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A PATIENT SATISFACTION MODEL BASED ON NURSES' PERFORMANCE, THERAPEUTIC COMMUNICATION, AND NURSING SERVICE QUALITY IN A PRIMARY HEALTHCARE SETTING

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ABSTRACT

Patient satisfaction is an important indicator of healthcare service quality, particularly in primary healthcare settings. Nurses' performance, therapeutic communication, and nursing service quality may influence patients' perceptions of healthcare services. This study aimed to develop and examine a structural model of patient satisfaction based on nurses' performance, therapeutic communication, and nursing service quality at Magepanda Community Health Center, Sikka Regency, East Nusa Tenggara, Indonesia. A quantitative observational analytical study with a cross-sectional design was conducted from May to July 2026 involving 422 patients recruited using consecutive sampling. Data were collected using structured questionnaires and analyzed using SPSS version 27 and SmartPLS version 4.0. SEM-PLS was performed using 5,000 bootstrap resamples. Nurses' performance ($\beta = 0.287$; $t = 5.812$; $p < 0.001$), therapeutic communication ($\beta = 0.341$; $t = 7.456$; $p < 0.001$), and nursing service quality ($\beta = 0.456$; $t = 10.983$; $p < 0.001$) significantly and positively influenced patient satisfaction. Nursing service quality demonstrated the strongest effect. The model explained 78.1% of the variance in patient satisfaction ($R^2 = 0.781$), with $Q^2 = 0.612$ and SRMR = 0.058. These findings indicate that strengthening nurses' performance, therapeutic communication, and nursing service quality through an integrated approach may improve patient satisfaction in primary healthcare settings.

Keywords: *Patient Satisfaction; Therapeutic Communication; Nursing Service Quality*

INTRODUCTION

Patient satisfaction has become an important indicator of healthcare service quality because it reflects patients' perceptions and experiences of the care they receive. In primary healthcare settings, satisfaction is particularly important because community health centers represent the first point of contact for many patients and play a central role in providing accessible, continuous, and patient-centered care. The World Health Organization emphasizes the importance of monitoring health system performance and patient-centered outcomes as part of efforts to achieve better health and well-being (World Health Organization, 2023). In Indonesia, strengthening the quality of healthcare services is also an important component of national health development, particularly in ensuring that health services are responsive to community needs (Kementerian Kesehatan Republik Indonesia (Kementerian Kesehatan Republik Indonesia, 2023). Previous studies have demonstrated that patient satisfaction in primary healthcare is influenced by patients' experiences with healthcare providers and the quality of services delivered (Kijima *et al.*, 2021; Owusu *et al.*, 2024). Therefore, patient satisfaction should not merely be viewed as an individual perception but as an important outcome for evaluating the effectiveness and responsiveness of primary healthcare services.

The quality of nursing care represents an important component of patients' overall healthcare experience because nurses have frequent and direct interactions with patients throughout the care process. Evidence indicates that patients' satisfaction is closely related to their perceptions of nursing care quality and the way nursing services are delivered (Alshammari, Duff and Guilhermino, 2022; Ataro *et al.*, 2024). In addition to technical aspects of care, interpersonal interactions between nurses and patients may substantially influence how patients evaluate healthcare services. Therapeutic communication enables nurses to establish trust, understand patients' needs, provide information, demonstrate empathy, and involve patients in the care process (Kwame and Petrucka, 2021). Previous research has shown that therapeutic communication is associated with patient satisfaction, including among hospitalized patients (Yasmine *et al.*, 2022; Safitri and Nihayati, 2024). Similarly, the effectiveness of registered nurses in primary care has been associated with favorable patient outcomes, supporting the importance of nurses' roles and performance in primary healthcare delivery (Lukewich *et al.*, 2022). These findings suggest that patient satisfaction may emerge from the interaction between what nurses do, how nurses communicate, and how patients perceive the quality of nursing services.

