

Evaluation of Patient's Satisfaction with Nursing Care Among Individuals Admitted for Percutaneous Coronary Intervention

Mah Gul, Jahanzab Ali, Rukhsana Kosar*, Ishrat Naseem Bano, Imtiaz Sabohi, Saima Bano

Department of Adult Cardiology, Armed Forces Institute of Cardiology/National Institute of Heart Diseases/National University of Medical Sciences (NUMS) Rawalpindi, Pakistan, *Department of Adult Cardiac Surgery, Armed Forces Institute of Cardiology/National Institute of Heart Diseases/National University of Medical Sciences (NUMS) Rawalpindi, Pakistan,

ABSTRACT

Objective: To evaluate patient's satisfaction levels with the quality of nursing care among individuals admitted for percutaneous coronary intervention (PCI) during their stay in cardiac hospital.

Study Design: Analytical, Cross-sectional study.

Place and Duration of Study: Armed Forces Institute of Cardiology/National Institute of Heart Diseases, Rawalpindi Pakistan, from Mar-Aug 2024.

Methodology: The study sample was composed of 390 patients enrolled by consecutive sampling technique. Patients of either gender with age >25 years, admitted for elective PCI were included in the study. The 19-item, 5-point Likert scale coded from 1=Poor to 5=Excellent, the Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ), was used. High score indicated high patients' satisfaction.

Result: Among 390 study participants, majorities were males 303(77.7%) and age range of 55-64 years was dominant 141(36.3%). The composite median nursing care score of 4.29(4.05-4.63) indicated generally high patient satisfaction with nursing care, specifically the technical aspects and teamwork [4.50(4.50-5.00)]. However, the area of improvement was communication and information sharing [4.16(4.00-4.67)]. In addition, there was statistically significant relationship between patient satisfaction regarding nursing care and quality of care ($r=0.579$, $p<0.05$).

Conclusion: PCI patients demonstrated significantly high satisfaction with the nursing care provided during their hospital stay.

Keywords: Nursing care, Patient satisfaction, Quality of care.

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INTRODUCTION

In 2018, the Lancet Global Health Commission highlighted the critical importance of quality health-care to achieve the third Sustainable Development Goal (SDG).¹ A similar report by the WHO, OECD, and World Bank emphasized improving healthcare quality to meet universal health coverage.² The most important competitive advantage of health service providers is to provide quality health care services that reflects the patient satisfaction as an essential measure, placing patients at the center of care processes.^{3,4} Patient satisfaction is a measure of quality of care received by hospital staff. Patients should be allowed to define their own priorities and evaluate their care accordingly, rather than having those criteria selected by professionals.⁵ Healthcare providers increasingly focus on patient satisfaction to

ensure comprehensive care and sustained improvements in service delivery.⁶

Patient satisfaction is especially significant in acute medical interventions such as Percutaneous Coronary Intervention (PCI), where effective nursing care plays a pivotal role in patient recovery and overall healthcare experience.^{7,8} PCI is a minimally invasive procedure used to treat coronary artery disease by restoring blood flow through catheter-based techniques, such as stent placement. Given the procedure's complexity and associated risks, comprehensive nursing care is essential in ensuring optimal patient outcomes, reducing complications, and improving recovery. Nursing care in PCI encompasses pre-procedural preparation, intra-procedural monitoring, and post-procedural management, including hemodynamic stabilization, pain control, and patient education on lifestyle modifications. Effective nursing interventions significantly impact patient satisfaction, which in turn

Correspondence: Mah Gul, Department of Adult Cardiology, AFIC/NIHD, Rawalpindi, Pakistan

influences adherence to post-PCI care and overall prognosis. Despite its importance, there is limited local research evaluating patient satisfaction with nursing care in PCI settings. Exploring the patient perspectives can identify strengths and areas needing improvement, ultimately enhancing care delivery and health outcomes. This study aims to assess the satisfaction levels of PCI patients regarding nursing care, addressing a critical gap in research and informing targeted improvements in healthcare practices.

