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Research Article

The Influence of Customer Perceived Value and Service Quality on Customer Loyalty through Complaint Handling (Case Study on PT Pimaimas Citra)

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Abstract: Motivated by the decline in consumer loyalty at PT Pimaimas Citra, this study aims to examine the partial influence of Customer Perceived Value, and Service Quality on Customer Loyalty, either directly or indirectly through the intervening Complaint Handling variable. The research approach is quantitative, with the research location at PT Pimaimas Citra, Jakarta. One-time research time, 2025. The primary data collection technique uses surveys, and the secondary data collection technique uses the desk study/desk research method. Inferential data analysis technique uses SEM-PLS. The results of the study show that Service Quality has a positive and significant effect on Complaint Handling, and has a negative and significant effect on Customer Loyalty. Complaint Handling has a positive and significant effect on Customer Loyalty. Complaint Handling plays a positive role in both the influence of Customer Perceived Value on Customer Loyalty; and the influence of Customer Loyalty on Customer Loyalty. Meanwhile, Customer Perceived Value has a positive but insignificant effect on Customer loyalty; and has a positive but not significant effect on Complaint Handle.

Keywords: Customer Loyalty; Customer-Perceived Value; Handling Complaint; Service Quality

1. Introduction

Customer loyalty has long been recognized as a cornerstone of sustainable business success. In competitive markets, loyalty is not merely about repeat purchases but reflects a deeper psychological commitment between customers and firms, ensuring long-term stability in the client–firm relationship (Dhisasmito & Kumar, 2020). For organizations such as PT Pimaimas Citra, which operates in the vaccine industry in Jakarta, loyalty is particularly critical because customer retention directly influences sales continuity and market credibility. However, recent declines in consumer loyalty, evidenced by reduced repeat purchases in 2024, highlight the urgency of understanding the determinants of loyalty and the mechanisms through which firms can strengthen it (Kurniawan, 2025).

Customer loyalty is a multidimensional construct encompassing behavioral, attitudinal, and cognitive aspects. Behavioral loyalty refers to repeated purchases, attitudinal loyalty reflects emotional attachment, and cognitive loyalty involves rational evaluation of alternatives (Blut et al., 2023). Scholars have consistently emphasized that loyalty is influenced by perceived value, service quality, and complaint handling, among other factors (Kusumawati & Rahayu, 2020; Koay, Cheah, & Chang, 2022). In service industries, loyalty is often mediated by satisfaction and trust, making it a complex outcome shaped by both tangible and intangible experiences (Venkatakrishnan, Alagiriswamy, & Parayitam, 2023).

Customer Perceived Value is defined as the customer's overall assessment of the utility of a product or service based on perceptions of what is received versus what is given (Blut et al., 2023). CPV integrates functional, emotional, and social dimensions, making it a holistic

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measure of customer evaluation. Research has shown that CPV positively influences loyalty in contexts such as hospitality, retail, and transportation (Kusumawati & Rahayu, 2020; Farahdhiya, 2024). However, findings are inconsistent across industries. In some studies, CPV has only an indirect effect on loyalty through mediators such as satisfaction or engagement (Nugroho & Suprapti, 2022). This inconsistency suggests that CPV's role may vary depending on contextual factors such as industry type, customer expectations, and competitive dynamics.

Service Quality is another critical determinant of loyalty. Parasuraman, Zeithaml, and Berry (1985) conceptualized service quality as the gap between customer expectations and perceptions of actual service performance. High service quality is expected to enhance satisfaction and loyalty, yet empirical findings are mixed. Some studies confirm a strong positive relationship between SQ and loyalty (Koay et al., 2022; Venkatakrishnan et al., 2023), while others report insignificant or even negative effects (Lie, Sudirman, Efendi, & Butarbutar, 2019; Likumahwa, 2020). These contradictions may stem from differences in customer expectations, cultural contexts, or the presence of mediating variables such as complaint handling.

