
**PATIENT SATISFACTION IS A MEDIATOR OF THE RELATIONSHIP
BETWEEN HUMAN RESOURCE INTERACTION, SERVICE QUALITY, TRUST,
AND PATIENT LOYALTY**

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Abstract

This study aims to analyze the influence of human resource interaction, service quality, and trust on patient loyalty mediated by patient satisfaction at PKU Muhammadiyah Gombong General Hospital, PKU Muhammadiyah Amanah Sumpiuh General Hospital, and PKU Muhammadiyah Aghisna Kroya General Hospital. This study used a quantitative method with a survey approach, involving 200 patient respondents consisting of 100 patient respondents from PKU Muhammadiyah Gombong General Hospital, 50 patient respondents from PKU Muhammadiyah Amanah Sumpiuh General Hospital, and 50 patient respondents from PKU Muhammadiyah Aghisna Kroya General Hospital, reflecting institutional patient volume differences. Although the overall sample size is adequate for PLS-SEM, the disproportionate allocation across hospitals and the absence of explicit controls for institutional characteristics (such as hospital size, service scope, and patient demographics) may limit the comparability of hospital specific effects and constrain the generalizability of the findings to each organizational context. Respondents filled out a questionnaire related to their perceptions of human resource interaction, service quality, trust, satisfaction, and loyalty. Data were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique with the help of Smart PLS software. The results showed that human resource interaction had no effect on satisfaction. Human resource interaction and service quality also had no effect on loyalty. Service quality and trust had a positive and significant effect on satisfaction. Trust and satisfaction had a positive and significant effect on loyalty. Patient satisfaction could mediate service quality and trust on loyalty. However, it did not for human resource interaction on loyalty.

Keywords: Human Resources Interaction, Service Quality, Trust, Satisfaction, Loyalty

INTRODUCTION

Globalization and digital transformation reshape healthcare by intensifying hospital competition, exposing patients to diverse service alternatives, and elevating expectations for high quality care through digital platforms like online reviews and telemedicine. These forces alter patient loyalty mechanisms, shifting focus from geographic proximity to comparative evaluations of service quality, responsiveness, and trust (Astuti et al., 2018). Creating patient satisfaction and loyalty is a crucial role of healthcare providers (Astuti, 2018); (Astuti & Nagase, 2016); (Astuti & Santoso, 2020); (Karnowati & Astuti, 2020). or in this case, hospitals. Increasing competition among hospitals requires hospitals to successfully retain patients in the long term (Astuti, 2018). Many factors influence loyalty to hospitals, including human resource interactions, trust, service quality, and patient satisfaction.

Human resources are important in organizations engaged in the service sector. Human resources who perform their duties well will be the driving force behind an effective organization in achieving its goals. Internal and external factors influence the services provided by employees to their patients (Andhini & Ruhana, 2024). Good human resource interactions can create positive emotional relationships between patients and healthcare providers, thereby increasing patient trust and satisfaction (Prihatini, 2024), then causes the patient to be loyal (Wartiningsih, 2024); (Yıldırım et al., 2022). However, HR interaction does not affect satisfaction and loyalty (Iqbal, 2025).

Service quality is a series of activities carried out by individuals and organizations aimed at creating satisfaction with service actions (Mayang et al., 2023). Service quality is also a key element in building a positive image of the hospital in the eyes of patients through satisfaction, which ultimately makes consumers, in this case patients, return again (Karnowati & Astuti, 2020); (Karnowati et al., 2021); (Bilal & Achmad, 2023); (Sujana & Yusni, 2024). However, reliability had negative effect to customer satisfaction (Ali et al., 2021). Also reliability and three other variables that physical evidence, responsiveness, and assurance are not acceptable (Bungatang & Reynel, 2021).

Patient trust in healthcare institutions also plays an important role in creating long-term loyalty (Astuti et al., 2018). When patients trust their healthcare providers, they tend to feel more comfortable and satisfied with the services provided. This trust creates a positive emotional bond, which forms the basis for long-term loyalty (Bilal & Achmad, 2023); (Gabriel & Ellitan, 2025). Patients who trust their healthcare providers are more likely to feel that their needs are being met, thereby increasing satisfaction. This is consistent with research (Aladwan et al., 2024). Ultimately, patients who are satisfied with and trust their healthcare providers tend to show long-term commitment, which is at the heart of patient loyalty (Van Huy et al., 2025). However trust has no effect to satisfaction and loyalty (Hride et al., 2022).

A number of previous studies have examined the influence of these variables on patient loyalty. The results of the study indicate that service quality and patient trust have a direct influence on loyalty, which is reinforced by patient satisfaction as a mediating variable (Rampi et al., 2024). A similar finding was that service quality, satisfaction, and trust contributed positively to BPJS patients' intention to revisit outpatient clinics. Furthermore, his research at Tgk. Di Tiro Sigli Regional General Hospital also found that trust and service quality had a significant effect, both directly and through patient satisfaction, on patient loyalty (Agustina et al., 2024). These differences indicate inconsistencies in previous studies that need to be investigated further. On the other hand, the limitations of previous studies are

evident in the absence of a research model that comprehensively combines all these variables, namely HR interaction, service quality, trust, satisfaction, and patient loyalty, into a single framework.

PKU Muhammadiyah Gombong Hospital is a type B hospital located in Gombong, Kebumen Regency, Central Java. The hospital's motto is to provide professional, friendly, courteous, and Islamic service. The hospital strives to provide excellent service that results in satisfaction and loyalty as its commitment. This is based on the National Hospital Quality Indicator Report, which has exceeded the target with an average of 90.82. With an average score of 90.82 (assuming a maximum scale of 100), this reflects that most respondents are satisfied with their experience, despite fluctuations each month (*RS PKU Muhammadiyah Gombong*).

