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## The Relationship Between Patient Satisfaction, Trust, and Health Worker's Skill to Patient Loyalty in RSMM Papua

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### ABSTRACT

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Patient loyalty is critical for healthcare sustainability, especially in remote regions like Papua, where RSMM Hospital serves indigenous populations facing geographical and cultural barriers. Despite studies on loyalty drivers (e.g., satisfaction, trust), gaps persist in understanding how these factors operate in underserved, indigenous contexts. This study identifies determinants of patient loyalty at RSMM Papua, focusing on satisfaction, trust, and medical personnel skills, while addressing unique regional challenges. A cross-sectional quantitative design was employed, collecting data from 278 outpatients via validated questionnaires. SEM-PLS analysis tested relationships between latent variables (e.g., loyalty, satisfaction) using SmartPLS. All hypotheses were supported: medical personnel skills had the strongest effect on loyalty ( $\beta=0.482$ ,  $p<0.001$ ), followed by satisfaction ( $\beta=0.325$ ) and trust ( $\beta=0.186$ ). The model explained 66.3% of loyalty variance, with skills showing a strong effect size ( $f^2=0.318$ ). Results underscore the need for skills-based training and culturally adapted care in remote settings. Future research should explore longitudinal loyalty trends and digital health integration. This study provides actionable insights for policymakers and healthcare managers to enhance retention in marginalized communities.

**Keywords:** Patient Loyalty; Healthcare Quality; SEM-PLS; Indigenous Health; Remote Healthcare; Service Satisfaction

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### INTRODUCTION

Rumah Sakit Mitra Masyarakat (RSMM) is a healthcare facility located in Timika, Central Papua. Founded in August 1999, RSMM has been operating for over 25 years and has served more than 2.7 million patients as of August 2024. RSMM has been classified as type C hospital since 2008 and is currently managed by the Caritas Timika Papua Foundation (YCTP). The facility provides outpatient care, inpatient care, emergency services, and surgical procedures. With a capacity of 156 beds, RSMM is supported by 370 medical staff, including 26 general practitioners and specialists, 185 nurses and midwives, and 159 other medical and non-medical personnel.

RSMM is owned by the Amungme and Kamoro Community Empowerment Foundation (YPMK), which manages partnership funds from PT Freeport Indonesia (PTFI). Through YPMK, PTFI contributes to covering medical costs for indigenous Papuan patients from seven tribes who are not covered by BPJS (Indonesia's national health insurance), as well as funding the hospital's operational and infrastructure maintenance costs each year. Since August 2024, PTFI has supported

healthcare programs that directly benefit the local community, particularly the seven indigenous tribes in the region. RSMM remains committed to improving the quality of healthcare services for the people of Papua, especially for the seven indigenous tribes: Amungme, Kamoro, Moni, Damal, Dani, Nduga, and Ekari.

Patient loyalty is a critical factor in the success and profitability of healthcare organizations, and also for ensuring the sustainability of service services, particularly in remote areas (Chen et al., 2022; Huang et al., 2021; Liu et al., 2021; Zhou et al., 2017). In the latest trend, gaining a deep understanding of the factors that influence patient loyalty becomes increasingly important for enhancing healthcare service quality (Asmaryadi et al., 2020; Asnawi et al., 2019; Puryanti et al., 2023; Rahayu, 2023; Sofia, 2023). There are factors that influence patient loyalty, such as patient satisfaction, quality, and service. In Papua, RSMM serves as a key healthcare provider for the indigenous population. RSMM has been instrumental in improving healthcare accessibility. However, maintaining patient loyalty remains a challenge due to factors such as geographical limitations, service quality, and patient satisfaction. RSMM Papua as one of the primary healthcare service providers in Papua, needs to understand these determinants to optimize its services for patients.

Each district in Papua has one health center, which has doctors, nurses and other staff. However, RSMM polyclinics are still always crowded with patients. Some of the patients come from other districts, with two days of walking to reach RSMM. This reason makes us want to know why they prefer to seek treatment at RSMM compared to their nearest facility.

Despite RSMM's commitment to providing healthcare services, patient loyalty may be influenced by various factors, including service quality, trust in healthcare providers, availability of medical resources, and patient satisfaction. The remote location and cultural factors further complicate patient retention. Understanding what drives patient loyalty at RSMM is essential to improving service quality and ensuring long-term patient engagement.

