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The Influence of Health Worker Communication, Patient Engagement, and Service Coordination on the Quality of Service at Harapan Bunda Banda Aceh Hospital Based on Patient-Centered Care

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Abstract

Background: Hospital service quality remains a challenge in Indonesian private hospitals, and evidence on how Patient-Centered Care (PCC) influences service quality remains limited.
Objective: This study aimed to analyze the influence of health worker communication, patient engagement, and service coordination on the quality of hospital services based on Patient-Centered Care at Harapan Bunda Banda Aceh Hospital.
Methods: This quantitative cross-sectional study involved 287 outpatients and inpatients selected through purposive sampling. Data were collected using a validated Likert-scale questionnaire and analyzed using Pearson's correlation and binary logistic regression.
Results: The results showed that health worker communication had a positive and significant relationship with hospital service quality, with a correlation coefficient of 0.64 and an odds ratio (OR) of 3.74 (p = 0.001). Patient engagement also significantly influenced service quality, with a correlation coefficient of 0.58 and an OR of 2.59 (p = 0.004). Furthermore, service coordination had a positive and significant influence on service quality, with a correlation coefficient of 0.60 and an OR of 2.86 (p = 0.003). Collectively, the three variables accounted for 66% of the variation in hospital service quality (Nagelkerke R^2 = 0.66). The Hosmer–Lemeshow goodness-of-fit test indicated that the model adequately fit the data (χ^2 = 5.874, p = 0.672). Health worker communication was identified as the most dominant variable influencing hospital service quality.
Conclusion: This study concludes that implementing Patient-Centered Care principles through effective health worker communication, active patient engagement, and well-coordinated services can significantly improve the quality of hospital services.

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INTRODUCTION

The quality of healthcare services is one of the primary indicators used to assess the performance of healthcare facilities, particularly hospitals (Amos et al., 2020; Cinaroglu & Baser, 2018). Hospitals, as healthcare institutions, play an essential role in providing high-quality, safe, effective, and patient-oriented healthcare services (Jani & Chaudhary, 2023; Lee, 2019). In the modern healthcare era, improving service quality is determined not only by the clinical competence of healthcare professionals but also by the quality of interactions between healthcare professionals and patients.

The paradigm shift in modern healthcare emphasizes the importance of services that are not only disease-oriented but also patient-oriented, recognizing individuals as having unique values, preferences, and healthcare needs. Within the context of hospital management, healthcare quality serves as an important indicator for determining the success and sustainability of healthcare organizations (Andrieiev et al., 2023; Bhaladhare & Rishipathak, 2025; Simion Ludușanu et al., 2025).

One widely adopted approach to improving healthcare quality is the concept of Patient-Centered Care (PCC). This approach emphasizes that healthcare delivery should be based on patients' needs, preferences, and values. The Patient-Centered Care approach positions patients as active partners in the healthcare process rather than merely recipients of healthcare services (Zhao et al., 2016).

Several key components in implementing Patient-Centered Care include effective communication between healthcare professionals and patients, patient involvement in shared decision-making processes, and effective service coordination among healthcare professionals. These components are essential in ensuring that healthcare services are integrated, responsive, and aligned with patient expectations.

Various international studies have demonstrated that the implementation of Patient-Centered Care is associated with improved healthcare service quality, increased patient satisfaction, reduced medical errors, and enhanced patient safety. The Institute of Medicine identifies Patient-Centered Care as one of the six core dimensions of healthcare quality.

Communication between healthcare professionals and patients is a critical component of healthcare delivery (Hannawa et al., 2022; Mohd Salim et al., 2023). Effective communication not only improves patient satisfaction but also strengthens therapeutic relationships and reduces the likelihood of medical errors (Westbrook et al., 2024). In addition to communication, patient engagement in clinical decision-making processes has been consistently associated with higher levels of satisfaction and improved adherence to treatment regimens (Bombard et al., 2018). Similarly, effective service coordination among multidisciplinary healthcare teams is essential for delivering integrated, continuous, and safe care (Saultz & Lochner, 2005). Despite their recognized importance, empirical studies examining the simultaneous influence of these three Patient-Centered Care dimensions on healthcare service quality in Indonesian private hospitals remain limited, representing a significant research gap that this study seeks to address.