In an effort to expand its service coverage and strengthen its competitiveness, PKU Muhammadiyah Gombong Hospital has acquired two hospitals, namely PKU Muhammadiyah Amanah Sumpiuh General Hospital in April 2019 (Amanah General Hospital, 2019) and PKU Muhammadiyah Aghisna Kroya General Hospital in June 2023 (PWM Jateng, 2023). Both hospitals are now part of the PKU Muhammadiyah Gombong General Hospital Group holding company. This shows that the strategy of managing patient satisfaction and loyalty is not only a focus at the main hospital but also a managerial foundation in managing the hospitals under the management of the PKU Muhammadiyah Gombong General Hospital Group. The hospital's vision is to be a hospital with Islamic, excellent, and reliable services and a regional referral center by 2025. One of its missions is to implement a guest paradigm in customer service across all units and to carry out its function of da'wah as a Muhammadiyah charity in the field of health.

Based on this background, the research question is whether Human Resource Interaction, Service Quality, and Trust affect Patient Loyalty through Satisfaction. The urgency of this research lies in the increasingly fierce competition in the healthcare sector, which requires hospitals and healthcare providers to understand the factors that influence patient loyalty. This research provides strategic guidance for improving competitiveness through an approach based on patient satisfaction and trust. The results of this study can be used by hospital management to design more effective policies and strategies to improve patient satisfaction and loyalty. Therefore, this research is important to be carried out.

REVIEW OF LITERATURE

This study uses the basis of SOR Theory (Stimulus-Organism-Response), first proposed by Woodworth in 1929 in his book "Dynamic Psychology" (Shen et al., 2025). The theory is that external stimuli drive internal organismic states, which in turn trigger behavioral responses from users. By applying the SOR model, this study can show how interactions between human resources, service quality, and trust (stimuli) interact with the internal mediator of satisfaction (organism) to produce behavioral outcomes, namely loyalty (response).

Human resource interaction, in the form of communication skills between medical and non-medical staff, plays an important role in shaping patient satisfaction (Mao et al., 2021). Patients judge services not only on medical outcomes, but also on how staff interact during treatment (Meliala & Meliala, 2022). In the context of healthcare services in hospitals,

interactions between human resources and patients are an important component that affects patient satisfaction and loyalty. Based on SOR theory, friendly and professional HR interactions become a stimulus that shapes patient satisfaction. Hospitals need to evaluate the quality of HR interactions to improve satisfaction. There are four main indicators in interrelated HR interactions (Wartiningsih, 2024): (1) Relationships or communication with patients, (2) Service Interaction, (3) Communication Skills and (4) Punctuality of Doctors.

Service quality has different meanings, with variations and conventions in each theory proposed by experts. Service quality can be defined as the ability of a service to meet or exceed customer expectations (Kotler & Keller, 2016). This quality usually consists of the quality and uniqueness of the products produced by service providers. Service satisfaction focuses on efforts to fulfill the needs and desires of customers by delivering services in a way that provides balance to each consumer as the target audience. Good service quality can create an impression on consumers, which is something that can be felt but has no tangible form. Based on SOR theory, good service quality is a stimulus that shapes patient satisfaction. This satisfaction then drives patient loyalty, such as a willingness to return and recommend the service. Service Quality indicators state that the quality of health services can be seen from SERVQUAL with quality dimensions, including (Kotler & Keller, 2016): (1) Tangibles (direct/tangible evidence), the quality of service in hospitals, can be directly assessed by patients as service recipients, such as the quality of the building, the equipment used, and other facilities and infrastructure that can create safety, comfort, and the use of advanced technology that can encourage patient assessment of service providers (the hospital) (2) Reliability, provided by hospital can serve as a standard of service so that hospitals can consistently carry out their duties and responsibilities in accordance with applicable SOPs, (3) Responsiveness, demonstrated by service providers in the health sector through their quick response to patient complaints, enabling medical staff to respond promptly so that patients can immediately appreciate the positive response from medical staff to their complaints. (4) Assurance, ability of employees or service providers to build customer trust through actions such as politeness, friendliness, knowledge, expertise in their field, and good communication, so that consumers feel assured and secure in using the service, and (5) Empathy, ability to give personal attention and understand the specific needs of customers. This reflects how companies treat customers as unique and important individuals, such as empathy include treating customers in a friendly and personal manner, actively listening to customer complaints, and tailoring services to customer needs.

The next factor that influences satisfaction and loyalty is trust. Trust is a consumer's belief that a product or brand will consistently and reliably meet their expectations. Furthermore, trust is a crucial element in building long-term relationships between companies and customers. Trust is built on consistent positive experiences, honest communication, and a good reputation (Kotler & Keller, 2016). Based on SOR theory, trust in a service is a stimulus that builds patient satisfaction. This satisfaction then drives loyalty, such as faithful use and recommendation of the service. There are three factors that shape a person's trust in others (Chakraborty et al., 2025): (1) Product, reflects the quality, reliability, and integrity of the product or service offered, (2) Provider, refers to an individual or organization that offers a product/service, and (3) Policy makers, play a role in establishing regulations, standards, and protections that shape an environment of trust.

Patients, as consumers, play a crucial role in assessing the quality of hospital services. In the context of healthcare, patient satisfaction is defined as an emotional response to a service experience, particularly regarding the extent to which the service meets or exceeds patient expectations (Astuti, 2018). When the service received exceeds expectations, patients will be satisfied; however, if the service falls short, they will be disappointed (Kotler & Keller, 2016). Patient satisfaction is the result of balancing expectations and actual experiences in the healthcare process. Satisfied patients tend to exhibit loyal behavior, such as repeat visits, complying with treatment recommendations, and recommending the hospital to others. Therefore, patient satisfaction levels not only reflect the success of hospital services but also serve as a strategic foundation for maintaining long-term relationships between patients and healthcare providers (Astuti & Nagase, 2016). Based on SOR theory, good human resource interactions, high service quality, and patient trust are the drivers that increase patient satisfaction. This satisfaction then drives patient loyalty, such as continued use of services and recommendations to others. Patient satisfaction can be measured using the following indicators (Astuti & Nagase, 2016): 1) Treatment Experience. This refers to the patient's subjective impression and evaluation of the entire medical service process, from administration to medical procedures and follow-up care. 2) Feelings of Pleasure or Disappointment. This describes the patient's emotional reaction after receiving healthcare services. Satisfaction is achieved when the service experience elicits a feeling of pleasure, while disappointment arises when the service does not meet expectations. 3) Recommendation to Others. This refers to the patient's recommendation of a hospital to family, friends, or colleagues as a form of recognition of the quality of service they experienced.