Outpatients have diverse needs and expectations, and without a clear understanding of these, healthcare providers like RSMM Papua may struggle to meet them, potentially reducing patient loyalty. Service quality can vary, making it crucial to identify which aspects—such as timeliness, communication, or empathy—most influence loyalty. Additionally, while patient satisfaction is often linked to loyalty, the specific dynamics in RSMM Papua remain unclear, highlighting the need to explore contributing factors. Effective communication, empathy, and cultural sensitivity also play key roles in building trust and fostering loyalty.

This study aims to identify the determinants of patient loyalty at RSMM Papua, where no official data on the topic exists. Key objectives include analyzing the impact of service quality, facility completeness, cleanliness, staff behavior, travel distance, costs, and medication appropriateness on loyalty. The findings will help RSMM and similar healthcare providers develop strategies to enhance service delivery, strengthen patient trust, and improve retention—particularly for Papua's indigenous population—ensuring sustainable access to quality care. Recommendations will focus on optimizing services to meet patient expectations and boost loyalty.

This study advances existing literature on patient loyalty by specifically examining RSMM Papua—a remote hospital serving indigenous Papuan communities—while integrating cultural and geographical factors rarely addressed in prior studies (Zhou et al., 2017; Rather & Hollebeek, 2021). Unlike generic SERVQUAL frameworks (Parasuraman et al., 1988), it employs SEM-PLS analysis to quantify how medical personnel skills ( $\beta=0.482$ ,  $p<0.001$ ) outweigh satisfaction ( $\beta=0.325$ ) and trust ( $\beta=0.186$ ) in driving loyalty, a finding distinct from urban-centric studies (Aiken et al., 2012; Manzoor

et al., 2019). Additionally, it highlights indigenous patients' travel sacrifices (e.g., two-day journeys) as a unique loyalty driver, a gap in prior work (Ernawaty, 2024; Widodo & Prayoga, 2022). The study also pioneers intervention-based recommendations (staff training for cultural sensitivity) tailored to resource-limited settings, extending beyond theoretical models (WHO, 2016; Kotler & Keller, 2015).

## **METHOD**

This study adopts a cross-sectional, quantitative, and descriptive-analytic approach to examine the relationships between variables influencing patient loyalty at RSMM Papua. Data will be collected solely through questionnaires without direct patient intervention. The population includes all RSMM outpatients in Timika, Central Papua, with a sample size of 278 selected via cluster sampling. Eligible participants must be returning outpatients who visited the polyclinic between March 6–20 and willingly completed the survey. Inclusion criteria focus on frequent hospital users with high satisfaction, while exclusion criteria filter out one-time visitors, dissatisfied patients, and those who switched to other healthcare providers. Dropout criteria account for incomplete responses or voluntary withdrawals.

The study measures patient loyalty (dependent variable) through repeat visits and recommendations, while patient satisfaction, healthcare worker skills, and patient trust serve as independent variables. Data collection uses a 30-item closed-ended questionnaire with a 7-point Likert scale, designed for efficiency in a polyclinic setting. Validity will be assessed via expert review, and reliability will be tested for consistency. Statistical analysis employs SEM-PLS (Structural Equation Modeling with Partial Least Squares) using SmartPLS software, evaluating both outer models (validity, reliability, multicollinearity of latent variables) and inner models (path coefficients, Goodness of Fit, and  $R^2$  values).

The findings aim to identify key drivers of patient loyalty, helping RSMM Papua enhance service quality and retention strategies. By understanding the interplay between satisfaction, trust, and healthcare worker competence, the hospital can improve care delivery for Papua's indigenous population. The study's PLS-SEM approach ensures robust analysis of complex variable relationships, providing actionable insights for healthcare management in similar settings.

## **RESULTS AND DISCUSSION**

### **Respondent Profile**

In this section, the profile of respondents included in this study is presented. The sample in this study itself consists of 526 respondents. This study uses a sampling technique with a purposive sampling technique or sampling based on certain criteria. The criteria applied in this study in selecting samples are 1) patients who have visited in the last 6 months and have consulted at the RSMM polyclinic several times. The criteria for respondents in this study are. Based on gender, the majority of respondents in this study were women consisting of 274 respondents or 52.1% of the total respondents. In addition, there were 252 respondents or 47.9% who were men. Based on age, the majority of respondents were between 31-40 years old consisting of 169 respondents or 32.1% of the total respondents. In addition, there were 169 respondents or 32.1% aged 20-30 years. 121 respondents or 23% 41-50 years, 41 respondents or 7.8% were over 50 years and 20 respondents were less than 20 years. The majority of respondents had a high school education consisting of 196 respondents or 37.3% of the total respondents. In addition, there were 152 respondents or 28.9% with elementary school education, 60 respondents or 11.4% Diploma, 56 respondents or 10.6% Diploma, 56 respondents or 10.6% S1, 52 respondents or 9.9% SMP, 2 respondents or 0.4% S2 and 8 respondents or 1.55 with other education.