Harapan Bunda Banda Aceh Hospital was selected as the study setting because, as a growing private hospital in Aceh Province, it faces the dual challenge of expanding service capacity while simultaneously improving healthcare quality. Understanding how Patient-Centered Care principles are implemented within this context provides contextually relevant evidence to support policy development and managerial decision-making in similar Indonesian healthcare settings.

Healthcare quality refers to the degree to which healthcare services can meet patient needs in accordance with professional standards, evidence-based practices, and applicable healthcare regulations. In healthcare management studies, service quality is considered a fundamental indicator of the performance and success of healthcare institutions, particularly hospitals. High-quality healthcare services are not only reflected through clinical effectiveness but also through the ability of healthcare organizations to provide safe, efficient, responsive, and patient-oriented care.

According to the classic healthcare quality framework introduced by Avedis Donabedian, healthcare quality consists of three main components: structure, process, and outcome. The structure component refers to the availability and adequacy of healthcare resources, including healthcare professionals, facilities, medical equipment, infrastructure, and organizational systems that support service delivery. The process component relates to the interaction between healthcare professionals and patients during the provision of healthcare services, including diagnosis, treatment, communication, and patient involvement in care decisions. Meanwhile, the outcome component refers to the final results of healthcare interventions, including patient satisfaction, health improvement, clinical outcomes, and overall patient experience.

Along with the development of modern healthcare systems, healthcare quality measurement has expanded beyond clinical outcomes and technical performance to include

patient experiences and perceptions of care. Therefore, a patient-oriented approach has become increasingly important in improving hospital service quality. Hospitals are expected not only to provide effective medical treatment but also to ensure that healthcare services respect patient needs, preferences, values, and expectations.

The concept of Patient-Centered Care (PCC) is a healthcare approach that places patients as the central focus of the entire healthcare service process. This concept was widely developed through the report Crossing the Quality Chasm published by the Institute of Medicine, which emphasized the importance of transforming healthcare systems toward more responsive, safe, and patient-oriented services.

Patient-Centered Care is defined as healthcare delivery that respects and responds to patients' preferences, needs, and values while ensuring that patient values guide all clinical decisions (Kwame & Petrucka, 2021). This approach recognizes patients as active partners in healthcare rather than passive recipients of medical services. The implementation of PCC requires healthcare professionals to establish meaningful relationships with patients through effective communication, shared decision-making, and coordinated healthcare delivery.

The main dimensions of Patient-Centered Care include effective communication between healthcare professionals and patients, patient engagement in healthcare decision-making, integrated service coordination, respect for patient values and preferences, and the provision of clear and transparent health information. The application of PCC has been widely recognized as an important strategy for improving patient satisfaction, enhancing healthcare service quality, strengthening patient safety, and improving overall healthcare outcomes.

Communication between healthcare professionals and patients is a fundamental element in healthcare delivery. Effective communication facilitates accurate information exchange, supports clinical decision-making, and ensures that patients understand their health conditions, treatment options, and care plans. Within the framework of Patient-Centered Care, communication serves as a bridge between healthcare professionals and patients in establishing trust and developing therapeutic relationships.

According to O'Toole (2024), effective healthcare communication involves several important aspects, including clarity in delivering information, empathy toward patients, active listening skills, providing opportunities for patients to ask questions, and transparency in communicating medical information. These elements enable healthcare professionals to understand patient concerns while ensuring that patients receive adequate information regarding their healthcare decisions.

Effective communication can improve patients' understanding of their health conditions and increase adherence to prescribed treatments. Furthermore, good communication contributes to building trust between patients and healthcare professionals, reducing misunderstandings, minimizing potential service errors, and ultimately improving healthcare quality. Therefore, healthcare professional communication represents a critical factor in achieving high-quality, patient-centered hospital services.