METHODOLOGY

This Analytical Cross-sectional study was conducted at the Armed Forces Institute of Cardiology/National Institute of Heart Diseases from March-August 2024 after approval from Institutional Ethical Review Board (IERB) (Letter#9/2/R&D/2024/310. Dated: 5th April, 2024)

Sample size of 382 was calculated by using WHO sample size calculator. 46% population proportion of satisfied patients,⁹ was used, confidence level was kept at 95% and margin of error at 5%. However data was gathered from 390 patients.

Inclusion Criteria: Cardiac patients with coronary artery disease aged >25 years, regardless of gender, underwent stenting, had at least one night stay at hospital before discharge, and patients who were able to provide informed consent, comprehend survey questions, and effectively communicate their experiences were included in this study.

Exclusion Criteria: Patients, who did not receive nursing care and were hemodynamically unstable, were excluded from study.

In this study, Jean Watson's Theory of Human Caring,¹⁰ was applied as the theoretical framework to explore the relationship between the caring behaviors of cardiac nurses and patient satisfaction with nursing services. The carative factors guided the assessment of both the technical and interpersonal aspects of nursing care, emphasizing empathy, communication, and the involvement of family in the care process. By integrating Watson's principles, the study aimed to holistically measure how human (nursing) caring influences patient satisfaction.

Patients' satisfaction with nursing care was measured by using a validated Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) developed by Laschinger *et al.*, in 2005.¹¹ PSNCQQ is internally consistent 19-item scale

(Cronbach's $\alpha=0.96$) coded from 1=Poor, 2=Fair, 3=Good, 4=Very Good, 5=Excellent. Higher the mean value indicates greater satisfaction of patients with nursing care. PSNCQQ was translated from English to Urdu language to establish conceptual equivalence of the items. To ensure language equivalence among Urdu and English version of scale back translation was also established. Linguists who were competent in both languages translated the scale in Urdu. Five bilingual experts consisting of a doctor, two nursing faculty members, a nurse manager and a linguists. Expressions used in the scale were analyzed individually as well as in combination and optimal level of selection were selected by forming a pool of 19 items. Back translation from Urdu to English was also done by two trained linguists (English Teachers) having knowledge and experience in both languages. The back translation and original version of the PSNCQQ were compared and it was highly similar in meanings and organized on the basis of characteristics of country. Then, an expert team reviewed and determined the scope of validity of scale. Eight experts (nursing academia and specialized in cardiac, medical and surgical nursing and in administration nursing) provided adequate opinion for meanings and contents sufficiency. At first, the pilot study was carried out to identify an ambiguity in questions of the scales. The data for pilot study was excluded from the final data analysis. However, coefficient for correlation between average PSNCQQ item scores ranged from 0.81 to 0.88 which showed an appropriate level of reliability (Cronbach alpha: $\alpha=0.83$). The scale has demographic information and general insight about nursing care in cardiac settings. Another section included four additional questions aimed at measuring satisfaction with the overall quality of care and treatment during hospitalization. These questions assessed the quality of nursing care, the patient's view of their overall health, and the likelihood of recommending the hospital to relatives and friends.

Written informed consent was taken from patients prior to data collection at the time of patients' discharge from hospital. They were provided PSNCQQ Performa with an explanation about the purpose of study; patients were free to fill the questionnaire at their own ease. Face-to-face questioning was done for the patients, who were unable to read and write on their own.

Data confidentiality was maintained to ensure the privacy of patients. Data was analyzed using

Statistical Package for Social Sciences (SPSS) version 24.00. Continuous data was presented as mean and standard deviation and categorical data as frequency and percentage. Data normality was assessed by Kolmogorov Simirnov test. Mann Whitney U test/Kruskal-Wallis Test was applied to compare the median scores of PSNCQQ in terms of demographics and length of hospital stay. Spearman correlation analysis was done to find the relationship of patient satisfaction due to nursing care and overall quality of care. p -value of ≤ 0.05 was taken as statistically significant.