Loyalty in the context of healthcare is defined as a patient's emotional attachment and commitment to continue using the same provider, even when alternatives are available. Loyalty also reflects a long-term relationship formed from positive experiences and trust in consistent service quality. Patient loyalty is a response formed from long-term satisfaction and perceived value of the services received, which results in a tendency to continue choosing the same service and not be easily influenced by offers from other parties. In the hospital sector, this loyalty is very important to create a sustainable relationship between patients and healthcare institutions, and is an indicator of the success of the relationship marketing strategy implemented. Based on SOR theory, good human resource interactions, high service quality, and patient trust are the driving forces behind increased patient satisfaction. This satisfaction then drives patient loyalty, such as continued use of services and recommendations to others. Patient loyalty can be identified through three main indicators (Astuti & Nagase, 2016): (1) Firmness. Firmness refers to a patient's strong commitment to continue choosing services from a particular hospital. Patients demonstrate complete trust in the institution and do not hesitate to make repeated decisions to use the same healthcare service. This reflects a stable and resilient attitude despite the availability of other options. 2) Defense. Defence is a patient's ability to maintain their decision regarding a chosen hospital, even when faced with negative information or more attractive offers from other providers. This attitude demonstrates strong loyalty and a willingness to support a trusted healthcare institution. 3) Repeat Purchase. Repeat purchase in the healthcare context refers to a patient's decision to continue using services from the same institution or doctor

consistently, even when other alternatives are available. This reflects a high level of patient trust and comfort with the services provided. These three indicators of firmness, defense, and repeat purchase together indicate that patient loyalty is not just about repeat visits, but also about confidence, trust, and an emotional bond with the healthcare provider. Such loyalty is important because it can enhance the sustainability of the patient-institution relationship and strengthen the overall reputation of the service.

RESEARCH METHOD

This research employs a quantitative approach using a survey method. The study population was all patients at PKU Muhammadiyah Gombong Hospital, PKU Muhammadiyah Amanah Sumpiuh Hospital, and PKU Muhammadiyah Aghisna Kroya Hospital. The sample was selected through purposive sampling, with the criteria being patients who had used services at the three hospitals at least twice in the past six months and were willing to be respondents. The critical sample size was calculated based on the number of research indicators, namely 18 indicators multiplied by 10, resulting in 180 samples. In this study, this number was rounded up to 200. Data were obtained through a closed-ended questionnaire using a Likert scale to measure respondents' perceptions of HR interactions, service quality, trust, satisfaction, and loyalty. Each variable has measurement indicators that refer to relevant literature to ensure the data obtained reflects the phenomenon studied. Data analysis in this study used the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique with the help of SmartPLS software. This technique allows for the evaluation of direct and indirect impacts between independent and dependent variables, as well as considering the role of mediating variables in explaining the relationship between variables. PLS-SEM analysis involves testing the Outer Model to assess the validity and reliability of variable indicators, as well as the Inner Model to test hypotheses about the relationship between variables.

Research Hypothesis

This study aims to analyze the influence of human resource interactions, service quality, and trust on patient loyalty, mediated by patient satisfaction. Based on a literature review and previous research, the following hypotheses are proposed in this study:

1. H1: Human resource interaction has a significant positive effect on patient satisfaction
2. H2: Service quality has a significant positive effect on patient satisfaction
3. H3: Trust has a significant positive effect on patient satisfaction
4. H4: Human resource interaction has a significant positive effect on patient loyalty
5. H5: Service quality has a significant positive effect on patient loyalty
6. H6: Trust has a significant positive effect on patient loyalty
7. H7: Patient satisfaction has a significant positive effect on patient loyalty
8. H8: Human resource interaction has a significant positive effect on patient loyalty through patient satisfaction
9. H9: Service quality has a significant positive effect on patient loyalty through patient satisfaction
- H10: Trust has a significant positive effect on patient loyalty through patient satisfaction

Research Model

This study describes the relationship between independent variables (human resource interaction, service quality, trust), dependent variables (patient loyalty), and mediating variables (patient satisfaction). The conceptual framework can be described as follows:

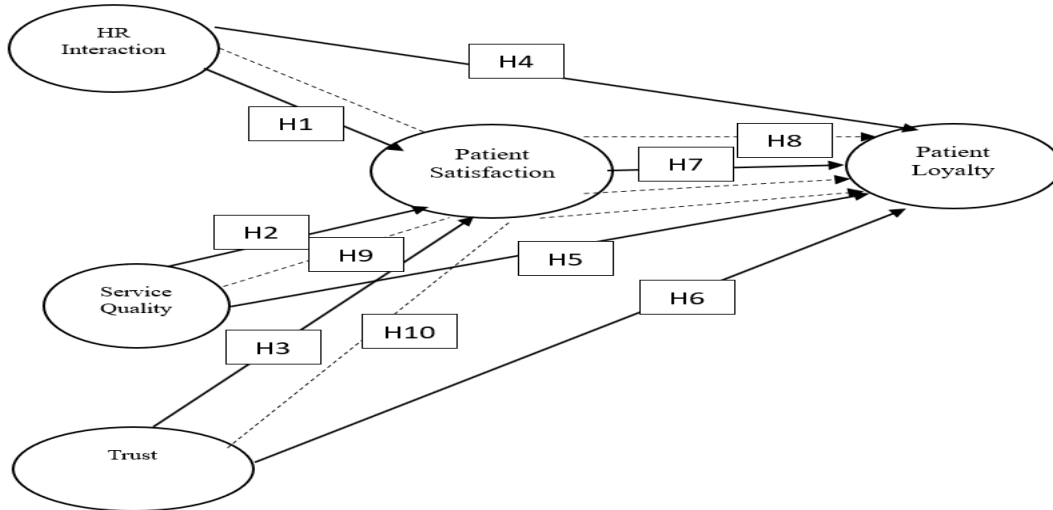


Figure 1.
Research Framework

The conceptual framework above shows that human resource interactions, service quality, and trust have direct and indirect influences on patient loyalty, as well as the role of satisfaction in explaining the relationship between variables. This analysis will use the Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique with the help of SmartPLS software. This technique allows for the evaluation of the direct and indirect impacts between independent and dependent variables, as well as considering the role of mediating variables in explaining the relationship between variables. This study uses a quantitative approach with a survey method, where data is collected through a questionnaire with a Likert scale. The results of this study are expected to provide more applicable strategic recommendations for hospitals in maintaining and improving their patient loyalty in the future.

RESULTS AND DISCUSSION

Description of Respondent Characteristics

This study aims to analyze the influence of human resource interactions, service quality, and trust on patient loyalty, as mediated by patient satisfaction, at PKU Muhammadiyah Gombong General Hospital, PKU Muhammadiyah Amanah Sumpiuh General Hospital, and PKU Muhammadiyah Aghisna Kroya General Hospital. A total of 200 respondents participated in the study: 100 from PKU Muhammadiyah Gombong General Hospital, 50 from PKU Muhammadiyah Amanah Sumpiuh General Hospital, and 50 from PKU Muhammadiyah Aghisna Kroya General Hospital. This number reflects differences in patient volume between institutions. A description of the respondents' characteristics is presented in Table 1:

Table 1.
Description of Respondent Characteristics

| Characteristics | (%) |
|----------------------------------|------------|
| Patient Status | |
| Inpatient | 50% |
| Outpatient | 50% |
| Patient Length of Stay | |
| <1 year | 46% |
| 1-3 years | 29% |
| >3 years | 25% |
| Last Education | |
| Elementary School | 14% |
| Middle School | 14% |
| High School | 35% |
| Bachelor's, Master's, Doctoral | 38% |
| Reason for Visit | |
| Location Nearby | 36% |
| Family/Friend Recommendation | 18% |
| Reputation | 9% |
| Satisfactory Previous Experience | 37% |

Based on Table 1 above, the characteristics of the respondents' status in this study were balanced, with 50% of inpatients and 50% of outpatients. This reflects an equal representation of inpatients and outpatients in this study, indicating that both types of status contributed equally to the research results. The balanced number of outpatient and inpatient respondents also provides a more objective and unbiased picture in gathering opinions or data related to the topic being studied. In terms of patient length, the <1 group dominated with a percentage of 46%. Followed by 1-3 at 29% and >3 at 25%. Most respondents (38%) had a Bachelor's, Master's, or Doctoral degree, indicating that the majority of participants had a higher educational background. 35% of respondents had a high school background. Higher education is a strong foundation for people in accessing jobs and social activities. Meanwhile, respondents with elementary and junior high school education amounted to 14% and 14% respectively, indicating that there are still groups with lower educational levels, possibly due to economic factors or limited access to education. This indicates that elementary and junior high school education is still affordable for a small portion of the population studied. This may reflect existing educational inequalities in society, where access may still be limited to certain segments of the population. Respondents cited 9% of their reasons for choosing the hospital for treatment because of its reputation, 18% because of recommendations from family or friends, 36% because of its proximity, and 37% because of a satisfactory previous experience.

Measurement Model

The measurement model was evaluated using Convergent Validity, namely measuring Factor Loading and Average Variance Extracted (AVE) as well as measuring reliability. All constructs showed strong internal consistency with Factor Loading values above the recommended threshold of 0.5 for development research, and AVE values exceeding 0.6 indicating adequate convergent validity (F. Hair Jr et al., 2014). These results confirm that the questionnaire items reliably measure the latent constructs of service quality, trust, satisfaction, and loyalty. Based on Table 2, it can be said that the factor loading and AVE values are acceptable; in other words, the construct is valid. Table 2 also found Composite Reliability values exceeding 0.7, so it can be said that the instrument provides the same results if used repeatedly under the same conditions.

Table 2.
Measurement Model

| Variables | Indicators | Loading Factors Running ^a | Average Variance Extracted (AVE) ^b | Composite Reliability ^c |
|--------------------------|---|--------------------------------------|---|------------------------------------|
| HR Interaction (X1) | Relationship or communication with patients (X1.1) | 0.880 | 0.698 | 0.901 |
| | Service interaction (X1.2) | 0.904 | | |
| | Communication skills (X1.3) | 0.861 | | |
| | Physician punctuality (X1.4) (Wartiningsih, 2024) | 0.678 | | |
| Service Quality (X2) | Tangible (X2.1) | 0.738 | 0.697 | 0.920 |
| | Reliability (X2.2) | 0.859 | | |
| | Responsiveness (X2.3) | 0.857 | | |
| | Assurance (X2.4) | 0.885 | | |
| | Empathy (X2.5) (Kotler & Keller, 2016) | 0.829 | | |
| Trust (X3) | Product (X3.1) | 0.884 | 0.794 | 0.920 |
| | Provider (X3.2) | 0.882 | | |
| | Policy maker (X3.3) (Chakraborty et al., 2025) | 0.907 | | |
| | | | | |
| Patient Satisfaction (Z) | Treatment experience (Z1.1) | 0.878 | 0.752 | 0.901 |
| | Feeling happy or disappointed (Z1.2) | 0.845 | | |
| | Recommend to others (Z1.3) (Astuti & Nagase, 2016) | 0.878 | | |
| Patient Loyalty (Y) | Firmness (Y1.1) | 0.866 | 0.730 | 0.890 |
| | Defense (Y1.2) | 0.818 | | |
| | Repeat purchases (Y1.3) (Astuti & Nagase, 2016) | 0.878 | | |
| | | | | |

^aAcceptable value of Loading Factor is greater than 0.5

^bAcceptable value of AVE is greater than 0.5

^cAcceptable value of Composite Reliability is greater than 0.6

Table 3.