Complaint Handling has emerged as a vital mediator in the loyalty equation. Effective complaint handling involves addressing customer grievances promptly, fairly, and empathetically, thereby restoring trust and satisfaction (Sari et al., 2023). Studies demonstrate that complaint handling significantly enhances loyalty, especially in service sectors where customer interactions are frequent (Iqbal, Hassan, Sharif, & Habibah, 2017; Tarigan, Hasnita, & Pelin, 2023; Al'asqolaini, 2019; Hermawati, 2023). Poor complaint handling, conversely, exacerbates dissatisfaction and accelerates customer defection. Thus, HC is not only a corrective mechanism but also a strategic tool for loyalty management.

Despite extensive research, several gaps remain in understanding the interplay between CPV, SQ, HC, and CL:

Inconsistent Effects of CPV on Loyalty: While some studies confirm CPV's positive and significant effect on loyalty (Kusumawati & Rahayu, 2020), others find insignificant or indirect effects (Farahdhiya, 2024; Kurniawan, 2025; Nugroho & Suprapti, 2022). This inconsistency suggests the need to explore mediating mechanisms, such as complaint handling, that may explain CPV's indirect influence.

Contradictory Findings on SQ and Loyalty: SQ is traditionally expected to enhance loyalty, yet some studies report negative effects (Lie et al., 2019). This paradox indicates that high service quality alone may not guarantee loyalty if complaints are mishandled. Customers with high expectations may become more dissatisfied when service lapses occur, leading to reduced loyalty despite overall quality.

Limited Exploration of SQ's Effect on HC: While SQ is logically linked to HC—better service systems should facilitate better complaint handling—empirical evidence is scarce and inconsistent. Some studies confirm a positive relationship (Iqbal et al., 2017), while others find insignificant effects (Dwiya & Sri, 2018). This gap highlights the need to examine SQ's role in shaping HC practices.

Underexplored Mediating Role of HC: Most prior studies treat HC as an independent variable influencing loyalty (Sari et al., 2023; Al'asqolaini, 2019). Few have positioned HC as a mediator between CPV/SQ and CL. This oversight limits understanding of how complaint handling bridges customer perceptions and loyalty outcomes.

Contextual Gap in Vaccine Industry: Existing studies predominantly focus on hospitality, retail, banking, and transportation. Little research has examined loyalty dynamics in the vaccine industry, where trust, safety, and complaint handling are particularly critical. PT Pimaimas Citra provides a unique context to explore these relationships.

This study contributes to the literature by addressing the identified gaps in several ways:

Positioning Complaint Handling as a Mediator: Unlike prior studies that treat HC as an independent variable, this research positions HC as a mediator between CPV/SQ and CL. This approach provides deeper insights into how complaint handling channels customer perceptions into loyalty outcomes.

Exploring Negative Effects of SQ on Loyalty: By empirically testing SQ's negative effect on CL, this study challenges conventional assumptions and highlights the importance of managing customer expectations. It suggests that SQ alone may not suffice; effective HC is essential to translate quality into loyalty.

Contextual Contribution to Vaccine Industry: This research extends loyalty studies into the vaccine industry, a sector where customer trust and complaint handling are paramount. Findings from PT Pimaimas Citra enrich the literature by providing evidence from a high-stakes, health-related context.

Integration of CPV, SQ, and HC in a Unified Model: By simultaneously examining CPV, SQ, and HC, this study offers a holistic model of loyalty determinants. It clarifies the relative importance of each variable and their interactions, providing practical guidance for managers.

Methodological Rigor with SEM-PLS: The use of SEM-PLS enhances the robustness of findings by allowing simultaneous testing of direct and indirect effects. This methodological contribution strengthens the validity of conclusions and addresses limitations of prior regression-based studies (Hair, Black, Babin, & Anderson, 2020).

In summary, customer loyalty remains a critical yet complex construct influenced by perceived value, service quality, and complaint handling. While CPV and SQ are established determinants, their effects on loyalty are inconsistent across contexts. Complaint handling emerges as a crucial mediator that can reconcile these inconsistencies by translating perceptions into loyalty outcomes. This study addresses key research gaps by positioning HC as a mediator, exploring SQ's paradoxical effects, and extending loyalty research into the vaccine industry. The novelty lies in its integrative model, contextual contribution, and methodological rigor, offering both theoretical insights and practical implications for enhancing customer loyalty at PT Pimaimas Citra.