RESULTS

The present study included three hundred and ninety patients with mean age predominantly 55-64 years representing 141(36.3%) participants. The majority participants were male 303(77.7%). A significant portion of sample was married 343(87.9%) and regarding educational background, 106(27.2%) participant reported their education level as matriculation. In terms of hospital stay, 346(88.7%) patients had a length of stay ≤ 4 days after PCI. (Table-1)

Table I: Patients' Demographic Characteristics and Length of Hospital stay (n=390)

Variables	Frequency (%)
Gender	Male 303(77.7%)
	Female 87(22.3%)
Marital Status	Single 28(7.2%)
	Married 343(87.9%)
	Widow/Widower 19(4.9%)
Age (years)	25-34 27(6.9%)
	35-44 31(7.9%)
	45-54 83(21.2%)
	55-64 141(36.3%)
	65-74 73(18.8%)
	≥ 75 35(8.9%)
Education	Nil 26(7.1%)
	Primary 32(8.8%)
	Middle 26(6.7%)
	Matric 106(27.2%)
	Higher Secondary (12 year) 82(21.0%)
	Graduate (14 year) 83(21.3%)
	BS/Masters 35(9.0%)
Length of Hospital Stay	≤ 4 days 346(88.7%)
	> 4 days 44(11.3%)

Median score of 4.50(4.00-5.00) indicates that patients generally found the technical aspects and coordination & teamwork of nursing care to be of excellent quality, while patients were less satisfied with the communication and sharing aspect [4.16(4.00-4.67)]. The overall nursing care score had median of

4.29(4.05-4.63), which falls between "excellent" and "very good" category. (Table-II)

Table II: Patients' Satisfaction with Nursing Care Quality (n=390)

Nursing Care Domains	Median (IQR)
Overall Nursing Care Score	4.29(4.05-4.63)
Communication and Information Sharing	4.16(4.00-4.67)
Responsiveness and Attentiveness	4.25(4.00-4.75)
Empathy and Respect	4.50(4.00-4.50)
Coordination and Teamwork	4.50(4.00-5.00)
Efficiency and Technical Skills	4.50(4.00-5.00)
Provided Environment	4.00(4.00-5.00)

Females reported slightly higher satisfaction as compared to males (4.37 vs 4.26). The highest satisfaction is observed in the 25-34 age group [median(IQR)=4.37(4.16-4.63)] and least satisfied age group was 45-54 year [median(IQR)=4.26(4.05-4.47)]. Single patients reported slightly higher satisfaction [median(IQR)=4.34(4.11-4.55)] compared to others (married/widow/widower). Patients with middle education reported the highest satisfaction [median(IQR)=4.39(4.21-4.63)], while those with a BS/Masters reported the lowest satisfaction [median(IQR)=4.42(3.95-4.58)]. Patients with hospital stay of ≤ 4 days had slightly lower satisfaction compared to those with stays of > 4 days (4.26 vs 4.37). As, there are slight variations in patient satisfaction across different socio-demographic groups, none of the differences were statistically significant ($p > 0.05$). (Table-III)

Table III: Patient Satisfaction with Nursing care Quality According to Socio-demographics and Length of Hospital Stay (n=390)

Variables	Median (IQR)	p-value
Gender	Male 4.26(4.05-4.58)	0.12
	Female 4.37(4.16-4.68)	
Age (years)	25-34 4.37(4.16-4.68)	0.36
	35-44 4.32(4.16-4.63)	
	45-54 4.26(4.05-4.47)	
	55-64 4.26(4.00-4.63)	
	65-74 4.26(4.16-4.68)	
	≥ 75 4.26(4.00-4.74)	
Marital Status	Single 4.34(4.11-4.55)	0.84
	Married 4.32(4.05-4.63)	
	Widow/Widower 4.21(4.16-4.47)	
Education	Nil 4.26(4.05-4.58)	0.42
	Primary 4.32(4.16-4.66)	
	Middle 4.39(4.21-4.63)	
	Matric 4.37(4.05-4.63)	
	Higher Secondary (12-year) 4.24(4.00-4.58)	
	Graduate (14-year) 4.37(4.11-4.68)	
	BS/Masters 4.42(3.95-4.58)	
Length of Hospital Stay	≤ 4 days 4.26(4.05-4.63)	0.79
	> 4 days 4.37(4.16-4.55)	

Table-IV and Figure-1 revealed a clear and statistically significant ($p<0.001$) relationship between patients' overall insight of quality care and their satisfaction with nursing care. This indicates that patients, who get the overall care and services more positively, are significantly more satisfied with the nursing care they received.