Discriminant Validity Fornell-Larcker Criterion

| | HR Interaction | Service Quality | Trust | Patient Loyalty | Patient Satisfaction |
|-----------------------------|-----------------------|------------------------|--------------|------------------------|-----------------------------|
| Human Resources Interaction | 0.835 | | | | |
| Service Quality | 0.813 | 0.835 | | | |
| Trust | 0.754 | 0.782 | 0.891 | | |
| Patient Loyalty | 0.630 | 0.658 | 0.719 | 0.854 | |
| Patient Satisfaction | 0.735 | 0.789 | 0.788 | 0.775 | 0.867 |

The results of the Fornell-Larcker test, shown in Table 3, indicate that the square root of the AVE for all variables is higher than the correlation value between the variables. This indicates that all statement items used in this study are valid.

Structural Model Results

A structural model analysis using SEM tested the hypothesized relationships between HR interactions, service quality, trust, satisfaction, and loyalty, as shown in Figure 2.

The analysis results, based on Table 5, show that the direction of the relationship between variables is generally positive. Human resource interactions have a positive relationship with patient satisfaction and patient loyalty, as indicated by positive coefficients and non-significant p-values (0.137, 0.036 and 0.080, 0.674), which show that HR interactions do not have a direct effect on patient satisfaction and patient loyalty. Service quality has a positive and significant relationship with satisfaction with a p-value of 0.000. Service quality has a negative relationship with loyalty, with an insignificant p-value of 0.876. Trust also has a positive and significant relationship with satisfaction and loyalty, with p-values = 0.000 and 0.001, indicating that better trust increases patient satisfaction and loyalty. The relationship between satisfaction and loyalty is positive, as indicated by a positive coefficient and a highly significant p-value (0.000), indicating that greater satisfaction with the hospital, the higher their level of loyalty. Overall, these positive relationships indicate that improvements in human resource interaction, service quality, trust, and satisfaction contribute to increased patient loyalty, with trust and satisfaction being the main factors.

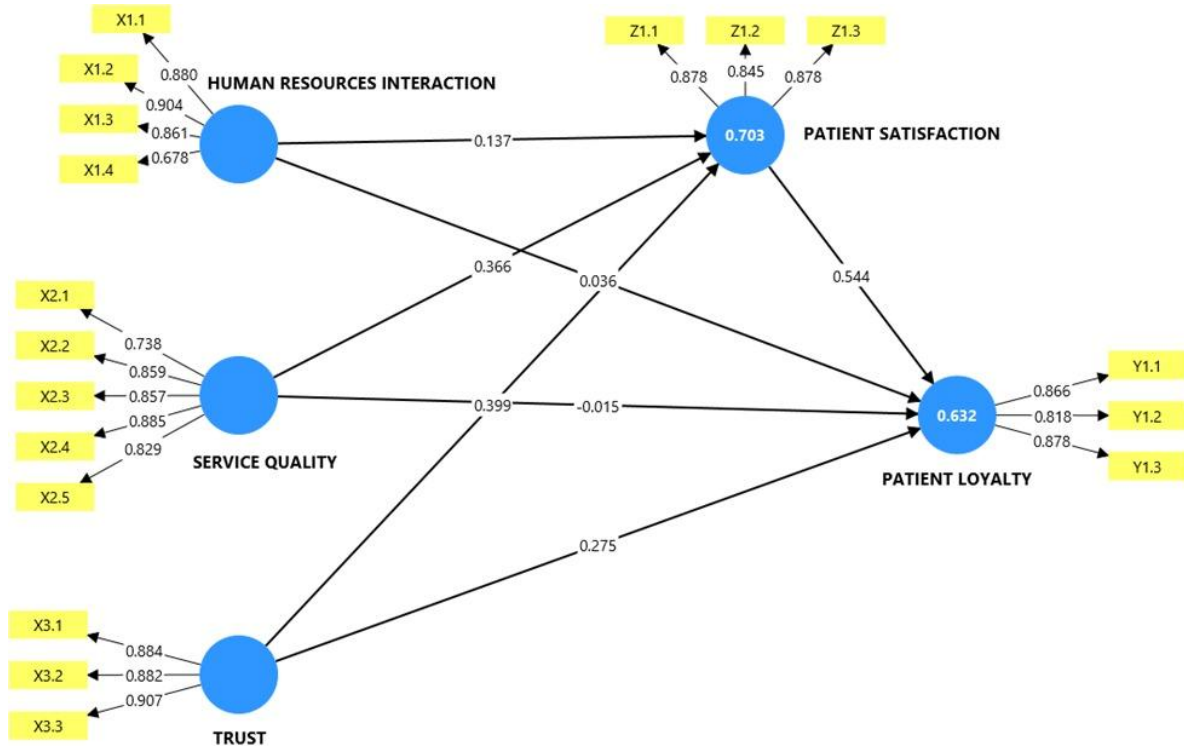


Figure 2.
Structural Model Result

Based on table 4, patient satisfaction has an adjusted R2 of 0.698, meaning 69,8% of the variance can be explained by the interaction of HR, service quality, and trust in the model. Patient loyalty has an adjusted R2 of 0.624, meaning 62.4% of the variance can be explained by the interaction of HR, service quality, trust, and satisfaction in the model.

Table 4.
R Square Test

| | R-square | R-square adjusted |
|----------------------|----------|-------------------|
| Patient Satisfaction | 0.703 | 0.698 |
| Patient Loyalty | 0.632 | 0.624 |

The results of the direct hypothesis are shown in Table 5, it can be explained that 3 hypotheses are not proven and 4 hypotheses that are proven to be accepted or have an effect.