2. Literature Review

Based on previous studies, there are several variables (constructs) that affect Consumer Loyalty (CL), including Customer Perceived Value (CPV), Service Quality (SQ), and Handling Complaint (HC).

Customer Perceived Value (CPV) or Pelaggan Perception Value (the first independent variable). The CPV variable is defined as a customer's view of the benefits or attractiveness of a product or service to them, especially when compared to a competitor's product (Blut, Chaney, Lunardo, Mencarelli, & Grewal, 2023). Research has shown that Customer Perceived Value (CPV) affects Customer Loyalty (Kusumawati & Rahayu, 2020).

Service Quality (SQ) (second independent variable). Parasuraman, Zeithaml, and Berry (1985) define service quality as meeting the wants and needs of customers beyond their aspirations. The SQ variable is assumed to affect Customer Loyalty (CL), as evidenced by Koay, Cheah, and Chang (2022) and Venkatakrishnan, Alagiriswamy, and Parayitam (2023).

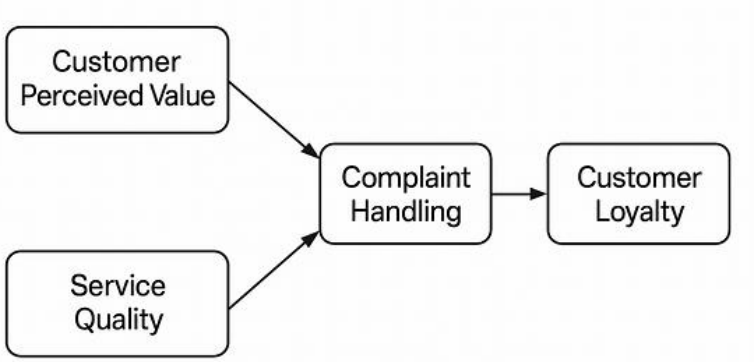
Handling Complaint (HC) (mediator/intervening variable). HC is defined as the technique of handling or managing customer complaints quickly, appropriately, and satisfactorily (Sari, Giriati, Listiana, Rustam, & Saputra, 2023). HC is assumed to affect Customer Loyalty (CL) (Iqbal, Hassan, Sharif, & Habibah, 2017; Tarigan, Hasnita, & Pelin, 2023; Al'asqolaini, 2019; Hermawati, 2023).

There is a research gap in terms of the effect of Customer Perceived Value (X1) on Customer Loyalty (Y), namely between positive and significant effects (Kusumawati & Rahayu, 2020), positive but insignificant effects (Farahdhiya, 2024; Kurniawan, 2025), and indirect effects through a Customer Engagement mediator (Nugroho & Suprapti, 2022).

There is also a research gap in terms of the effect of Service Quality (X2) on Customer Loyalty (Y), with findings ranging from positive and significant (Iqbal et al., 2017; Koay et al., 2022), positive but insignificant (Likumahwa, 2020; Tarigan et al., 2023), to negative (Lie, Sudirman, Efendi, & Butarbutar, 2019).

Finally, there is a research gap in terms of the effect of Service Quality (X2) on Handling Complaints (Z), with some studies finding a positive and significant effect (Budiarti, 2011) and others reporting a positive but insignificant effect (Dwiya & Sri, 2018).

The novelty of this research compared to previous studies is that this study presents the Complaint Handling variable as a mediator variable (intervening). Previous research has found that presents the Complaint Handling variable in relation to its effect on Customer Loyalty. The study examined the effect of Complaint Handling on Customer Loyalty. The difference is that the study positions Handling Complaint as an independent variable, while this study positions Handling Complaint as a variable mediator (intervening).



The conceptual framework diagram illustrates the mediating role of Complaint Handling (HC) in the relationship between Customer Perceived Value (CPV), Service Quality (SQ), and Customer Loyalty (CL). It shows that CPV and SQ both exert influence on HC, which in turn directly affects CL. This structure highlights that while CPV and SQ may not always have a direct impact on loyalty, their effects are channeled through the quality of complaint handling. The diagram emphasizes HC as a strategic bridge, suggesting that organizations aiming to enhance customer loyalty must not only deliver value and service but also manage complaints effectively to convert those inputs into sustained loyalty.