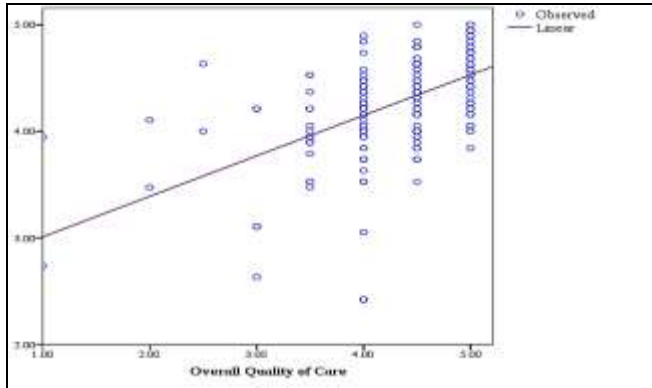


Figure-1: Correlation between Mean of Nursing Care provided and Overall Quality of Care

Table-IV: Correlation of Level of Nursing Care with Overall Quality of Care (n=390)

Variables	Correlation Co-efficient (r)	p-value
Overall quality of care	0.579	<0.001

DISCUSSION

The study indicated that the majority of PCI patients expressed high satisfaction with the nursing care they received during their hospital stay. Patients reported particular satisfaction with the technical aspects of nursing care, reflecting confidence in the professional skills of the nursing staff. However, the area where improvements were needed was the communication and information sharing skills in the care process. Overall, the findings highlight a generally positive patient experience with nursing care during PCI, with some room for enhancing communication and information sharing skills.

The study indicated two times satisfied females than of males (77.7%) but not significant results, which was similar to a study conducted in Ethiopia at Bugarija General Hospital.¹² A Pakistani study from Karachi reported consistent findings, where more females showed moderate satisfaction with nursing care with insignificant association ($p>0.05$).¹³ Gender differences in healthcare expectations varies, as women often prioritize communication and emotional

support. Similar to this, married patients (87.9%) tend to report higher satisfaction with nursing care compared to their single counterparts. The study attributes this to the emotional and social support provided by spouses, which can enhance the patient's overall experience and evaluation of care correlating with the results of a study in Northeast China that reported married individuals had the highest satisfaction scores.¹⁴ The research highlighted that marital status is a significant contributor of patient satisfaction, with married individuals benefiting from the additional emotional support systems that can positively influence their hospital experience.

In our study, patients with lower educational backgrounds, such as those with only a middle education reported high satisfaction [4.39(4.21-4.63); $p>0.05$] due to potentially low expectations or less awareness of healthcare standards. This is in line to the study findings of Alharbi *et al.*, who concluded that participants with a high school education or below were more satisfied with the nursing practice (4.49 ± 0.73 ; $p=0.04$).¹⁵ Age factor revealed highest satisfaction rate in the young aged 25-34 year [4.37(4.16-4.68)] while the least satisfied group was 45-54 year (4.23 ± 0.51) but no significant result ($p>0.05$). This aligns with a study from China where younger patients were less satisfied (4.73 ± 0.38 , OR = 1.456, $p<0.001$) as compared to older patients aged over 50.¹⁶ The differences in expectations and healthcare systems between the two settings could account for the disparity in the results.