Table 5.
SEM Data Processing Results

| | Original Sample (O) | T Statistics | P Values | Results |
|---|---------------------|--------------|----------|-----------|
| Human Resource Interaction (X1) -> Satisfaction (Z) | 0.137 | 1.748 | 0.080 | No effect |
| Human Resource Interaction (X1) -> Loyalty (Y) | 0.036 | 0.420 | 0.674 | No effect |

| | Original Sample (O) | T Statistics | P Values | Results |
|--|---------------------|--------------|----------|-----------|
| Service Quality (X2) -> Satisfaction (Z) | 0.366 | 4.358 | 0.000 | Effect |
| Service Quality (X2) -> Loyalty (Y) | -0.015 | 0.156 | 0.876 | No effect |
| Trust (X3) -> Satisfaction (Z) | 0.399 | 5.625 | 0.000 | Effect |
| Trust (X3) -> Loyalty (Y) | 0.275 | 3.390 | 0.003 | Effect |
| Satisfaction (Z) -> Loyalty (Y) | 0.544 | 6.481 | 0.000 | Effect |

The Role of Satisfaction as a Mediating Variable in the Interaction of Human Resources, Service Quality, and Trust towards Patient Loyalty

Based on the analysis results, there is no significant mediating role of satisfaction in the relationship between HR interaction and loyalty. For the relationship between HR interaction and patient loyalty through satisfaction, the t statistic is 1,649 with a p value of 0.099. Although there is a tendency for satisfaction to act as a link, the p value exceeding 0.05 indicates that this mediating role is not statistically significant. For the relationship between service quality and patient loyalty through satisfaction, the t statistic is 3,592 with a p value of 0.000. This indicates a significant mediation effect, because the p-value is below 0.05. Satisfaction mediates the relationship between service quality and patient loyalty. Similarly, the relationship between trust and patient loyalty through satisfaction, the t-statistic is 4,351 with a p-value of 0.000. This also indicates a significant mediation effect, because the p-value is below 0.05. Satisfaction mediates the relationship between trust and patient loyalty. Thus, these results conclude that satisfaction does not mediate the relationship between HR interaction and loyalty. Satisfaction mediates the relationship between trust and patient loyalty. This means that HR integration does not require satisfaction as a mediator to build patient loyalty, whereas trust and service quality require satisfaction as a mediator to build patient loyalty.

Table 6.
Indirect Effects

| | t statistics | P values | Results |
|--|--------------|----------|---------------|
| Human Resource Interaction (X1) -> Satisfaction (Z) -> Loyalty (Y) | 1.649 | 0.099 | Not mediating |
| Service Quality (X2) -> Satisfaction (Z) -> Loyalty (Y) | 3.592 | 0.000 | mediating |
| Trust (X3) -> Satisfaction (Z) -> Loyalty (Y) | 4.351 | 0.000 | mediating |

The Effect of Human Resource Interactions on Satisfaction

The results of this study indicate that human resource (HR) interactions have a positive but insignificant relationship with patient satisfaction. This means that while there is a tendency for better HR interactions to increase patient satisfaction, this relationship is not statistically strong enough to be considered significant.

In the context of this study, the insignificant relationship between HR interactions can be explained by the SOR theory. The lowest factor loading is the doctor's punctuality.

Stimulus: A low loading means the patient does not respond significantly to the stimulus. Organism: Patients' perceptions may not be concerned about the doctor's lateness if the medical service remains high quality. Response: The stimulus "punctuality" does not strongly influence perceptions (organisms), so it does not significantly impact satisfaction. Other factors and variations in the quality of interactions between HR factors are likely dominant. These findings suggest that while good HR interactions are important, they are not the sole key factor in shaping patient satisfaction. Therefore, healthcare management needs to consider other factors that have a stronger impact on satisfaction, such as service efficiency, treatment outcomes, and the completeness of facilities. This research does not support the research (Wartiningsih, 2024) and (Yıldırım et al., 2022), however, it supports the research (Iqbal, 2025).

The Effect of Human Resource Interaction on Loyalty

Based on the research results, it was found that human resource (HR) interaction has a positive and insignificant relationship with patient loyalty. This means that the better the interaction provided by human resources to patients, the more likely it is to increase patient loyalty; however, this effect is not strong enough or statistically significant. In other words, the quality of human resource interactions does contribute to increasing loyalty, but it is not the main determining factor.

Based on the SOR theory, it can be explained as follows: Stimulus: HR interaction in healthcare services. Organism: Patient perception and comfort with the interaction. Response: Patient loyalty to the service. HR interaction as a stimulus does not automatically generate loyalty as a response, as it depends on how the patient (organism) processes and responds to the interaction. In this study, HR interaction was not proven to significantly drive loyalty. Several possible causes for this insignificance include loyalty being more influenced by functional factors, inconsistent interaction quality, patients viewing services as a one-time need, and limited research data or samples.

These results align with research by (Iqbal, 2025) which found no significant relationship between HR interactions and customer loyalty. Customer loyalty is influenced not only by emotional or interpersonal relationships, but also by service performance, trust, and overall satisfaction, which may explain why HR interactions alone are insufficient to foster loyalty (Tjiptono, 2015).

These findings provide an important lesson for healthcare management: efforts to increase patient loyalty cannot rely solely on improving HR interactions. A holistic approach that encompasses improving the technical quality of service, managing overall patient satisfaction, and creating added value in the patient experience will be more effective in building strong and sustainable loyalty. This could also be considered spurious loyalty (first proposed by Jacoby and Chestnut in 1978), which is repeat purchasing behavior that is not accompanied by a positive attitude or emotional attachment to the brand. They emphasized that loyalty cannot be measured solely by repeat purchasing behavior (Jacoby et al., 1978).

The Influence of Service Quality on Satisfaction

The results of the study indicate that service quality has a positive and significant relationship with satisfaction. This means that the better the quality of service provided by a healthcare provider, the higher the level of satisfaction experienced by patients. This relationship is significant, indicating that service quality is a strong and statistically significant predictor of patient satisfaction.

