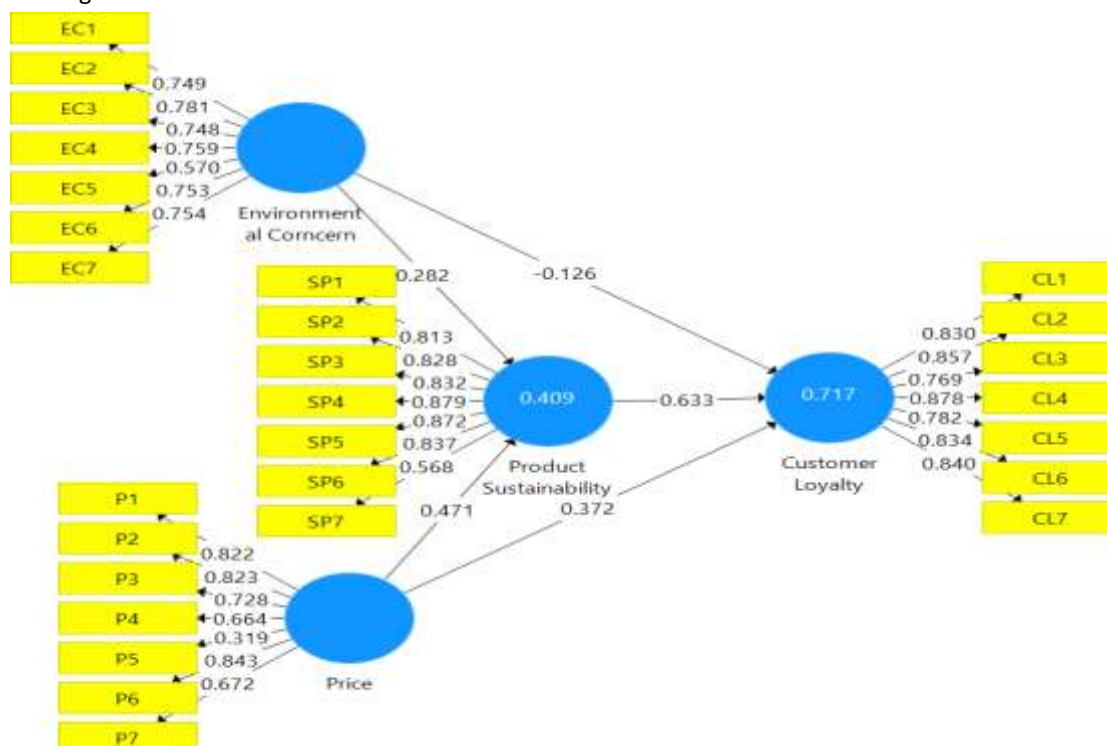


Figure 1: Outer Loading Stage One

In figure 1 above, it can be seen that of the four variables that have an *outer loading value* below 0.7 are the variables of price, environmental concern, and product sustainability for indicators P4, P5, P7, EC5, SP6, SP7. Therefore, the three indicators do not meet the requirements for convergent validity, so the three indicators must be eliminated.