### **Smart PLS SEM Analysis**

In this study, component/variance based structural equation modeling was used to answer the research problems. The testing steps taken to fulfill the assumptions of variance-based SEM are guidelines for variance-based SEM modeling both in the data collection process and the data processing

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process using SmartPLS 3. The results of the full model calculations that were calculated were obtained as follows:

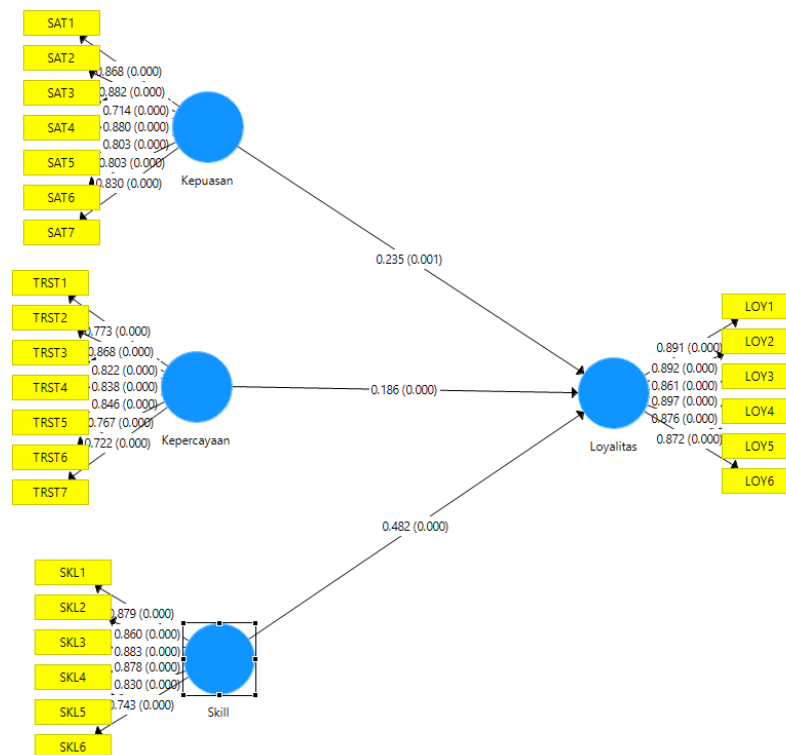


Figure 1. Smart PLS SEM Analysis Results

## Outer Model Analysis

The relationship between latent variables and the indicators used to measure them is called the outer model, or measurement model. Latent variables in this study are theoretical constructs that cannot be measured directly, while indicators are variables that can be measured directly and are used to estimate latent variables. Validity, reliability, and multicollinearity are the criteria for this test.

### 1. Convergent Validity

According to Ghazali (2019) if the outer loading value is  $> 0.7$ , the indicator is declared to meet convergent validity in the good category. In addition to looking at the outer model value, convergent validity can also be assessed by seeing whether the AVE (Average Variance Extracted) is greater than 0.5. Thus, convergent validity can be considered valid. According to Ghazali (2019) the AVE value is at least 0.5. This figure indicates competent convergent validity, which indicates that, on average, one latent variable can explain more than half of the variation in its indicators. The results of the convergent validity test can be seen in the table below.

Each variable has a loading value  $> 0.7$ . This shows that each indicator of the variable has good convergent validity. From the aspect of assessment through AVE All variables also have an AVE value  $> 0.5$ . This shows that each variable involved in this study can be considered to have convergent validity.