The SOR theory states that: Stimulus: service quality. Organism: patient perception and experience of the service. Response: patient satisfaction. Service quality, as an appropriate and high-quality stimulus, will generate a positive response (patient satisfaction), provided the patient's (organism's) perception of the service is also positive. Therefore, improving service quality is not only a technical matter, but also a matter of how patients process and perceive the experience. This can be due to aspects related to service quality that impact patient satisfaction. Aspects of service quality include tangibles, reliability, responsiveness, assurance, and empathy.

This result is in line with previous research, which also supports these results by stating that service quality has a positive effect on patient satisfaction (Indra et al., 2022); (Amin & Novianti, 2023); (Arfa et al., 2025); and (Honifa et al., 2022). These findings have important implications for healthcare providers, particularly in the context of improving service quality. Improving service quality should be a primary focus for hospital management if patient satisfaction is to be increased. Human resource training in communication, empathy, and excellent service is crucial, as well as facility and operational process updates, and patient satisfaction-based quality management strategies should refer to periodic measurements of service quality perceptions. By providing services that are not only professional but also humane and responsive, healthcare facilities can create a pleasant experience for patients, which will increase their satisfaction.

The Influence of Service Quality on Loyalty

The results of this study indicate that service quality has a negative and insignificant relationship with patient loyalty. A negative relationship means that, in terms of direction, when the perception of quality increases, patient loyalty slightly decreases. This means that the higher the quality of service, the lower the patient loyalty tends to be, or vice versa. In statistics, this is referred to as a negative correlation or regression coefficient. Good service quality does not necessarily automatically increase patient loyalty. Loyalty is most likely formed through a combination of other factors, such as trust, satisfaction, comfort, treatment outcomes, and the reputation of healthcare services.

According to SOR theory, service quality (clean and comfortable hospital facilities and physical environment) as a stimulus is not strong enough to directly influence loyalty (response). This indicates that patient (organism) perceptions of service quality have not yet generated a significant loyalty response. This finding suggests that improving service quality does not necessarily directly result in patient loyalty. Although service quality is important in creating positive perceptions, patients may not yet experience the impact of service quality consistently or strongly enough to maintain their loyalty to the service. Several possible reasons for this insignificance include loyalty being shaped not solely by service quality, the mediating role of satisfaction, and the instability of the service experience.

These results align with research by (Indra et al., 2022), which found no effect between service quality and patient loyalty. Research conducted by (Rampi et al., 2024) also supports these findings by stating that there was no significant relationship between service quality variables and patient loyalty. This finding suggests that improving service quality alone is not enough to build patient loyalty. Hospital or healthcare facility management needs to build sustainable satisfaction, ensure consistent service among staff, increase patient trust and comfort, and create personally tangible added value for patients, such as individualized attention or loyalty programs.

The Influence of Trust on Satisfaction

The research results show that trust has a positive and significant relationship with satisfaction. Based on SOR theory, because trust acts as a stimulus capable of shaping positive perceptions (organisms), it results in a significant response in the form of satisfaction. This means that the higher a patient's trust, the greater their likelihood of satisfaction. This could be due to the existence of aspects related to trust that impact patient satisfaction. These aspects of trust include the product, provider, and policymaker.

This result is in line with previous research (Rampi et al., 2024), which found that there is a relationship between patient trust and patient satisfaction. This statement is supported by research conducted (Amin & Novianti, 2023) and (Indra et al., 2022) these studies indicate that trust can positively and significantly influence patient satisfaction. Building and maintaining trust is a strategic step for healthcare services to improve patient satisfaction. Strong trust in a brand not only increases patient loyalty but also encourages them to recommend services to others, thus contributing to the institution's sustainable positive growth.

The Influence of Trust on Loyalty

This study revealed that trust has a positive and significant relationship with loyalty. The following explanation is based on SOR theory: stimulus: trust in services, medical personnel, and institutional policies. Organism: patient perception, sense of security, and confidence in the services they receive. Response: patient loyalty to the healthcare facility. Because trust as a stimulus forms a positive perception (organism), it produces a significant response in the form of loyalty. Patients who trust the service tend to be loyal and willing to recommend the service.

Results research (Astuti & Santoso, 2020) supports the results of this study by stating that customer trust has an influence on customer loyalty. The results of this study are also in line with research (Van Huy et al., 2025) and (Amin & Novianti, 2023) the results showed that trust has a significant and positive influence on patient loyalty. Building and maintaining trust is a long-term strategy for healthcare providers to maintain patient loyalty. This effort can be realized through improving service quality, consistency of care, open communication, and empathy toward patients.

The Influence of Satisfaction on Loyalty

This study reveals that satisfaction has a positive and significant relationship with loyalty. According to SOR theory, Stimulus: patient satisfaction with the healthcare services received. Organism: patient perceptions, emotions, and assessments of the service experience. Response: patient loyalty to the healthcare institution. Satisfaction as a stimulus forms a positive perception (organism), thus producing a response in the form of significant loyalty. Satisfied patients tend to return, recommend, and be loyal to the service.

Research results by (Amin & Novianti, 2023) stated that patient satisfaction has a positive and significant effect on patient loyalty. Other research supporting this finding is (Astuti & Santoso, 2020), which found that customer satisfaction influences customer loyalty. Also revealing that patient satisfaction has a direct influence on patient loyalty (Arfa et al., 2025); (Sabet et al., 2023). Maintaining and improving patient satisfaction levels is a crucial strategy for healthcare institutions to retain patient loyalty. Steps to creating optimal service can be achieved through improving service quality, enhancing the professionalism of

healthcare workers, and implementing communication approaches. These efforts aim to build a trusting relationship between patients and providers.