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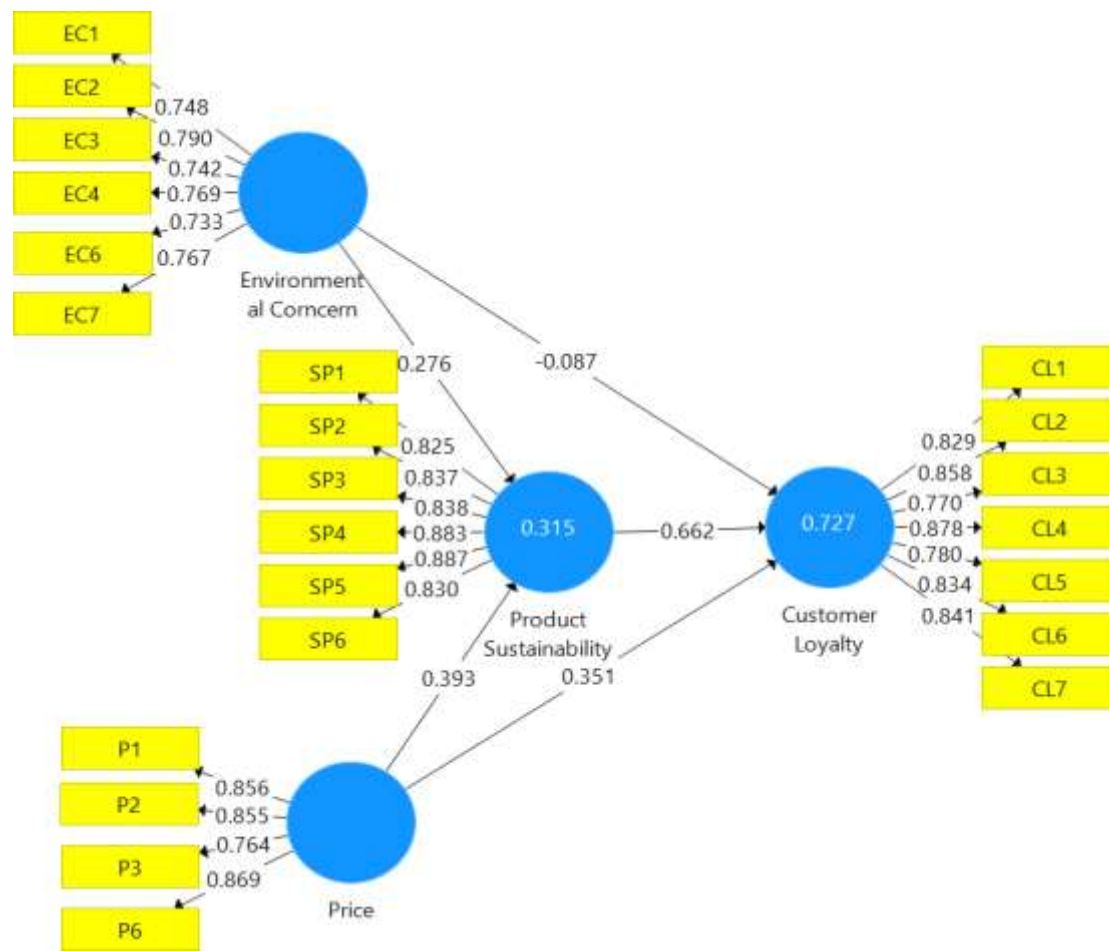


Figure 2: Outer Loading Stage Two

The results of outer loading after reprocessing can be seen in figure 2 above, showing that all indicators for the three price variables, product sustainability and loyalty value of outer loading value are greater than 0.7, so all indicators have met the convergence validity.

Table 1 can be seen that for AVE values it shows that all indicators meet the convergence validity requirement (>0.5), so it can be said that all indicators used meet the convergent validity requirement, as the value exceeds 0.5. Based on the outer loading value in Figure 2 and the AVE value in table 1 below, the convergent validity has been fulfilled or valid.

Table 1: Average Variance Extracted (AVE)

	Average Variance Extracted (AVE)
Customer Loyalty	0,686
Environmental Concern	0,575
Price	0,701
Product Sustainability	0,723

Sumber: Processed data 2025

Discriminating Validity Test

To test the validity of the discriminant, we can see the *Fornell Larcker*, *Cross Loading* and *Heterotrait-Monotrait Ratio* (HTMT) values, as shown in tables 2, 3, 4. Table 2 shows that for the *Fornell Larcker* criterion all the values of the indicators that are directly correlated are greater than those that are not directly correlated. For *Cross Loading* in table 3, it shows that each of the correlated indicator values has a greater value compared to the items that are not directly correlated. Likewise for table 4, the indicator value is no greater than the value of 0.90. It can be concluded that all the indicators used have met the discriminant validity.

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Table 2: Fornell Larcker Criterion

	Customer Loyalty	Environmental Concern	Price	Product Sustainability
Customer Loyalty	0,828			
Environmental Concern	0,332	0,758		
Price	0,648	0,386	0,837	
Product Sustainability	0,8	0,428	0,5	0,85