Research Hypotheses

Direct Effect Hypotheses

1. H1: Customer Perceived Value (CPV) has a positive and significant effect on Customer Loyalty (CL).
2. H2: Customer Perceived Value (CPV) has a positive and significant effect on Complaint Handling (HC).
3. H3: Service Quality (SQ) has a positive and significant effect on Complaint Handling (HC).
4. H4: Service Quality (SQ) has a positive and significant effect on Customer Loyalty (CL).
5. H5: Complaint Handling (HC) has a positive and significant effect on Customer Loyalty (CL).

Mediating Effect Hypotheses

6. H6: Complaint Handling (HC) mediates the relationship between Customer Perceived Value (CPV) and Customer Loyalty (CL).
7. H7: Complaint Handling (HC) mediates the relationship between Service Quality (SQ) and Customer Loyalty (CL).

These hypotheses reflect the theoretical assumptions and empirical gaps identified in the literature review, particularly the inconsistent direct effects of CPV and SQ on loyalty, and the emerging role of HC as a strategic mediator.

3. Research Methods

The approach of this research is quantitative correlational[18]. The location of the research is at PT Pimaimas Citra, a company engaged in the field of vaccines, headquartered in Jakarta. Based on the perspective of time, this study is a cross-section study that is only carried out once, in this case 2025, so this study only has one data, without seeing changes from time to time.

The research population is all sales personnel at the head office (Jakarta) of PT Pimaimas Citra, totaling 120 employees. The purposive sampling technique was applied because the researcher determined the population criteria, namely only employees who have the status of salespeople (Sugiyono, 2013).

The primary data collection technique used a survey method with research instruments in the form of a questionnaire with an ordinal scale, specifically the Likert Scale 1–5 (1 = Strongly Disagree, 5 = Strongly Agree) (Sekaran & Bougie, 2016).

Formatting of Mathematical Components

The primary data collection technique used a survey method with research instruments in the form of a questionnaire with an ordinal scale, specifically the Likert Scale 1–5 (1 = Strongly Disagree, 5 = Strongly Agree) (Sekaran & Bougie, 2016). The instrument was tested with Confirmatory Factor Analysis (CFA) for validity and Cronbach's Alpha for reliability. Data analysis techniques included descriptive analysis and inferential analysis using structural equation modeling–partial least squares (SEM-PLS) (Hair, Black, Babin, & Anderson, 2020).

The research model is as follows

$$\eta 1 = \gamma 0 + \gamma 1 * \xi 1 + \gamma 2 * \xi 2 + \varepsilon \quad (1)$$

η1 (eta) = Complaint Handling as a dependent variable in sub-structure 1.
ξ1(ksi) = Customer Perceived Value (first independent construct)
ξ2 (ksi) = Service Quality (second independent construct)
γ0 (gamma) = Coefficient of constant
γ1 (gamma) = Coefficient of the influence of Customer Perceived Value on Handling Complaints
γ2 (gamma) = Coefficient of Service Quality on Complaint Handling
ε (Epsilon) = Measurement error indicator (standard error).
The structural equation of the two are as follows

$$\eta 2 = \gamma 0 + \gamma 1 * \xi 1 + \gamma 2 * \xi 2 + \gamma 3 * \xi 3 + \varepsilon \quad (2)$$

Information:
η2 (eta) = Customer Loyalty as a dependent variable in sub-structure 2.
ξ1(ksi) = Customer Perceived Value as the first independent variable
ξ2 (ksi) = Service Quality as the second independent variable
ξ3 (KSI) = Handling Complaint as the third independent variable
γ0 (gamma) = Coefficient of constant

γ1 (gamma) = Coefficient of the influence of Customer Perceived Value on Customer Loyalty
γ2 (gamma) = Coefficient of Service Quality impact on Customer Loyalty
γ3 (gamma) = Coefficient of Handling Complaint Impact on Customer Loyalty
ε (Epsilon) = Measurement error indicator (error standard)