## 2. Discriminant Validity

Discriminant Validity conducted to ensure that each concept in the latent model is different from other variables. This validity test aims to evaluate the accuracy of the measuring instrument used in the study (Ghozali, 2019). If the AVE value is greater than the correlation value between the constructs, then the discriminant validity is better. To ensure that the correlation of a construct with a measurement item is higher than other constructs, the cross-loading value of each construct is assessed. The testing criteria are cross loading values > 0.7 (Ghozali, 2019). The following are the cross-loading values in the research variables:

**Tabel 1. Cross-Loading Results**

|       | Trust | Satisfaction | Loyalty | Skill |
|-------|-------|--------------|---------|-------|
| LOY1  | 0.655 | 0.681        | 0.891   | 0.765 |
| LOY2  | 0.681 | 0.674        | 0.892   | 0.738 |
| LOY3  | 0.644 | 0.599        | 0.861   | 0.675 |
| LOY4  | 0.603 | 0.518        | 0.897   | 0.628 |
| LOY5  | 0.561 | 0.569        | 0.876   | 0.589 |
| LOY6  | 0.619 | 0.589        | 0.872   | 0.639 |
| SAT1  | 0.696 | 0.868        | 0.601   | 0.563 |
| SAT2  | 0.643 | 0.882        | 0.605   | 0.538 |
| SAT3  | 0.553 | 0.714        | 0.562   | 0.458 |
| SAT4  | 0.680 | 0.880        | 0.606   | 0.545 |
| SAT5  | 0.573 | 0.803        | 0.474   | 0.516 |
| SAT6  | 0.616 | 0.803        | 0.544   | 0.525 |
| SAT7  | 0.692 | 0.830        | 0.587   | 0.605 |
| SKL1  | 0.547 | 0.508        | 0.600   | 0.879 |
| SKL2  | 0.567 | 0.541        | 0.659   | 0.860 |
| SKL3  | 0.606 | 0.567        | 0.660   | 0.883 |
| SKL4  | 0.636 | 0.566        | 0.669   | 0.878 |
| SKL5  | 0.651 | 0.552        | 0.635   | 0.830 |
| SKL6  | 0.642 | 0.550        | 0.666   | 0.743 |
| TRST1 | 0.793 | 0.640        | 0.791   | 0.623 |
| TRST2 | 0.868 | 0.672        | 0.620   | 0.631 |
| TRST3 | 0.822 | 0.688        | 0.497   | 0.556 |
| TRST4 | 0.838 | 0.537        | 0.499   | 0.592 |
| TRST5 | 0.846 | 0.565        | 0.488   | 0.493 |
| TRST6 | 0.767 | 0.581        | 0.479   | 0.503 |
| TRST7 | 0.722 | 0.641        | 0.509   | 0.619 |

The table above shows that each indicator that makes up the research variable has a value > 0.7 and the largest cross loading value on the variable when compared to the cross-loading value on other variables. This shows the strong discriminant validity of each indicator.

### 3. Reliability Test

Reliability testing measures the extent to which measurements made on the same object will produce consistent data. In this study, reliability testing was carried out using Composite Reliability and Cronbach Alpha.

**Table 2. Reliability Test Result**

| Variable             | Cronbach Alpha | Composite Reliability | Decision |
|----------------------|----------------|-----------------------|----------|
| Patient Satisfaction | 0.922          | 0.938                 | Reliabel |
| Patient Trust        | 0.911          | 0.929                 | Reliabel |
| Healthcare Skill     | 0.920          | 0.938                 | Reliabel |
| Patient Loyalty      | 0.943          | 0.938                 | Reliabel |

Based on the table above, the Cronbach alpha and composite reliability values for each variable studied are above 0.7. This means that all constructs are reliable.

### 4. Multicollinearity Test

The multicollinearity test determines whether the independent variables in the regression model have a strong correlation or not. This can cause problems such as instability of the regression coefficient and difficulty in determining how each independent variable affects the variable. According to Ghazali (2019) Assumptions regarding tolerance and VIF can be stated as follows if  $VIF > 10$  and the tolerance value  $< 0.10$ , then it can be concluded that multicollinearity occurs. Conversely, if  $VIF < 10$  and the tolerance value  $> 0.10$ , then there is no multicollinearity.

**Table 3. VIF Test Result**

| VIF   |       |
|-------|-------|
| SAT1  | 3.872 |
| SAT2  | 3.873 |
| SAT3  | 1.735 |
| SAT4  | 3.587 |
| SAT5  | 2.527 |
| SAT6  | 2.937 |
| SAT7  | 3.082 |
| TRST1 | 1.854 |
| TRST2 | 3.186 |
| TRST3 | 2.698 |
| TRST4 | 3.208 |
| TRST5 | 3.474 |
| TRST6 | 2.085 |
| TRST7 | 1.709 |
| SKL1  | 3.444 |
| SKL2  | 3.719 |
| SKL3  | 4.005 |
| SKL4  | 3.435 |
| SKL5  | 2.963 |
| SKL6  | 1.704 |
| LOY1  | 3.641 |
| LOY2  | 3.672 |
| LOY3  | 2.930 |
| LOY4  | 3.879 |
| LOY5  | 3.463 |



|      |       |
|------|-------|
| LOY6 | 3.323 |
|------|-------|

The results of the variance inflation factor (VIF) multicollinearity test show that each variable is less than 10, so there is no multicollinearity.