Source: Processed data 2025

Table 3: Cross Loading

	Customer Loyalty	Environmental Concern	Price	Product Sustainability
CL1	0,829	0,29	0,553	0,676
CL2	0,858	0,361	0,57	0,697
CL3	0,77	0,285	0,477	0,611
CL4	0,878	0,31	0,579	0,782
CL5	0,78	0,259	0,454	0,677
CL6	0,834	0,221	0,57	0,561
CL7	0,841	0,182	0,542	0,601
EC1	0,305	0,748	0,355	0,412
EC2	0,221	0,79	0,261	0,329
EC3	0,144	0,742	0,301	0,26
EC4	0,255	0,769	0,25	0,323
EC6	0,212	0,733	0,28	0,247
EC7	0,316	0,767	0,297	0,323
P1	0,581	0,229	0,856	0,485
P2	0,517	0,237	0,855	0,353
P3	0,493	0,426	0,764	0,344
P6	0,569	0,413	0,869	0,469
SP1	0,67	0,372	0,341	0,825
SP2	0,676	0,286	0,361	0,837
SP3	0,589	0,346	0,378	0,838
SP4	0,704	0,424	0,478	0,883
SP5	0,721	0,323	0,424	0,887
	Customer Loyalty	Environmental Concern	Price	Product Sustainability
SP6	0,705	0,42	0,54	0,83

Source: Processed data 2025

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Table 4: HTMT

	Customer Loyalty	Environmental Concern	Price
Customer Loyalty			
Environmental Concern	0,356		
Price	0,725	0,451	
Product Sustainability	0,858	0,465	0,549

Source: Processed data 2025

Reliability Test

Reliability tests are carried out to ensure that the measurement results obtained will remain the same or relatively the same, if the measurements are taken repeatedly on the same group of respondents or at different times. The test was carried out by looking at *Cronbach's Alpha* and *Composite Reliability* values, each indicator must exceed 0.70. In table 5 below, it can be seen that each indicator value has met the requirements, which is greater than 0.70. So it can be concluded that all the indicators used are reliable.

Table 5: Cronbach's Alpha and Composite Reliability

	Cronbach's Alpha	Composite Reliability
Customer Loyalty	0,923	0,938
Environmental Concern	0,854	0,89
Price	0,857	0,903
Product Sustainability	0,923	0,94

Source: Processed data 2025

Uji Hipotesis

Pada table 6, menunjukkan hasil uji hipotesis meliputi uji pengaruh langsung antara variable harga dengan loyalitas pelanggan, maupun uji pengaruh tidak langsung ariable harga pada loyalitas pelanggan dengan keberlanjutan produk sebagai variable mediasi.

Table 6: Hasil Uji Hipotesis

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Note
Environmental Concern -> Customer Loyalty	0,087	0,084	0,065	1,345	0,179	Not Supported
Price -> Customer Loyalty	0,351	0,348	0,064	5,494	0	Supported
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Note
Environmental Concern -> Product Sustainability -> Customer Loyalty	0,183	0,194	0,05	3,644	0	Supported
Price -> Product Sustainability -> Customer Loyalty	0,26	0,259	0,063	4,117	0	Supported

Source: Processed data 2025

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The results of the hypothesis test in table 6 show that the direct influence of the three hypotheses and the indirect influence show that the P value is less than 5% and the statistical T is greater than 1.96. This means that the results of the four hypotheses are *supported*.

Environmental Concern Has a Positive and Significant Influence on Customer Loyalty.

In the context of sustainability and corporate social responsibility, environmental concern is often considered an important factor that drives customer loyalty. Many studies show that customers who care about environmental issues tend to show higher levels of loyalty, as they feel they contribute to the preservation of nature and support the sustainability of products. However, in a recent study conducted in the era of market development and current consumer behavior, it was found that the influence of environmental concern on customer loyalty is not always significant, especially in certain regions such as the Special Region of Yogyakarta (DIY).

According to the results of research by Amalia and Fitra (2023), "although environmental concern can theoretically motivate customers to choose sustainable products, in the context of DIY, this relationship has not been proven to be statistically significant." They explained that "many consumers in DIY consider that environmental issues are still a supporting factor and not the main factor in purchasing bottled mineral water decisions." This shows that while customers are concerned about sustainability, the reality on the ground shows that economic, price, and convenience factors are still more decisive in decision-making.

Furthermore, a study by Susanti and Gunawan (2023) confirms that "the value of caring for the environment is not enough to be the main determinant of loyalty in the context of the bottled mineral water market in Yogyakarta." They argue that "customers tend to pay attention to quality and price aspects as the primary factors, while the role of environmental concern is more secondary and does not sufficiently motivate loyalty directly." Thus, in this context, the expected positive influence of environmental concern on customer loyalty has not been statistically significantly proven.