4. Results and Discussion

Results

Before the hypothesis test was carried out, an outer model test was carried out, and an inner model test was carried out

Realibity and Validity

Before the hypothesis test is carried out, an outer model test is carried out first, and an inner model test. The following are the results of the outer-model test. First of all, the results of the Reliability Indicator test, as presented in the following table

Table 1. Indicator Reliability Test Results with Outer Loadings

Indicator	Outer Loadings
CL6	0,762
CL7	0,851
CL8	0,735
CPV1	0,844
CPV2	0,830
CPV3	0,715
CPV4	0,910
CPV5	0,885
CPV6	0,808
HC1	0,876
HC2	0,780
HC3	0,758
SQ10	0,913
SQ2	0,775
SQ9	0,916

Source: Processed Data, 2025

Based on Table 1 of the results of the Indicator Realviness test, it shows that 15 indicators from the four variables have an outer loading value greater than 0.7 [22][23]. Therefore, all indicators are considered realable, that is, they can consistently reflect the Latin construct that is measured [21].

Table 2 shows that the results of the discriminant validity test using cross-loadings show that the cross-loadings value of all indicators against the parent construct itself is greater than the cross-loadings value of these indicators against other constructs.

Table 2. Results of Discriminant Validity Test with Cross-Loadings

Indicators	Customer Loyalty (Y)	Customer Perceived Value (X1)	Handling Compalint (Z)	Service Quality (X2)
CL6	0,762	0,025	0,081	-0,037
CL7	0,851	0,168	0,166	-0,002
CL8	0,735	0,122	0,147	-0,021
CPV1	0,042	0,844	0,275	0,395
CPV2	0,112	0,830	0,324	0,446
CPV3	0,111	0,715	0,299	0,308
CPV4	0,119	0,910	0,430	0,455

CPV5	0,123	0,885	0,433	0,417
CPV6	0,245	0,808	0,306	0,302
HC1	0,204	0,333	0,876	0,562
HC2	0,086	0,354	0,780	0,462
HC3	0,033	0,184	0,258	0,103
SQ10	0,006	0,318	0,551	0,913
SQ2	-0,090	0,531	0,449	0,775
SQ9	0,014	0,398	0,587	0,916

Source: Processed Data, 2025

Table 2 shows that the results of the discriminant validity test using cross-loadings show that the cross-loadings value of all indicators against the parent construct itself is greater than the cross-loadings value of these indicators against other constructs.

Table 3. Discrimant Validity Test Results with Fornell-Larcker.

Variable	Customer Loyalty (Y)	Customer Perceived Value (X1)	Handling Complaint (Z)	Service Quality (X2)
Customer Loyalty (Y)	0,784			
Customer Perceived Value (X1)	0,154	0,834		
Handling Complaint (Z)	0,179	0,423	0,694	
Service Quality (X2)	-0,021	0,467	0,612	0,870

Source: Processed Data, 2025

Table 4 shows the results of the discriminant validity test using Fornell-Larcker, it is proven that the square root value of AVE for each construct is proven to be greater against the self of the construct than the square value of the root of the AVE construct with other constructs. Based on these two tests, it can be summarized that the discriminant validity of this research data is met, namely that each Latin construct is really unique and different from other constructs; and the indicator of one construct does not measure another construct [24].

Table 4. Cronbach's Alpha and Composit Reliability

Variable	Cronbach's Alpha	Composite Reliability
Customer Loyalty (Y)	0,697	0,827
Customer Perceived Value (X1)	0,912	0,932
Handling Complaint (Z)	0,619	0,702
Service Quality (X2)	0,838	0,903

Source: Processed Data, 2025

Table 4 shows that the test results show that both Cronbach's Alpha and the Composit Reliability indicator for the four variables are equal to 0.60. Therefore, it can be summarized that the indicators in a construct show consistency in measuring the same concept [21].

Based on the results of the outer model test, it can be concluded that all constructs and indicators are valid and reliable, so they are suitable for use for research measurements.