The relationship between these factors can be understood through a sequential process in which nurses' performance and therapeutic communication contribute to patients' perceptions of service quality, which subsequently influence satisfaction. Effective nursing performance may provide patients with competent, responsive, and reliable care, while effective therapeutic communication can create a supportive interpersonal environment and improve patients' experiences during healthcare encounters (Alshammari, Duff and Guilhermino, 2022; Kwame and Petrucka, 2022; Azarabadi *et al.*, 2024). Meanwhile, nursing service quality encompasses broader dimensions of healthcare delivery, including tangibles, reliability, responsiveness, assurance, and empathy, which collectively shape patients' evaluation of the services they receive (Qiu, Xiao and Li, 2024). Studies conducted in different healthcare settings have consistently demonstrated an association between service quality and patient satisfaction (Dorsey *et al.*, 2022; Owusu *et al.*, 2024). Nevertheless, the relationship between communication and satisfaction may vary according to

healthcare context, patient characteristics, and cultural expectations. For example, although effective patient-centered communication is generally expected to improve patient experiences, evidence from Kenya showed that an intervention aimed at strengthening patient-centered communication did not result in higher patient satisfaction (Sirera *et al.*, 2024). This variation indicates that patient satisfaction is a multidimensional outcome and that examining nurses' performance, therapeutic communication, and nursing service quality simultaneously may provide a more comprehensive understanding of its determinants.

Despite increasing evidence regarding the individual relationships between nursing performance, therapeutic communication, service quality, and patient satisfaction, these factors have more often been examined separately rather than integrated into a single explanatory model, particularly within primary healthcare settings. Existing evidence has highlighted the importance of nursing roles in primary care (Lukewich *et al.*, 2022), therapeutic communication in nurse-patient interactions (Kwame and Petrucka, 2022; Safitri and Nihayati, 2024), and service quality as an important determinant of patient satisfaction (Kijima *et al.*, 2021; Owusu *et al.*, 2024). However, evidence remains limited regarding how these three dimensions simultaneously contribute to patient satisfaction in community health center settings in Indonesia. Therefore, this study aimed to develop and examine a structural model of patient satisfaction based on nurses' performance, therapeutic communication, and nursing service quality among patients receiving healthcare services at Magepanda Community Health Center, Sikka Regency, East Nusa Tenggara, Indonesia. By integrating these variables into a single SEM-PLS model, this study seeks to identify the relative contribution of each factor and provide empirical evidence for improving patient-centered nursing services in primary healthcare.

METHODS

Study Design and Setting

This study employed a quantitative approach with an observational analytical cross-sectional design to develop a patient satisfaction model based on nurses' performance, therapeutic communication, and nursing service quality in the working area of Magepanda Community Health Center, Sikka Regency, East Nusa Tenggara, Indonesia. A cross-sectional design was selected because all study variables were measured at a single point in time, enabling the researchers to examine the relationships and simultaneous effects among the study variables. The study was conducted from May to July 2026. The study population comprised all patients who received healthcare services at Magepanda Community Health Center during the study period.

Participants and Sampling

Participants were recruited using consecutive sampling. All patients who met the eligibility criteria were consecutively recruited until the required sample size was achieved. The minimum sample size was calculated using the Lemeshow formula, assuming a 95% confidence level, a population proportion of 50%, and a 5% margin of error, resulting in a minimum sample of 384 respondents. To anticipate potential dropouts or incomplete questionnaires, an additional 10% was added, resulting in a target sample size of

422 respondents. The inclusion criteria were patients aged ≥18 years, receiving healthcare services at Magepanda Community Health Center, able to communicate effectively, and willing to participate by providing written informed consent. Patients with impaired consciousness, communication difficulties, or incomplete questionnaires were excluded from the study.

Study Variables and Instruments

The independent variables were nurses' performance (X_1), therapeutic communication (X_2), and nursing service quality (X_3), while patient satisfaction (Y) was the dependent variable. Data were collected using structured questionnaires that had undergone validity and reliability testing among 30 respondents outside the study setting. The questionnaire consisted of respondent characteristics, a nurses' performance instrument modified from the Nursing Performance Instrument, a therapeutic communication instrument based on Hildegard Peplau's interpersonal relations concept, a nursing service quality instrument based on the five SERVQUAL dimensions-tangibles, reliability, responsiveness, assurance, and empathy-and a patient satisfaction instrument adapted from the Patient Satisfaction Questionnaire (PSQ). All questionnaire items were assessed using a five-point Likert scale.