### Structural Model Evaluation (Inner Model)

Estimation of the structural model is done through analysis. The tests carried out consist of, estimating VIF, R2, Beta and using t-values for hypothesis assessment from the bootstrap process. A bootstrap with a subsample of 5,000 to increase the statistical significance of the item weights was carried out in accordance with statistical guidelines. VIF measures the extent to which multicollinearity problems bias the regression results. Values above 5 describe collinearity problems among variable items. The R2 value indicates changes in the response variable due to the presence of endogenous variables. In addition, the higher the R2 value, the more it will meet the predictive accuracy (ranging from 0 to 1). The structural model represents the relationship between the latent variables used in the study. Bootstrapping calculation results for each variable in the structural model.

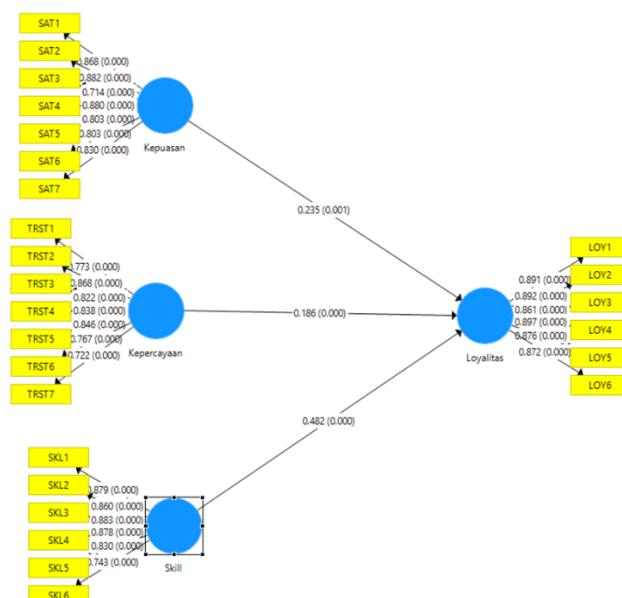


Figure 2. Bootstrapping Full Model Structural

Inner model evaluation involves the creation of a conceptual and theoretical framework model to examine the interactions between external and internal variables outlined in a conceptual scheme. The phases of validating the structural model (inner model) proceed through the following steps.

#### 1. Coefficient Determination (R-Square / R2)

The initial phase of the inner model evaluation involves performing a determination coefficient examination (R-Square / R2 assessment). The value of the determination coefficient (R-Square) should fall between 0 and 1; an R-Square value nearing 1 signifies that the exogenous construct conveys nearly all the information required to forecast changes in the endogenous construct. R-Square values of 0.67, 0.33, and 0.19 are regarded as indicators of strong, moderate, and weak model parameters, respectively. Below are the outcomes of the R-Square analysis.

Table 4. R Square

| Model           | R Square | Adjusted R Square |
|-----------------|----------|-------------------|
| Patient Loyalty | 0.665    | 0.663             |

Based on the results presented in the table above, it can be seen that the adjusted r-square value for the loyalty model formed by the variables of patient satisfaction, patient trust and medical personnel skills is 0.663. This can be interpreted that the variability of aspects of patient satisfaction, patient trust and medical personnel skills can explain the construct of patient loyalty by 66.3% while the remaining 33.7% is explained by other constructs not included in this study.

## 2. Q Square

The second step in the inner model analysis is to conduct a prediction relevance test (Q-Square / Q<sup>2</sup> test). The Q-Square value has a similar meaning to the R-Square value (coefficient of determination), where the higher the Q-Square value, the better the model can be said to be. Calculation of the Q-Square value

**Table 5. Q-Square**

|                     | SSO      | SSE      | Q <sup>2</sup> (=1-SSE/SSO) |
|---------------------|----------|----------|-----------------------------|
| <b>Trust</b>        | 3682.000 | 3682.000 |                             |
| <b>Satisfaction</b> | 3682.000 | 3682.000 |                             |
| <b>Loyalty</b>      | 3156.000 | 1553.513 | 0.508                       |
| <b>Skill</b>        | 3156.000 | 3156.000 |                             |

The calculation results above show a predictive-relevance value of 0.508 for the patient loyalty model. Thus, the model has a predictive relevance value.