Collinearity

Next is the results of the inner model test, in this study the collinearity test, the determination coefficient test, the effect size (f^2) test, the predictive relevance test (Q^2), before finally the hypothesis test was selected.

Table 5. Collinearity Test Results

Variable	Customer Loyalty (Y)	Handling Compalint (Z)
Customer Loyalty (Y)		
Customer Perceived Value (X1)	1,330	1,278
Handling Complaint (Z)	1,662	
Service Quality (X2)	1,745	1,278

Source: Processed Data, 2025

Table 5 shows the results of the multicollinearity test using the VIF indicator that there is no correlation between independent constructs in linear regression, because all values of the variance inflation factor (VIF) are below 5 [21].

R Square

Table 6. Determination Coefficient Test Results (R2)

Variable	R Square
Customer Loyalty (Y)	0,479
Handling Complaint (Z)	0,398

Source: Processed Data, 2025

Table 6 shows that the simultaneous influence of Customer Perceived Value, Service Quality, and Handling Complaints on Customer Loyalty is 0.479 or 47.9 percent, which means that 47.9% of variance in the dependent construct can be explained by the independent construct. Considering that the R2 value is still < 50%, the predictive power of independent constructs is still relatively weak (Hair et al, 2020a). Then the R2 value of the influence of Customer Perceived Value, and Service Quality simultaneously on Customer Loyalty is 0.398 or 39.8 percent, which means that 39.8% of the variance in the dependent construct can be explained by the independent construct. Considering that the R2 value is still < 50%, the predictive power of independent constructs is still relatively weak [21].

f Square

Table 7. Effect Size (f^2) Test Results

Variable	Customer Loyalty (Y)	Handling Compalint (Z)
Customer Perceived Value (X1)	0,021	0,040
Handling Complaint (Z)	0,048	
Service Quality (X2)	0,043	0,365

Source: Processed Data, 2025

Table 7 shows the effect of Customer Perceived Value on Handling Complaints is 0.040 which shows a small to moderate influence. The effect of Service Quality on Handling Complaints is 0.365 which shows a great influence. The effect of Handling Complaints on Customer Loyalty was 0.048 which showed a small influence. The influence of Customer Perceived Value on Customer Loyalty is 0.021 which shows a small influence. The effect of Service Quality on Customer Loyalty is 0.043 which shows a small influence. Thus, the Service Quality variable has the strongest influence on the Complaint Handling variable, which means that Service Quality contributes greatly to the increase in the value of R2 to Z.

Table 8. Predictive Relevance (Q^2) Test Results

Variable	SSO	SSE
Customer Perceived Value (X1)	360,000	350,972
Handling Complaint (Z)	720,000	720,000
Service Quality (X2)	360,000	299,311

Source: Processed Data, 2025

Table 8 shows that the three predictors (Customer Perceived Value, Service Quality, and Handling Complaint) have a small predictive relevance (0.025) which means that the model is somewhat able to predict Customer Loyalty. Two predictors (Customer Perceived Value, Service Quality) had a medium predictive relevance (0.169), which means that the model is quite good at predicting Complaint Handling[21]. Overall, the structural model proved to be robust, accurate, and relevant.