Patient engagement refers to the level of patient involvement and participation in the healthcare process, particularly in decisions related to diagnosis, treatment, and healthcare management. Within the concept of Patient-Centered Care, patient engagement emphasizes the active role of patients as partners who contribute to determining appropriate healthcare decisions based on their preferences, values, and individual circumstances.

Patient engagement is closely related to the concept of shared decision-making, in which patients and healthcare professionals collaboratively determine the most suitable treatment options (Krist et al., 2017; Muscat et al., 2020). This approach encourages patients to participate actively by expressing their preferences, understanding available treatment alternatives, and considering the potential benefits and risks of healthcare decisions.

Forms of patient engagement include participation in medical decision-making, expression of personal preferences and values, involvement of family members in the care process when appropriate, and improvement of patients' understanding of their health conditions. Increased patient engagement has been associated with higher patient satisfaction, improved adherence to treatment, better healthcare experiences, and enhanced health outcomes. Therefore, patient engagement is an essential component in improving healthcare quality within hospital

settings.

Service coordination refers to the process of integrating healthcare services involving multiple healthcare professionals, departments, and service units within a healthcare organization. In modern healthcare systems, where patients often require multidisciplinary care, effective coordination is essential to ensure that healthcare services are delivered efficiently, continuously, and safely.

Key components of service coordination include effective communication among healthcare professionals, integration of patient medical information, collaboration among healthcare teams, and continuity of care throughout the healthcare process. Strong coordination enables healthcare professionals from different disciplines to work together effectively and provide comprehensive services based on patient needs.

Effective service coordination can reduce medical errors, prevent duplication of examinations or procedures, improve operational efficiency, and strengthen patient safety. Conversely, poor coordination may result in fragmented services, delayed treatment, communication failures, and decreased patient satisfaction. Therefore, service coordination is a crucial factor in achieving integrated and high-quality healthcare services.

Healthcare professional communication plays a significant role in determining hospital service quality. Effective communication enables patients to understand their health conditions, treatment procedures, and healthcare plans while simultaneously increasing their confidence and trust in healthcare professionals. Within the PCC framework, communication is a key mechanism for ensuring that healthcare services are responsive to patient needs and expectations.

Previous studies have demonstrated that effective communication is associated with increased patient satisfaction and improved perceptions of healthcare quality. In contrast, poor communication may contribute to misunderstandings, service failures, reduced patient trust, and dissatisfaction with healthcare services. Therefore, healthcare professional communication represents one of the essential determinants of hospital service quality based on the Patient-Centered Care approach.

Patient engagement is an important determinant of healthcare quality because it encourages patients to actively participate in decisions regarding their healthcare. Patients who are involved in healthcare decision-making processes generally demonstrate higher levels of satisfaction because they feel respected, valued, and involved in determining their treatment choices.

Research on patient engagement has shown that active patient participation contributes to improved service quality, better healthcare experiences, and enhanced patient outcomes. Furthermore, patient engagement can improve adherence to treatment plans, encourage better self-management of health conditions, and reduce the possibility of medical errors. Thus, strengthening patient engagement is an important strategy for improving healthcare quality in hospitals.

Effective service coordination has a significant influence on hospital service quality because it ensures that healthcare services are delivered in an integrated, continuous, and patient-focused manner. Coordination among healthcare professionals and departments enables the efficient exchange of information and supports comprehensive patient management.

Poorly coordinated healthcare services may result in repeated examinations, incomplete information transfer, delays in treatment, and increased risks of medical errors. Conversely, effective service coordination improves workflow efficiency, strengthens patient safety, supports continuity of care, and enhances patient satisfaction with hospital services. Therefore, service coordination is an essential component of achieving high-quality healthcare delivery.

Several previous studies have demonstrated that the implementation of *Patient-Centered Care* contributes to improved patient satisfaction and enhanced healthcare service quality. Epstein (2011) found that PCC has a positive relationship with the quality of patient–healthcare professional relationships, emphasizing the importance of communication and interpersonal interactions in healthcare delivery. Furthermore, Barry (2012) highlighted that shared decision-making represents a fundamental component of PCC because it encourages active patient participation in determining healthcare decisions.