Data Analysis

Data were analyzed using IBM SPSS Statistics version 27 for univariate and bivariate analyses and SmartPLS version 4.0 for multivariate analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The measurement (outer) model was evaluated based on convergent validity, discriminant validity, and construct reliability. The structural (inner) model was evaluated using the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and the Standardized Root Mean Square Residual (SRMR). The significance of the structural paths was assessed using a bootstrapping procedure with 5,000 resamples. Statistical significance was set at $p < 0.05$.

Ethical Considerations

The study was conducted following approval from the Health Research Ethics Committee. Ethical principles, including respect for persons, beneficence, non-maleficence, justice, confidentiality, and anonymity, were maintained throughout the research process in accordance with the Declaration of Helsinki.

RESULT AND DISCUSSION

Results

Table 1. Sociodemographic Characteristics of Respondents (n = 422)

Characteristic	n	%
Sex		
Male	171	40.5
Female	251	59.5
Age group (years)		
18-30	108	25.6
31-45	142	33.6
46-60	116	27.5
>60	56	13.3
Education		
Elementary school	48	11.4
Junior high school	84	19.9
Senior high school	188	44.5
Higher education	102	24.2
Occupation		
Farmer	126	29.9
Entrepreneur	88	20.9
Civil servant/Military/Police	38	9.0
Housewife	92	21.8
Other	78	18.5

A total of 422 patients participated in the study. More than half of the respondents were female (59.5%), while male respondents accounted for 40.5%. The largest age group was 31–45 years (33.6%), followed by those aged 46–60 years (27.5%). In terms of educational attainment, most respondents had completed senior high school (44.5%), whereas 24.2% had higher education. Regarding occupation, farmers represented the largest occupational group (29.9%), followed by housewives (21.8%) and entrepreneurs (20.9%). Overall, the respondent profile indicates that the study population predominantly consisted of middle-aged adults with senior high school education and occupations reflecting the local community context.

Table 2. Distribution of Nurses' Performance, Therapeutic Communication, Nursing Service Quality, and Patient Satisfaction (n = 422)

Study variable	Category	n	%
Nurses' performance	Poor	28	6.6
	Fair	110	26.1

Study variable	Category	n	%
	Good	214	50.7
	Very good	70	16.6
Therapeutic communication	Poor	24	5.7
	Fair	102	24.2
	Good	228	54.0
	Very good	68	16.1
Nursing service quality	Poor	18	4.3
	Fair	96	22.7
	Good	236	55.9
	Very good	72	17.1
Patient satisfaction	Dissatisfied	20	4.7
	Less satisfied	72	17.1
	Satisfied	252	59.7
	Very satisfied	78	18.5

The descriptive findings showed that the majority of respondents rated nurses' performance as good (50.7%), followed by very good (16.6%). Similarly, therapeutic communication was predominantly rated as good (54.0%), with 16.1% of respondents reporting very good communication. Nursing service quality received the highest proportion of good ratings (55.9%), while 17.1% rated it as very good. Regarding patient satisfaction, most respondents reported being satisfied (59.7%), while 18.5% were very satisfied. Only 4.7% of respondents reported dissatisfaction. These findings indicate a generally favorable perception of nursing care and service delivery at Magepanda Community Health Center. Importantly, the relatively high proportion of respondents reporting good-to-very-good ratings across the three independent variables corresponds with the predominance of satisfied and very satisfied patients.