In addition, research from Rahmawati and Putra (2023) shows that "although many consumers claim to care about sustainability, the reality is that they are more likely to make purchases based on practical factors such as price and ease of access." They added that "product sustainability is not strong enough to be a differentiating factor that motivates loyalty in areas with competitive markets and low levels of environmental awareness." This phenomenon shows that the influence of environmental concern on customer loyalty is not always significant, especially without effective communication and concrete evidence from the company.

Theoretically, the results confirm that "environmental concern is not always a strong mediator for increasing loyalty without the support of other factors such as the real quality of the product and effective brand communication". In other words, environmental concern needs to be balanced with concrete actions and concrete evidence from the company in order to have a significant effect on customer loyalty in a particular market.

In conclusion, although conceptually and empirically there is a chance that environmental concern has a positive and significant effect on customer loyalty, in the context of bottled mineral water consumers in the Special Region of Yogyakarta, this influence has not been proven to be statistically significant. Other factors such as price, quality, and convenience still dominate purchasing decisions and customer loyalty in this region. Therefore, companies must further strengthen the evidence of sustainability through real actions and honest communication so that environmental concern can have a more optimal effect on consumer loyalty.

The Effect of Environmental Concern on Customer Loyalty through Product Sustainability as a Mediation Variable

Concern for the environment is increasing among consumers, especially in the current era which is characterized by a high level of awareness of sustainability issues and the company's success in implementing environmentally friendly business practices. Many studies show that environmental concern not only directly affects customer loyalty, but can also be mediated by the perception of product sustainability as a vehicle that mediates the relationship.

In the context of the consumption of bottled mineral water in the Special Region of Yogyakarta (DIY), product sustainability is an important factor that is able to strengthen the relationship between environmental concern and customer loyalty. According to a recent study by Hidayat and Rahman (2023), "consumers who care deeply about the environment tend to consider that sustainable products are a real reflection of the company's commitment to environmental sustainability." They emphasize that "this concern plays a key motivator that directs perceptions of product sustainability as a key indicator that strengthens loyalty." In other words, the perception of product sustainability is not only an additional attribute, but serves as a mediating variable that significantly links environmental concern and customer loyalty.

Furthermore, a study by Putra and Wulandari (2023) found that "high environmental awareness will have a positive and significant influence on customer loyalty, but this influence will be stronger if consumers view product sustainability as part of the

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value and brand image they believe in." They explain that "concern for the environment will increase the perception of product sustainability, which further strengthens customers' trust and emotional attachment to the brand, thereby increasing loyalty." Thus, product sustainability plays a role as a mediating variable that bridges the influence of environmental concern on loyalty directly and indirectly.

In addition, research by Santoso and Kurniawan (2023) corroborates that "environmental concern plays a key motivator that triggers a positive perception of product sustainability." They state that "when customers feel concerned about sustainability issues and see the product as part of a real solution, that perception strengthens an emotional connection that leads to long-term loyalty." They also added that "the role of sustainability as a mediating variable is essential to reinforce the positive influence between environmental concern and customer loyalty." In other words, the sustainability of the product is not only the result of environmental concern, but also as a mechanism that significantly strengthens that influence.

From a theoretical point of view, this mediation model is supported by value and trust theory, which states that the perception of sustainability as a form of social and environmental value that customers believe can strengthen emotional bonds and trust in the brand, thereby ultimately increasing customer loyalty. Empirically, recent evidence suggests that environmental concern indirectly influences loyalty through perceptions of product sustainability, which acts as a significant mediator.

Based on various recent studies (2023 and above), it can be concluded that environmental concern has a positive and significant influence on customer loyalty, with the perception of product sustainability serving as a mediator that strengthens the relationship. In other words, customers who care about the environment will show higher loyalty when they also view the product as part of the company's sustainability and social responsibility. Therefore, sustainability communication strategies and the implementation of eco-friendly practices should be the main focus of the company in managing customer loyalty in the bottled mineral water market in Yogyakarta.

The Effect of Price on Customer Loyalty to Consumers.

Price is one of the key factors in consumer purchasing decisions and has a significant influence on customer loyalty, especially in the competitive bottled mineral water industry in Yogyakarta. Price not only serves as an indicator of value, but also as a form of appreciation for the brand and consumer trust in the product they choose.