Based on previous research findings, healthcare professional communication, patient

engagement, and service coordination represent essential components of *Patient-Centered Care* that contribute significantly to improving hospital service quality. These three variables are interconnected and mutually reinforcing in creating healthcare services that are effective, safe, responsive, and oriented toward patient needs. Therefore, examining the influence of these factors provides important insights into strengthening PCC implementation and improving healthcare quality in hospital settings.

This study therefore aims to examine the influence of healthcare professional communication, patient engagement, and service coordination on healthcare service quality based on the Patient-Centered Care framework at Harapan Bunda Banda Aceh Hospital. The findings are expected to provide evidence-based recommendations for hospital managers and healthcare policymakers to strengthen Patient-Centered Care implementation and ultimately improve the quality and safety of patient care.

METHOD

This study used a quantitative approach with an observational analytic research design through a cross-sectional method. This design was employed to analyze the relationship and influence of the variables of healthcare professional communication, patient engagement, and service coordination on hospital service quality based on Patient-Centered Care (PCC).

The cross-sectional approach was selected because data collection was conducted at a single point in time without any follow-up of respondents receiving healthcare services at Harapan Bunda Banda Aceh Hospital. This method aimed to describe the implementation of patient-centered services and examine its relationship with the quality of healthcare services received by patients. This research was conducted at Harapan Bunda Banda Aceh Hospital during the period of March–April 2026. The research activities included several stages, namely research preparation, data collection, data processing, data analysis, and the preparation of the research report.

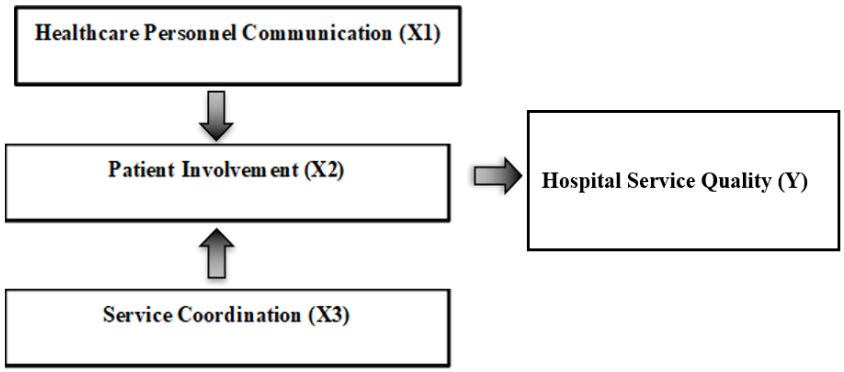

Figure 1. Schematic of the Research Conceptual Framework

The research framework demonstrated that hospital service quality was influenced by three main factors: health worker communication, patient engagement, and service coordination. Health worker communication played an important role in improving patients' understanding of their health conditions and building trust between patients and healthcare professionals. Patient engagement contributed to increased patient satisfaction and supported the quality of healthcare decision-making processes. Meanwhile, service coordination ensured the delivery of integrated and continuous healthcare services. These three variables were examined as factors that simultaneously contributed to improving hospital service quality based on the Patient-Centered Care framework.

The hypotheses tested in this study were as follows: 1) H1: Health worker communication influenced hospital service quality. 2) H2: Patient engagement influenced hospital service quality. 3) H3: Service coordination influenced hospital service quality. 4) H4: Health worker communication, patient engagement, and service coordination simultaneously influenced hospital service quality. The population in this study consisted of all patients who received healthcare services at Harapan Bunda Hospital, including both outpatients and inpatients, during the study period. The sample size was determined using the Lemeshow formula:

$$n = \frac{Z^2P\,(1-P)}{d^2}$$

Thus, a minimum sample size of 287 respondents was obtained.

The sampling technique used was purposive sampling, which is a technique for selecting respondents based on certain criteria determined by the researcher.