The Influence of HR Interaction on Patient Loyalty through Patient Satisfaction

The analysis results show that patient satisfaction has a positive but insignificant mediating effect on the relationship between HR interactions and loyalty. Based on SOR theory, it can be explained as follows: Stimulus: HR interactions (friendliness, empathy, effective communication, and attention to patient needs). Organism: patient satisfaction as an internal response to these interactions. Response: patient loyalty to healthcare services. Although HR interactions tend to increase satisfaction (organism), the mediating effect of satisfaction on loyalty (response) is not yet significant. This means that the stimulus is not yet strong or consistent enough to produce the desired response.

These results suggest that healthcare institutions cannot rely solely on HR interactions to build patient loyalty. Improvements in the quality of HR interactions are needed, making them more consistent, standardized, and oriented toward patients' emotional and psychological needs. Furthermore, other aspects such as facility quality, service speed, administrative systems, and pricing factors must also be considered. Wide variation in patient perceptions of HR interactions, a mismatch between expectations and the reality of service, the presence of other factors that are more dominant in shaping patient satisfaction/loyalty (e.g., medical quality, treatment outcomes), and suboptimal sample size or measurement methods may also contribute to insignificant research results.

The Influence of Service Quality on Patient Loyalty through Patient Satisfaction

The results of this study indicate that patient satisfaction has a positive and significant mediation effect on the relationship between service quality and patient loyalty. The SOR theory explains: Stimulus: the quality of service perceived by patients (speed, friendliness, professionalism); Organism: patient satisfaction as an internal response to the service; and Response: patient loyalty to the healthcare provider. Satisfaction acts as a significant mediator. This means that service quality (stimulus) shapes positive perceptions (organism), which then drives loyalty (response).

In other words, patient-perceived service quality not only directly impacts loyalty but also indirectly through increased patient satisfaction. This indicates that patient satisfaction is an important mediating variable in shaping long-term loyalty to healthcare providers. These results align with previous research which shows that patient satisfaction is able to moderate the influence of service quality on loyalty (Amin & Novianti, 2023).

Practically, these findings imply that hospital and healthcare facility management must prioritize efforts to improve patient satisfaction as a means of maintaining and enhancing loyalty. Prompt, friendly, informative, and professional service will enhance patient perceptions of service quality, ultimately increasing loyalty through the resulting satisfaction.

The Influence of Trust on Patient Loyalty through Patient Satisfaction

The results of this study indicate that trust acts as a mediator with a positive and significant influence on the relationship between service quality and patient loyalty. Based on SOR theory, it can be explained as follows: Stimulus: the quality of service perceived by patients (professional, friendly, responsive). Organism: the patient's trust or confidence in the healthcare provider. Response: the patient's loyalty to the healthcare institution. In this context, service quality as a stimulus forms a positive perception in the form of trust

(organism), which then significantly drives loyalty (response). Trust acts as an emotional bridge between quality perceptions and loyalty decisions.

These findings indicate that good service quality not only directly impacts increased loyalty but also indirectly through building patient trust in healthcare providers. When patients perceive that the service provided is professional, responsive, friendly, and meets expectations, their level of trust in the healthcare institution increases. This trust then becomes a strong emotional foundation for building long-term loyalty. In other words, the higher the patient's perception of service quality, the greater the trust they form, and this ultimately drives higher loyalty.

These results align with previous research which shows that satisfaction can moderate the influence of trust on loyalty (Amin & Novianti, 2023). The Commitment-Trust Theory from (Morgan & Hunt, 1994) also states that trust is an important component in building long-term relationships between customers and service providers. Furthermore, this finding, where trust is proven to significantly mediate the relationship between service quality and customer loyalty in the service sector. In the context of healthcare strengthens that patient trust in medical institutions is a significant determinant of the decision to continue using services. Thus, it can be concluded that strengthening service quality must be accompanied by strategies to build and maintain patient trust as a strategic effort to create sustainable loyalty.

CONCLUSION

Based on the research results, it can be concluded that human resource (HR) interactions have a positive but not significant relationship with patient satisfaction and loyalty. Service quality and trust have been proven to have a positive and significant effect on patient satisfaction. Service quality has been proven to have a negative and not significant relationship with patient loyalty. Furthermore, patient satisfaction acts as a significant mediator in the relationship between service quality and trust on loyalty, but is not significant in mediating the relationship between HR interactions and loyalty. The implications of these findings indicate that healthcare management needs to prioritize improving service quality and building patient trust as a primary strategy to increase satisfaction and loyalty. Although HR interaction has not had a significant direct impact, its development remains important, particularly in the aspects of interpersonal communication and empathy in service. However, these conclusions should be interpreted with caution due to methodological limitations in the sampling design. The unequal distribution of respondents across the three hospitals (100 from PKU Muhammadiyah Gombong, 50 from PKU Muhammadiyah Amanah Sumpiuh, and 50 from PKU Muhammadiyah Aghisna Kroya), combined with the absence of explicit controls for institutional contextual differences such as hospital size, organizational structure, service scope, and patient demographic composition may limit the comparability of hospital specific effects and constrain the generalizability of findings to each organizational context. The pooled structural equation model estimates average effects across all three sites and may mask important institutional heterogeneity or contextual contingencies in how service quality, trust, and satisfaction influence patient loyalty formation. Future research should employ more balanced multi-site sampling designs and incorporate hospital level control variables or conduct multigroup invariance testing to examine whether the structural relationships remain stable across different hospital contexts or reveal institution specific patterns. Such analytical extensions would strengthen the

empirical foundation for understanding contextual boundary conditions and enhance the practical applicability of findings across diverse healthcare organizational settings.

As a recommendation, it is recommended that management conduct regular training for medical and non-medical personnel to improve the quality of interactions with patients, improve and adapt services based on patient needs, and build trust through ethical and transparent service. The use of healthcare technology is also important to increase the convenience and efficiency of services. Finally, periodic evaluation of patient satisfaction and loyalty needs to be carried out as a basis for continuous improvement.

Acknowledgement

This research was funded by a Master's Thesis Research Grant from the Ministry of Higher Education, Science, and Technology of the Republic of Indonesia.

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