The following are the results of the path coefficient as presented in Figure 1

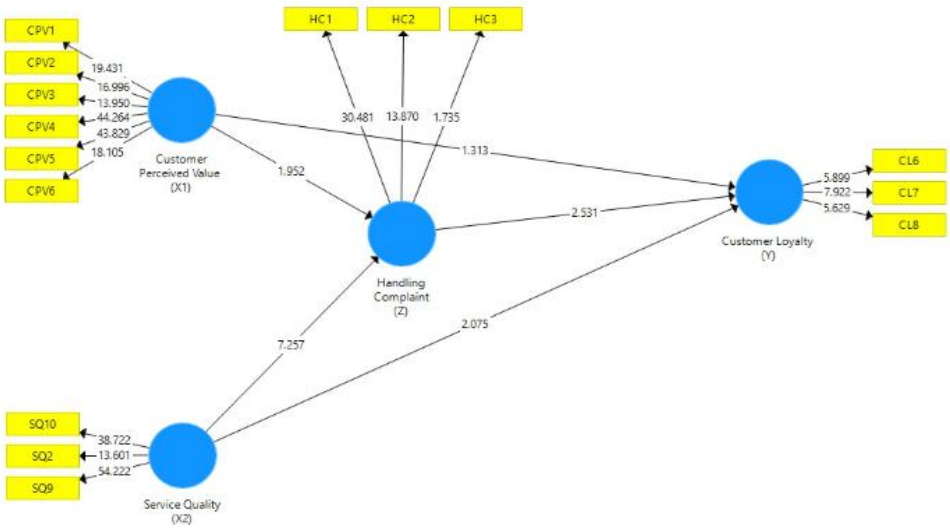


Figure 1. Results of the Path Coefficient Value Test

Table 9. Predictive Relevance (Q^2) Test Results

Influence Models	Path Coefficient Values	T Statistics	P Values
Customer Perceived Value (X1) -> Customer Loyalty (Y)	0,162	1,275	0,203
Customer Perceived Value (X1) -> Handling Compalint (Z)	0,176	1,911	0,057
Handling Compalint (Z) -> Customer Loyalty (Y)	0,271	2,341	0,020
Service Quality (X2) -> Customer Loyalty (Y)	-0,262	2,133	0,033

Source: Processed Data, 2025

Discussion

Based on the results of the path coefficient test through Figure 1 and Table 9, the following are the results of the hypothesis test and its discussion, both regarding the direct impact hypothesis (H1 to H5) and the indirect hypothesis through intervening variables (mediators).

a. The Effect of Customer Perceived Value (CPV) on Customer Loyalty (CL)

The results of the study showed that Customer Perceived Value (CPV) had a positive effect of 0.162 on Customer Loyalty (CL), but it was not significant. It means that hypothesis 1 is rejected. The results of this study are not in accordance with the theoretical expectation that CPV has a positive and significant effect on CL. The results of this study are not in accordance with previous research, in this case the study found that CPV has a positive and significant effect. These discrepancies can be caused by different industry contexts or respondent characteristics, for example differences in customer expectations or types of services. This mismatch can also be due to CPV not being strong enough to directly affect loyalty, but it affects other variables (such as Handling Complaints) which ultimately impacts CL.

b. The Effect of Customer Perceived Value (CPV) on Handling Complaints (HC)

The results of the study showed that Customer Perceived Value (CPV) had a positive effect of 0.162 on Customer Loyalty (CL), but marginally (almost) significant. It means that hypothesis 1 is rejected. There have not been many previous studies that have directly tested this relationship. Logically, the higher the customer's perception of value towards the service, the more tolerant they may be of complaint or assess the complaint handling process more positively.

c. The Effect of Handling Complaint (HC) on Customer Loyalty (CL)

The results of the study show that Handling Complaint (HC) has a positive and significant effect on Customer Loyalty. Meaning that hypothesis 3 is accepted. The results of this study are consistent with previous findings. Previous research has shown that effective complaint handling increases customer loyalty. Handling customer complaints quickly, precisely, and satisfactorily is a proven strategy for maintaining loyalty.

d. The Influence of Service Quality (SQ) on Customer Loyalty (CL).

The results of the study show that Service Quality (SQ) has a negative and significant effect on Customer Loyalty (CL). It means that hypothesis 4 is rejected, because the result is different in the direction of influence from the direction of the hypothesis. The results of this study are contrary to the results of previous research, which found that SQ has a positive and significant effect on CL. That the results of this study are contrary to previous research, it could be that customers have high expectations for service quality, but because they are disappointed that complaints are not handled according to expectations, so dissonance arises that reduces loyalty. Another possibility is that the HC variable plays an important role. SQ does not necessarily increase loyalty without being supported by good complaint management.

e. The Influence of Service Quality (SQ) on Handling Complaints (HC)

The results of the study show that Service Quality (SQ) has a positive and significant effect on Handling Complaints (HC). It means that hypothesis 5 is accepted. The results of this study reinforce the assumption that high service quality creates better systems and personnel in handling complaints. Although there have not been many explicit studies on this relationship, these findings make sense and could bridge the relationship between SQ and CL through HC.