Table 3. Bivariate Relationships Between Study Variables and Patient Satisfaction

Independent variable	Correlation coefficient (r)	p-value
Nurses' performance → Patient satisfaction	0.621	<0.001
Therapeutic communication → Patient satisfaction	0.688	<0.001
Nursing service quality → Patient satisfaction	0.753	<0.001

Bivariate analysis demonstrated statistically significant positive relationships between all three independent variables and patient satisfaction ($p < 0.001$). Nurses' performance showed a strong positive correlation with patient satisfaction ($r = 0.621$), indicating that better perceived nursing performance was associated with higher patient satisfaction. Therapeutic communication demonstrated a stronger positive correlation ($r = 0.688$). The strongest bivariate relationship was observed between nursing service quality and patient satisfaction ($r = 0.753$). These findings suggest that although all three factors were associated with patient satisfaction, perceived nursing service quality had the strongest unadjusted relationship.

Table 4. Measurement Model Assessment

Construct	AVE	Composite reliability	Cronbach's α	Decision
Nurses' performance	0.721	0.923	0.910	Valid and reliable
Therapeutic communication	0.736	0.936	0.924	Valid and reliable
Nursing service quality	0.748	0.948	0.939	Valid and reliable
Patient satisfaction	0.764	0.951	0.944	Valid and reliable

The measurement model demonstrated satisfactory construct validity and reliability. All constructs had Average Variance Extracted (AVE) values ranging from 0.721 to 0.764, exceeding the minimum criterion of 0.50. Composite reliability values ranged from 0.923 to 0.951, while Cronbach's alpha values ranged from 0.910 to 0.944, indicating high internal consistency. Thus, all constructs demonstrated adequate convergent validity and reliability for subsequent structural model analysis.

Table 5. Structural Model Results of Patient Satisfaction

Structural path	β	t-statistic	p-value	Interpretation
Nurses' performance → Patient satisfaction	0.287	5.812	<0.001	Positive and significant
Therapeutic communication → Patient satisfaction	0.341	7.456	<0.001	Positive and significant
Nursing service quality → Patient satisfaction	**0.456**	**10.983**	<0.001	**Strongest positive effect**

The SEM-PLS analysis demonstrated that all three predictors had positive and statistically significant effects on patient satisfaction. Nurses' performance had a significant positive effect on patient satisfaction ($\beta = 0.287$; $t = 5.812$; $p < 0.001$). Therapeutic communication also demonstrated a significant positive effect ($\beta = 0.341$; $t = 7.456$; $p < 0.001$). The strongest effect was observed for nursing service quality ($\beta = 0.456$; $t = 10.983$; $p < 0.001$). Therefore, among the three predictors, nursing service quality was the most influential determinant of patient satisfaction in the structural model.

The structural model explained 78.1% of the variance in patient satisfaction ($R^2 = 0.781$), indicating that nurses' performance, therapeutic communication, and nursing service quality collectively accounted for a substantial proportion of patient satisfaction. The adjusted R^2 of 0.776 indicates that the explanatory power remained high after adjustment. Furthermore, the Q^2 value of 0.612 indicates predictive relevance of the model. The SRMR value of 0.058 indicates an acceptable degree of model fit. Thus, the proposed model demonstrated adequate explanatory and predictive performance in explaining patient satisfaction.

Table 6. Predictive and Model Fit Assessment

Indicator	Value	Interpretation
R^2-Patient satisfaction	0.781	Substantial explanatory power
Adjusted R^2	0.776	High explanatory power after adjustment

Indicator	Value	Interpretation
Q^2 Predictive relevance	0.612	Predictive relevance established
SRMR	0.058	Acceptable model fit

Discussion

The findings showed that nurses' performance, therapeutic communication, and nursing service quality were significantly associated with patient satisfaction at Magepanda Community Health Center. Nursing service quality demonstrated the strongest correlation with patient satisfaction (r = 0.753), followed by therapeutic communication (r = 0.688) and nurses' performance (r = 0.621). The descriptive findings also showed generally favorable perceptions, with most respondents rating the three nursing-related variables as good and 78.2% reporting satisfaction or high satisfaction. These findings indicate that patient satisfaction is closely related to the quality of healthcare experiences. This is consistent with previous studies showing that patient satisfaction in primary healthcare is influenced by service quality and patients' experiences of care (Kijima *et al.*, 2021; Owusu *et al.*, 2024). Therefore, maintaining positive patient experiences is essential for improving the quality and responsiveness of primary healthcare services.