The population of this research was the entire object of research or the object being studied. The target population in this study were all outpatients and inpatients at Harapan Bunda Banda Aceh Hospital during the period of March - April 2026 who met the inclusion and exclusion criteria and were willing to participate in the research.

Inclusion Criteria

The inclusion criteria comprised patients aged 18 years or older who received healthcare services at Harapan Bunda Banda Aceh Hospital, either as outpatients or inpatients. Eligible participants were required to be conscious, able to communicate effectively, and willing to participate in the study by providing written informed consent.

Exclusion Criteria

The exclusion criteria included patients who were in an emergency or critical condition during data collection, those with communication disorders or cognitive impairments that prevented them from completing the questionnaire, patients who did not complete the questionnaire in full, and those who refused to participate or withdrew from the study.

Research Variables

Independent Variables (X)

1. X1: Health worker communication
   a) Clarity of information.
   b) Empathy.
   c) Opportunity to ask questions.
   d) Openness of information.
2. X2: Patient engagement
   a) Participation in decision-making.
   b) Understanding of health condition.
   c) Family involvement.
3. X3: Service coordination
   a) Service integration.
   b) Communication among health workers.
   c) Continuity of care.

Dependent Variable (Y)

Hospital service quality was assessed using four key indicators: patient satisfaction, service safety, service accuracy, and responsiveness. These indicators were used to evaluate the overall quality of healthcare services provided by the hospital from the patients' perspective.

Operational Definition of Variables

Table 1

Operational Variables

Variable	Operational Definition	Indicator	Scale
Communication	Interaction between health workers and patients	Clarity, empathy	Likert
Engagement	Patient participation	Decision-making	Likert
Coordination	Service integration	Team collaboration	Likert
Service Quality	Hospital service quality	Satisfaction, safety	Likert

Research Instrument

The instrument used in this study was a questionnaire developed based on the Patient-Centered Care concept.

The measurement scale used a Likert scale of 1-5, namely:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Number of items:

X1 = 10
X2 = 10
X3 = 10
Y = 10

Validity and Reliability Testing

a. Validity Test
   Validity test was conducted using the *Pearson Product Moment*.
   Testing criteria:
   r calculated > r table ➔ item is valid
b. Reliability Test
   Reliability test used *Cronbach's Alpha*.
   Criteria:
   $\alpha \geq 0.70$ ➔ reliable

Data Analysis Technique

a. Univariate Analysis
   Used to describe the characteristics of respondents and the distribution of research variables.
   Data are presented in the form of:
   Frequency distribution tables
   Percentages
b. Bivariate Analysis
   Bivariate analysis was used to determine the relationship between Patient-Centered Care and healthcare quality.
   The statistical test used was Pearson correlation [revised from Chi-Square — see Reviewer Comment #9] with a significance level: $p < 0.05$
c. Multivariate Analysis
   Multivariate analysis was performed using logistic regression to determine the dominant factors of the Patient-Centered Care dimension that influence healthcare quality.
   Regression model:
   $Y = \alpha + b1X1 + b2X2 + b3X3 + e$

Research Ethics

This study adhered to fundamental research ethics principles. Prior to participation, all respondents were informed about the study objectives and procedures and provided informed consent. The confidentiality and anonymity of participants were ensured by protecting their identities and excluding personal information from the research report. Furthermore, the study was conducted in accordance with the principle of beneficence, with the expectation that its findings would contribute to improving hospital service quality.

RESULTS AND DISCUSSION

Results

General Overview of Research Location

This research was conducted at Harapan Bunda Banda Aceh Hospital, which is a private hospital providing healthcare services to the community in Banda Aceh and surrounding areas. This hospital provides various healthcare services including: 1) Outpatient services. 2) Inpatient services. 3) Emergency department. 4) Medical support services. In this study, respondents were outpatients and inpatients who received healthcare services during the study period. The total number of respondents was 287 patients who met the research inclusion and exclusion criteria [.

Respondent Characteristics

The respondent characteristics examined in this study included gender, age, education level, and type of healthcare service received.