f. Complaint Handling plays a role in determining the influence of Customer Perceived Value on Customer Loyalty

This hypothetical path model is: Customer Perceived Value --> Handling Complaint --> Customer Loyalty. The direct influence of Customer Perceived Value on Customer Loyalty is 0.162. Indirect effect 0.047696. The total influence was 0.209696. Testing the role of intervening variables through variance accounted for (VAF) [21] The indirect influence divided by the total influence, multiplied by 100% is 22.745%. The VAF value is 22.745%, which means it is greater than 20%, but still lower than

80%, so the mediation level is moderate or partial mediation. It means that Complaint Handling plays a role in mediating the influence of Customer Perceived Value on Customer Loyalty, so that hypothesis 6 is proven.

g. Complaint Handling plays a role in determining the influence of Service Quality on Customer Loyalty.

The model of this hypothetical path is: Service Quality --> Handling Complaint --> Customer Loyalty. The direct effect of Service Quality on Customer Loyalty is -0.262. The indirect effect was 0.1436. The total influence is -0.11837. Testing the role of intervening variables through variance accounted for (VAF) indirect influence divided by the total influence, multiplied by 100% is 121.314%. The VAF value is 121,314,745%, which means it is greater than 80% so that the mediation level is full mediation. This means that Complaint Handling plays a role in determining the influence of Customer Service on Customer Loyalty, so that hypothesis 7 is proven.

CPV's effect on CL was weak, suggesting CPV influences loyalty indirectly via HC (Blut et al., 2023). HC strongly influenced CL, consistent with prior studies (Sari et al., 2023; Al'asqolaini, 2019). SQ's negative effect on CL may reflect unmet expectations, highlighting HC's mediating role (Koay et al., 2022; Venkatakrishnan et al., 2023).

5. Conclusions

This study demonstrates that Complaint Handling (HC) is the critical mediator linking Customer Perceived Value (CPV) and Service Quality (SQ) with Customer Loyalty (CL). While CPV showed a positive but insignificant direct effect on loyalty, its influence became meaningful when mediated through HC. Similarly, SQ exhibited a paradoxical negative direct effect on loyalty, yet it strongly enhanced HC, which in turn significantly improved loyalty. These findings highlight that loyalty is not simply a direct consequence of perceived value or service quality, but rather depends on how effectively complaints are managed.

The conceptual framework clarifies the mediating function of HC, bridging CPV and SQ with CL. This addresses research gaps identified in prior studies, where CPV and SQ produced inconsistent effects on loyalty across industries (Blut et al., 2023; Kusumawati & Rahayu, 2020; Lie et al., 2019). By positioning HC as a mediator, this study enriches the literature with a more nuanced understanding of loyalty determinants, particularly in the vaccine industry where trust and responsiveness are paramount.

Overall, the novelty of this research lies in its integrative model, contextual contribution, and methodological rigor. It challenges conventional assumptions about service quality, demonstrates the indirect importance of perceived value, and emphasizes complaint handling as the strategic bridge to loyalty. These insights provide both theoretical advancement and practical relevance for organizations seeking to strengthen customer relationships.

Managerial Implications

For managers at PT Pimaimas Citra and similar organizations, the implications are clear: effective complaint handling must be prioritized as a strategic investment. Improving service quality or enhancing perceived value alone may not guarantee loyalty if complaints are mishandled. Instead, firms should design complaint management protocols that are timely, empathetic, and solution-oriented. Training frontline staff, integrating digital complaint channels, and monitoring resolution effectiveness are essential steps to ensure that customer grievances are addressed satisfactorily.

Moreover, managers should recognize that complaint handling is not merely a corrective mechanism but a proactive strategy for building trust and loyalty. By embedding complaint handling into customer relationship management systems, organizations can transform dis-

satisfied customers into loyal advocates. For PT Pimaimas Citra, this means that strengthening complaint handling processes will not only restore customer confidence but also secure long-term sustainability in a competitive market.

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