## 3. Evaluation of F-Square

The third step in the inner model analysis is to conduct an effect size test (f-Square / f<sup>2</sup> test). Wong (2013) explains that effect size is useful for determining how much the exogenous construct contributes to the endogenous construct or to assess the strength of the relationship between latent variables. Sarstedt et al. (2017) provide f-Square value criteria of 0.35, 0.15, and 0.02 which are interpreted as large influence, medium influence, and small influence. For f-Square values less than 0.02, it is considered to have no influence and can be ignored. The following are the results of the f-Square test.

**Tabel 6. Effect Size**

| Jalur                | F-Square | Effect Size |
|----------------------|----------|-------------|
| Satisfaction Loyalty | 0.064    | Weak        |
| Trust-> Loyalty      | 0.033    | Weak        |
| Skill -> Loyalty     | 0.318    | Stgrong     |

From the table above, it can be seen that a strong effect size is owned by the relationship between medical personnel skills and patient loyalty. Meanwhile, the value between patient satisfaction and patient loyalty and trust in patient loyalty has a weak category.

## Hypothesis Testing

The estimated value for the path relationship in the structural model must be significant. This significance value can be obtained by the bootstrapping procedure. Viewing the significance of the hypothesis by looking at the parameter coefficient value and the significance value of the p-values in the bootstrapping report. The hypothesis is accepted when the p-values are less than 0.05. The results of statistical estimation are described as follows:

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**Table 7. Results of Path Coefficient Estimation and Statistical Tests**

| Hypothesis   | STDCOEf | Tstat | P Values | Kesimpulan  |
|--|---------|-------|----------|-------------|
| H1: There is a significant influence between patient satisfaction and patient loyalty    | 0.325   | 3.482 | 0.001    | H1 Accepted |
| H2: There is a significant influence between patient trust and patient loyalty           | 0.186   | 4.311 | 0.000    | H2 Accepted |
| H3: There is a significant influence between medical personnel skills on patient loyalty | 0.482   | 8.084 | 0.000    | H3 Accepted |

**H1: There is a significant influence between patient satisfaction and patient loyalty**

Hypothesis 1 that is tested is the influence of patient satisfaction on patient loyalty. Based on the results of processing as presented in the path coefficient estimation table and statistical tests, it can be seen that the path coefficient and P-value show that the P-value is 0.001 < 0.05 which indicates a significant influence of patient satisfaction on loyalty. The coefficient value is 0.325 where the influence of patient satisfaction on patient loyalty is positive, indicating that the better the patient satisfaction, the higher the patient loyalty. Based on this, the first hypothesis 1 in this study is accepted.

**H2: There is a significant influence between patient trust and patient loyalty**

Hypothesis 2 that is tested is the influence of patient trust on loyalty. Based on the results of processing as presented in the path coefficient estimation table and statistical tests, it can be seen that the path coefficient and P-value show that the P-value is 0.000 < 0.05 which indicates a significant influence of patient trust on patient loyalty. The coefficient value is 0.186 where the influence of patient trust on patient loyalty is positive, indicating that the better the patient's trust, the higher the patient's loyalty. Based on this, hypothesis 2 in this study is accepted.

**H3: There is a significant influence between medical personnel skills on patient loyalty**

Based on the results of processing as presented in the path coefficient estimation table and statistical tests, it can be seen that the path coefficient and P-value show that the P-value is 0.000 < 0.05 which indicates a significant influence of Health Worker's Skill on patient loyalty. The coefficient value is 0.482 where the influence of the Health Worker's Skill on patient loyalty is positive, indicating that the better the Health Worker's Skill, the higher the patient loyalty. Based on this, hypothesis 3 in this study is accepted.

**CONCLUSION**

This study concludes that patient satisfaction, trust, and medical personnel skills significantly influence patient loyalty at RSMM Papua, suggesting that future research should adopt longitudinal designs to track loyalty trends over time, incorporate qualitative methods to explore patient perspectives in depth, and expand variables to include digital services and accessibility factors. Additionally, comparative studies across different healthcare settings (urban/rural, public/private) could determine contextual variations in loyalty drivers, while intervention-based research—such as training programs for medical staff and patient feedback systems—could provide actionable strategies for enhancing retention and trust in healthcare services. These recommendations aim to build on the current findings and offer more comprehensive insights for improving patient loyalty in diverse healthcare environments.

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