Table 2
Distribution of Respondents by Gender

Gender	Frequency	Percentage
Male	104	36.2%
Female	183	63.8%
Total	287	100%

Table 2 shows that female respondents constituted the majority (183 out of 287, or 63.8%), while male respondents accounted for 36.2% (n=104). The higher proportion of female healthcare utilizers is consistent with patterns documented in national health surveys and reflects the tendency of women to seek preventive and curative care more frequently than men.

Table 3
Distribution of Respondents by Age

Age	Frequency	Percentage
< 20 years	19	6.6%
20 – 30 years	57	19.8%
31 – 40 years	86	30.0%
41 – 50 years	80	27.8%
> 50 years	45	15.8%
Total	287	100%

As presented in Table 3, respondents in the 31–40-year age group comprised the largest segment (86 respondents, 30.0%), followed by the 41–50-year group (80 respondents, 27.8%). The 20–30-year group accounted for 19.8% (n=57), those aged >50 years for 15.8% (n=45), and those aged <20 years for 6.6% (n=19).

Thus, the characteristics of respondents by age in this study reflect that the majority of healthcare service users are in the productive to middle-aged group, who have a high need for quality healthcare services.

Table 4
Distribution of Respondents by Education

Education	Frequency	Percentage
Junior High School (SMP)	21	7.3%
Senior High School (SMA)	111	38.7%
Diploma	63	21.9%
Bachelor's Degree (Sarjana)	92	32.1%
Total	287	100%

The majority of respondents had a high school education level, totaling 111 people (38.7%), followed by respondents with a bachelor's degree education level, totaling 92 people (32.1%). Furthermore, respondents with a diploma education numbered 63 people (21.9%),

while respondents with junior high school education numbered 21 people (7.3%).

Analysis of Research Variables

Distribution of Health Worker Communication (X1)

Table 5

Distribution of Health Worker Communication

Category	Frequency	Percentage
Good	176	61.3%
Fair	82	28.6%
Poor	29	10.1%
Total	287	100%

Table 5 reveals that the majority of respondents (176 out of 287, or 61.3%) rated health worker communication as 'Good', while 82 respondents (28.6%) rated it as 'Fair' and 29 respondents (10.1%) as 'Poor'. These results indicate that, while communication quality is perceived positively by most patients, a meaningful proportion still experience suboptimal interaction with care providers.

This shows that health workers have been able to convey information quite clearly and communicatively to patients. However, there is still a portion of respondents who rated communication as not optimal, so there is a need for improvement in aspects of empathy, information openness, and clarity of communication.

Distribution of Patient Engagement (X2)

Table 6

Distribution of Patient Engagement

Category	Frequency	Percentage
Good	169	58.9%
Fair	88	30.7%
Poor	30	10.4%
Total	287	100%

According to Table 6, patient engagement was rated as 'Good' by 169 respondents (58.9%), as 'Fair' by 88 respondents (30.7%), and as 'Poor' by 30 respondents (10.4%). The data suggest that while patient involvement in decision-making is largely satisfactory, targeted interventions are needed to enhance active participation among the remaining 41.1% of respondents.

This shows that most patients have been involved in the medical decision-making process. However, there is still room for improvement, especially in increasing active patient participation and providing more comprehensive information.

Distribution of Service Coordination (X3)

Table 7

Distribution of Service Coordination

Category	Frequency	Percentage
Good	172	59.9%
Fair	85	29.6%
Poor	30	10.5%
Total	287	100%

Table 7 indicates that 172 respondents (59.9%) rated service coordination as 'Good', 85 respondents (29.6%) as 'Fair', and 30 respondents (10.5%) as 'Poor'. The findings suggest that inter-professional coordination is functional in general terms; however, further improvements in information integration and continuity of care are warranted.

This shows that coordination among health workers has been running fairly well, but there is still a need for improvement in terms of service integration and communication among health professions.