Patients with hospital stay of ≤ 4 days in our study had slightly lower satisfaction compared to those with stays of >4 days (4.26 vs 4.37; $p=0.79$). Patients with longer hospital stays may experience greater satisfaction due to more thorough care, longer recovery periods, and better rapport with staff. This trend aligns with the comparable study, where 80.24% patients had higher satisfaction who remain admitted for more than 48 hours, likely due to similar reasons ($p=0.28$).¹⁷ Furthermore, high satisfaction was observed with technical aspects like medication administration which highlights the importance of technical proficiency in nursing care as a major determinant of patient satisfaction as also demonstrated by Christi and colleagues.¹⁸

Research conducted at the National Institute of Cardiovascular Diseases, Karachi,¹⁹ revealed the highest satisfaction level (90.7%) in the domain of nurse-patient communication, while the discharge

process received the lowest satisfaction score (81.8%). The overall patient satisfaction across all domains was 93.3%. Similarly, in our study, the majority of patients strongly agreed with the quality of nursing care, aligning with the excellent ratings of nursing care quality in our participants, reflected by a median PNSCQQ score of 4.29, indicating high satisfaction levels.

Another study conducted recently at a tertiary care hospital in Karachi, Pakistan, explored patient satisfaction with nursing care, where most participants reported moderate to high levels of satisfaction with nursing care, while only a small percentage had low satisfaction.¹³ Agostinho and coworkers, showed favorable rates of overall patient satisfaction, particularly in areas like nurses' skills in managing patients' health conditions, their timely problem-solving abilities, responsiveness to patient needs, and technical competence.²⁰ These aspects contributed to the overall positive view of nursing care.

Proceeding to the study result that revealed a clear and statistically significant association ($r=0.579$, $p<0.001$) between patients' overall insight of quality of care and their satisfaction with nursing care, higher ratings of overall care was consistently linked to better satisfaction score. This suggests that patients who view the overall care and services more positively are significantly more satisfied with the nursing care they received. These findings align with a recent study,²¹ that emphasized the critical role of overall quality of care in shaping patient satisfaction with nursing services, noting that patients' needs and care expectations significantly influenced their satisfaction. The mean satisfaction scores ranged from 2.31 to 3.9, with an average of 3.26 ± 0.64 that matched gently with current study's PNSCQQ median score 4.29, indicating that nursing care was generally well-received.

A recently conducted mixed-method study in District Layyah, Pakistan,²² highlighted key issues such as inadequate communication and information sharing by nurses, environmental factors like overcrowding and lack of cleanliness, and organizational challenges like insufficient bed availability as major contributors to patient dissatisfaction. In contrast, our study found that lower satisfaction was primarily associated with the lack of family involvement in patient care. This disparity suggests that while environmental and organizational factors play a significant role in patient dissatisfaction in some settings, in more specialized care

environments, such as ours, patient-centered issues like family participation can be equally impactful on satisfaction levels.

Past literature findings states that patient satisfaction is closely linked to high-quality nursing care, particularly among cardiac patients. Effective technical nursing care is consistently associated with positive outcomes, especially in critical cardiac settings. While many studies have examined patient satisfaction in cardiac care, our research specifically focuses on patients admitted for PCI, offering a more specialized perspective. The findings highlight the need for interventions that balance technical nursing proficiency with holistic approaches, such as increased family involvement, to improve satisfaction in cardiac nursing, especially for those undergoing specialized procedures like PCI.

LIMITATIONS OF STUDY

The study findings may not apply to the patients undergoing other cardiac procedures, such as adult and pediatric cardiac surgeries or pediatric interventional cardiology available at the same institution. This constraint may affect the generalizability of the results to different cardiac care contexts. Future research could explore a wider range of cardiac procedures and settings for a more comprehensive understanding of patient satisfaction.

CONCLUSION

In conclusion, findings of this study indicate that cardiac patients admitted for PCI were highly satisfied with technical aspects of nursing care services like giving medicine and handling IVs. However a notable gap was identified in term of communication and information sharing in nursing care process. This suggest that while the nursing staff excelled in delivering competent and efficient clinical care, there is an area for improvement to focus on communication, which is an important aspect of holistic patient care.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

MG & JA: Data acquisition, data analysis, critical review, approval of the final version to be published.

RK & INB: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

IS & SB: Study concept, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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