Nurses' performance had a positive and significant effect on patient satisfaction (β = 0.287, t = 5.812, p < 0.001), indicating that better nursing performance was associated with higher patient satisfaction. Professional performance involves providing appropriate care, responding to patient needs, communicating effectively, and delivering services consistently. This finding supports evidence that registered nurses play an important role in achieving favorable patient outcomes in primary healthcare (Lukewich *et al.*, 2022). Patient satisfaction has also been linked to perceptions of nursing care quality and nurses' interactions with patients (Alshammari, Duff and Guilhermino, 2022; Ataro *et al.*, 2024). Similarly, therapeutic communication showed a significant positive effect on patient satisfaction (β = 0.341, t = 7.456, p < 0.001). Effective communication enables nurses to understand patients' concerns, provide clear information, demonstrate empathy, and establish trust, thereby improving patients' experiences during healthcare encounters (Kwame and Petrucka, 2021; Azarabadi *et al.*, 2024). Evidence from Indonesia also supports the positive relationship between therapeutic communication and patient satisfaction (Yasmine *et al.*, 2022; Safitri and Nihayati, 2024), although this relationship may vary across settings and patient populations (Sirera *et al.*, 2024).

Nursing service quality demonstrated the strongest positive effect on patient satisfaction (β = 0.456, t = 10.983, p < 0.001), consistent with its strongest bivariate correlation (r = 0.753). This finding suggests that patients' overall evaluation of nursing services may be more influential than individual aspects of performance or communication when the three predictors are considered simultaneously. Nursing service quality includes both interpersonal and technical dimensions, reflected in reliability, responsiveness, assurance, empathy, and supporting service facilities (Qiu, Xiao and Li, 2024). The result is consistent with previous studies demonstrating that perceived service quality is strongly associated with patient satisfaction (Dorsey *et al.*, 2022; Chrisnandy, Hidayat and Ruliyandari, 2024; Owusu *et al.*, 2024). The stronger effect of

nursing service quality may reflect the cumulative nature of patients' experiences, in which professional performance and communication are incorporated into their broader assessment of nursing care. Consequently, improving reliability, responsiveness, assurance, empathy, and service facilities may contribute substantially to higher patient satisfaction.

The structural model explained 78.1% of the variance in patient satisfaction (R^2 = 0.781), with an adjusted R^2 of 0.776, Q^2 of 0.612, and SRMR of 0.058, indicating strong explanatory and predictive performance with acceptable model fit. These findings support an integrated approach in which nurses' performance, therapeutic communication, and nursing service quality are considered together in understanding patient satisfaction. Given that nursing service quality showed the strongest effect and encompasses both interpersonal and technical aspects of care, it may also represent an important pathway linking nurses' performance and therapeutic communication with patient satisfaction. Previous research indicates that communication and nursing care quality jointly shape patients' experiences and satisfaction (Kwame and Petrucka, 2021; Alshammari, Duff and Guilhermino, 2022; Ataro *et al.*, 2024). Therefore, future research should examine the mediating effect of nursing service quality to determine whether nurses' performance and therapeutic communication influence patient satisfaction through nursing service quality. Such analysis could provide a more comprehensive explanation of the mechanisms underlying patient satisfaction. However, because this study used a cross-sectional design, the findings should be interpreted as associations rather than definitive causal relationships.

CONCLUSION

Nurses' performance, therapeutic communication, and nursing service quality significantly and positively influenced patient satisfaction at Magepanda Community Health Center. Nursing service quality demonstrated the strongest effect (β = 0.456), while the overall model explained 78.1% of the variance in patient satisfaction. These findings highlight the importance of an integrated approach to strengthening nursing performance, therapeutic communication, and service quality to improve patient satisfaction in primary healthcare.

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