Distribution of Hospital Service Quality (Y)

Table 8
Distribution of Service Quality

Category	Frequency	Percentage
Good	181	63.1%
Fair	79	27.5%
Poor	27	9.4%
Total	287	100%

Table 8 demonstrates that hospital service quality was rated as 'Good' by 181 respondents (63.1%), as 'Fair' by 79 respondents (27.5%), and as 'Poor' by 27 respondents (9.4%). Overall, these proportions suggest a generally positive service quality perception, yet they also highlight that approximately one-third of patients identify areas requiring improvement. This shows that hospital service quality is generally good, but there are still several aspects that need improvement to achieve optimal service.

Bivariate Analysis

Bivariate analysis was conducted to determine the relationship between the independent variables (X1, X2, X3) and the dependent variable (Y) using the Pearson correlation test.

Table 9
Relationship between Health Worker Communication (X1) and Service Quality (Y)

Variable	r	Sig (p-value)	Description
X1 ➔ Y	0.64	0.000	Significant

A correlation value of 0.64 with p = 0.000 (<0.05) indicates a positive and strong relationship between health worker communication and service quality. The better the communication (clarity, empathy, opportunity to ask questions), the higher the service quality perceived by patients.

Table 10
Relationship between Patient Engagement (X2) and Service Quality (Y)

Variable	r	Sig (p-value)	Description
X2 ➔ Y	0.58	0.000	Significant

A value of r = 0.58 with p = 0.000 indicates a positive and moderately strong relationship. Patient engagement (decision participation, understanding of therapy) correlates with improved service quality.

Table 11
Relationship between Service Coordination (X3) and Service Quality (Y)

Variable	r	Sig (p-value)	Description
X3 ➔ Y	0.60	0.000	Significant

A value of r = 0.60 with p = 0.000 indicates a positive and strong relationship. Coordination (continuity, information integration, team collaboration) contributes to service quality.

Table 12
Bivariate Summary

Variable	r	Strength
X1 ➔ Y	0.64	Strong
X2 ➔ Y	0.58	Moderately Strong
X3 ➔ Y	0.60	Strong

All independent variables have a positive and significant relationship with service quality. The variable with the strongest relationship is health worker communication (X1).

Multivariate Analysis (Binary Logistic Regression)

The dependent variable was categorized as:

- Y = 1 (Good)
- Y = 0 (Not Good: Fair + Poor)

The model was used to see the simultaneous effect of X1, X2, X3 on the probability of good service quality.

Model Fit Test

Table 13
Hosmer and Lemeshow Test

Chi-square	Sig
5.874	0.672

A p-value of 0.672 (>0.05) indicates the model fits/is feasible to use.

Model Explanatory Power

Table 14
Model Summary

-2 Log Likelihood	Nagelkerke R^2^
194.3	0.66

A Nagelkerke R^2^ value of 0.66 indicates that 66% of the variation in service quality is explained by X1, X2, and X3.

Logistic Regression Results

Table 15
Logistic Regression Coefficients

Variable	B	Wald	Sig	Exp(B) (OR)
X1 (Communication)	1.32	12.10	0.001	3.74
X2 (Engagement)	0.95	8.42	0.004	2.59
X3 (Coordination)	1.05	9.03	0.003	2.86

All variables have a significant effect (p<0.05) on service quality:
Extended Logistic Regression Results with 95% Confidence Intervals:
Variable | B | Wald | Sig | OR (Exp(B)) | 95% CI (Lower–Upper)
X1 – Health Worker Communication | 1.32 | 12.10 | 0.001 | 3.74 | 1.87–7.48
X2 – Patient Engagement | 0.95 | 8.42 | 0.004 | 2.59 | 1.34–5.01
X3 – Service Coordination | 1.05 | 9.03 | 0.003 | 2.86 | 1.45–5.64

X1 (Communication): OR = 3.74 ➔ good communication increases the chance of good service quality by 3.7 times.

X2 (Engagement): OR = 2.59 ➔ patient engagement increases the chance by 2.6 times.

X3 (Coordination): OR = 2.86 ➔ good service coordination increases the chance of good service quality by 2.9 times.