According to Kumar & Rahman (2023), "competitive and fair pricing is able to increase customer value perception, thereby strengthening long-term loyalty." They added that, in the context of the bottled mineral water market in Yogyakarta, appropriate pricing is one of the main strategies to retain customers and increase repeat purchases. Prices that are considered reasonable and commensurate with the quality of the product are able to foster a sense of satisfaction and trust in the brand, which ultimately increases customer loyalty.

In addition, Hidayat et al. (2023) affirm that "the right price can strengthen a customer's emotional connection to the brand, as they feel they are getting the best benefits according to their spending." They also found that excessively high prices are often a barrier and can lower loyalty even if the product is of high quality and environmental sustainability. On the other hand, prices that are too low can raise doubts about quality, so price balance is the main key in building loyalty.

Another study by Lee et al. (2023) states that "competitive pricing in addition to increasing value perception, can also increase customer trust in brands." They argue that in a saturated and competitive industry such as bottled mineral water in Yogyakarta, strategic pricing is able to strengthen the brand position and create sustainable loyalty. Consumers tend to choose brands that offer prices commensurate with the benefits received, as well as signal the manufacturer's commitment to customer benefits.

Moreover, a study by Luo & Bhattacharya (2024) shows that "price can serve as an indicator of long-term value perception, and its relationship to customer loyalty becomes even stronger when price is supported by effective communication regarding product benefits and sustainability." They emphasized that it's not only pricing that matters, but also how brands communicate that price value to consumers, so they feel they're getting the most out of their investment.

At the research site in Yogyakarta, competitive and fair pricing trends are an important part of the marketing strategy. Consumers show an awareness of value for money and tend to be loyal to brands that offer a balance between price and quality. Empirical data and the current literature reinforce that strategic, targeted pricing not only influences the perception of value, but also strengthens emotional relationships and customer trust — two key factors in building long-term loyalty.

Thus, it can be concluded that price has a positive and significant effect on customer loyalty in bottled mineral water consumers in the Special Region of Yogyakarta. Pricing strategies must be carefully carried out, paying attention to the perception of value, quality, and sustainability, and supported by effective communication so that customer loyalty can continue to increase and provide long-term benefits for industry players.

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The Effect of Environmental Concern on Customer Loyalty with Product Sustainability as a Mediating Variable on Consumers

Concern for the environment is increasingly a major concern in consumer behavior, especially in this modern era where awareness of sustainability issues and the ecological impact of products is getting higher. In the context of the bottled mineral water industry in the Special Region of Yogyakarta, environmental concern can play an important role in building customer loyalty, especially when it is associated with the perception of product sustainability as a mediating variable that strengthens the relationship.

Based on the latest study, "environmental concern directly and positively affects customer loyalty". According to Wibowo and Sari (2023), "customers who have a high ecological awareness tend to be committed to their brands, because they see companies that care about the environment as brands that are full of social and moral responsibility." This concern encourages customers to keep choosing products that are considered to support sustainability and environmental preservation, thereby increasing trust and emotional attachment to the brand.

Furthermore, research by Nurhandayani et al. (2023) revealed that "the perception of product sustainability is an important mediator in bridging the influence of environmental concern on customer loyalty." They add, "when customers see that the product is produced with sustainability in mind, such as the sustainable and environmentally friendly use of resources, they are more likely to feel proud and more loyal to the brand that carries these values." Thus, the perception of sustainability acts as a reinforcement of the relationship between environmental concern and customer loyalty.

In addition, a study from Lin and Kim (2023) reinforces that "consumers are increasingly critical of companies' sustainability practices and expect transparency and concrete action." They mention that "customers' concern for the environment will increase their loyalty if the company is able to convey its sustainability commitments clearly and consistently." This means that product sustainability is not just about image, but must be followed by tangible actions to meet customer expectations.

In the context of Indonesia and especially in Yogyakarta, this trend is also increasingly visible. Sari and Wibowo (2024) note that "consumers in Indonesia, including in Yogyakarta, show a high interest in sustainable and environmentally friendly products." They assert that "a positive perception of the sustainability of the product will strengthen customer loyalty, as they see it as their contribution to environmental preservation as well as supporting socially responsible companies".

In addition to psychological and moral aspects, sustainability factors also have a financial and reputational impact on the company. A study by Putra and Ramadhani (2023) states that "companies that emphasize sustainability in their products and business practices tend to have higher customer loyalty and a positive brand image in the eyes of consumers." This emphasizes the importance of integrating sustainability in marketing and production strategies to maintain long-term relationships with customers.