Conclusion of Multivariate Analysis

Based on the results of the logistic regression analysis, it can be concluded that: 1) Health worker communication significantly influences service quality. 2) Patient engagement significantly influences service quality. 3) Service coordination significantly influences service quality. The most dominant variable is health worker communication.

Discussion

The finding that health worker communication exerts the strongest influence on service quality (OR = 3.74) aligns with Communication Accommodation Theory Hoffman (2021) and with empirical evidence demonstrating that provider–patient information exchange is a prerequisite for shared understanding and trust. From a managerial perspective, these results underscore the need for structured communication training programs, such as SBAR (Situation, Background, Assessment, Recommendation) protocols and motivational interviewing workshops, to be embedded in continuing professional development curricula at Harapan Bunda Hospital.

Similarly, the significant effect of patient engagement (OR = 2.59) supports the Chronic Care Model's emphasis on informed, activated patients as drivers of quality outcomes (Bombard et al., 2018). Hospital management should consider implementing patient advisory councils, digital health literacy programs, and standardized shared decision-making tools. For service coordination (OR = 2.86), findings suggest that inter-departmental care pathways and electronic health record integration could substantially reduce fragmentation in service delivery. At the policy level, these results provide empirical support for Indonesia's National Health Insurance (JKN) accreditation standards, which already mandate patient-centered practices, and suggest that targeted monitoring of PCC indicators should be incorporated into hospital performance evaluation frameworks.

CONCLUSION

Based on the results of the study examining the influence of health worker communication, patient engagement, and service coordination on hospital service quality based on the Patient-Centered Care framework at Harapan Bunda Banda Aceh Hospital, it can be concluded that health worker communication, patient engagement, and service coordination significantly influenced hospital service quality. Health worker communication (X1) demonstrated a significant relationship with service quality, as indicated by the Pearson correlation test ($r = 0.64$, $p < 0.05$). Furthermore, the logistic regression analysis showed an odds ratio (OR) value of 3.74 ($p = 0.001$), indicating that patients who experienced effective communication from health workers were 3.74 times more likely to perceive hospital service quality as good compared with patients who experienced less effective communication. This finding confirms that communication is a fundamental element in implementing Patient-Centered Care by strengthening patient understanding, trust, and satisfaction.

Among the three independent variables, health worker communication (X1) was identified as the most dominant factor influencing hospital service quality, as it had the highest odds ratio value (OR = 3.74). This finding highlights that effective communication between healthcare professionals and patients is a critical determinant in the successful implementation of the Patient-Centered Care approach. Clear information delivery, empathy, active listening, and patient involvement in communication processes are essential elements for improving healthcare quality.

This study also has several limitations that should be acknowledged. First, the cross-sectional research design limits the ability to establish causal relationships; therefore, longitudinal studies are recommended to examine the direction and temporal development of the observed relationships. Second, the purposive sampling technique conducted in a single private hospital in Banda Aceh limits the generalizability of the findings to other types of hospitals, such as public or referral hospitals, and to different geographic regions. Third, the use of self-reported Likert-scale questionnaires may introduce potential social desirability bias, as respondents may

provide answers influenced by personal perceptions or expectations.

Future research is recommended to employ multi-site research designs involving diverse hospital settings across Indonesia to improve the generalizability of findings. Further studies should also incorporate objective healthcare quality indicators, such as adverse event rates, readmission rates, and patient-reported outcome measures, to provide a more comprehensive assessment of service quality. In addition, future research may explore potential mediating or moderating variables, including patient health literacy and digital health technology adoption, which may strengthen or influence the relationship between Patient-Centered Care implementation and hospital service quality.

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AUTHOR CONTRIBUTION STATEMENT

Dewi Yuliana Fithri contributed to the conceptualization of the study, research design, data collection, data analysis, interpretation of the findings, and preparation of the original manuscript. Innocentius Bernarto contributed to the study supervision, methodology development, critical review of the manuscript, interpretation of the results, and final approval of the version to be published. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

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