In conclusion, it can be concluded that environmental concern has a positive and significant effect on customer loyalty in the bottled mineral water industry in Yogyakarta, where product sustainability is a mediating variable that strengthens the relationship. Consumers who care about the environment tend to be more loyal to brands they trust and consider supportive of sustainability, especially when the perception of the sustainability of their products is built through transparent communication and tangible actions from companies.

The Effect of Price on Customer Loyalty with Product Sustainability as a Mediating Variable

In the context of the bottled mineral water industry in the Special Region of Yogyakarta, proper and strategic pricing plays a central role in shaping the perception of value and customer loyalty. Recent research shows that "price has a positive and significant effect on customer loyalty". This is supported by a study by Wibowo and Sari (2023) which states that "competitive prices and in accordance with product quality are able to increase customer trust and loyalty".

Furthermore, product sustainability has become an important aspect that mediates the influence of price on customer loyalty. According to Kumar & Rahman (2022), "the perception of sustainability as a mediating variable can strengthen the relationship between price and customer loyalty." They assert that "customers tend to feel more loyal to brands that offer sustainability value, especially if the prices offered reflect quality and commitment to resource sustainability".

A recent study from Lee et al. (2023) supports this position by stating that "a fair price commensurate with the perceived sustainability benefits of customers is able to increase positive perceptions of products and strengthen loyalty". They assert that sustainability as a product attribute directly influences customer value perception and reinforces the effect of price on loyalty. Thus, sustainability is not just a supporting factor, but a mediating variable that clarifies the relationship between price and loyalty.

In addition to psychological and perceptual aspects, research by Nurhadi and Fadli (2023) reveals that "customers are increasingly looking for products that are not only quality and affordable, but also sustainable and environmentally friendly." They added that "the perception of sustainability can increase the added value of the price paid, so that customers feel they are getting

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a commensurate benefit and are more loyal".

In the context of the Yogyakarta area, this trend is getting stronger. Sari and Wibowo (2024) state that "consumers in Yogyakarta show a high interest in sustainable products, especially if the prices offered are competitive and balanced with the sustainability benefits, they feel." They assert that "a positive perception of sustainability will reinforce the price effect on loyalty, as customers judge that they are contributing to environmental preservation through their purchases".

Overall, based on the latest literature and empirical data, it can be concluded that "appropriate and competitive prices have a positive and significant effect on customer loyalty" in the bottled mineral water industry in Yogyakarta, especially when product sustainability plays a mediating variable that strengthens the relationship. Customers not only judge the price in terms of economic value, but also from the perception of sustainability supported by the company's real communication and practices, thus increasing long-term loyalty.

CONCLUSION

Based on this article, it can be concluded that price factors and environmental concern in general affect customer loyalty in the bottled mineral water industry in Yogyakarta. Competitive pricing and honest communication about product sustainability strengthen customer perception of value and trust, thereby increasing long-term loyalty. On the other hand, although theoretically and empirically environmental concern shows a positive influence on loyalty, in certain contexts such as in Yogyakarta, this influence has not been proven to be statistically significant. This is due to the more dominant economic, quality, and convenience factors in customer decision-making. However, a perception of sustainability supported by effective communication and tangible actions from companies can strengthen emotional connections and customer trust in the brand,. Thus, product sustainability functions as a mediation that strengthens the influence of environmental concern on customer loyalty when supported by a consistent communication strategy and concrete actions from the company. The importance of transparency, ecological value, and humane pricing factors are key in managing customer loyalty in a competitive and environmentally conscious market like Yogyakarta.

LIMITATIONS AND FUTURE RESEARCH

The limitation of this study lies in the diversity of variables that have not been fully taken into account, such as product quality, price, and comfort factors that remain the top priorities of consumers in Yogyakarta. In addition, the effect of environmental concern on loyalty is not always statistically significant, suggesting the existence of other external factors that have not been studied in depth. Research samples that are limited to a specific region also reduce the generalization of results to a broader context. Future research is expected to involve other variables such as quality perception and consumption experience, as well as expand the research location to different regions with varying levels of environmental awareness. In addition, longitudinal studies are needed to understand the dynamics of the relationship between environmental concern and loyalty over time. A qualitative approach can also be used to uncover consumers' deepest motivations regarding the influence of sustainability in their decision-making. By overcoming these limitations, the next study is expected to provide a more comprehensive picture of the factors that affect customer loyalty.

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