

## ASSOCIATION BETWEEN NURSING CARE QUALITY AND PATIENT-REPORTED OUTCOMES AMONG HOSPITALIZED PATIENTS IN PUBLIC SECTOR HOSPITALS OF PAKISTAN

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### Abstract

**Background:** Nursing care quality is a critical determinant of patient outcomes, particularly in hospital settings where nurses play a central role in direct patient care. Patient-reported outcomes (PROs) are increasingly recognized as essential indicators of healthcare quality, reflecting patients' perceptions of their health status and care experiences. However, limited evidence exists regarding this relationship in public sector hospitals of Pakistan.

**Objective:** To assess the association between nursing care quality and patient-reported outcomes among hospitalized patients in public sector hospitals of Pakistan.

**Methods:** A quantitative cross-sectional study was conducted among 210 registered nurses working in inpatient departments of selected public hospitals. Data were collected using a structured, self-administered questionnaire comprising demographic variables, a nursing care quality scale, and a patient-reported outcomes scale. Reliability of the instrument was confirmed with Cronbach's alpha values above 0.80. Data were analyzed using SPSS version 25, applying descriptive statistics, Pearson correlation, and chi-square tests, with a significance level of  $p \leq 0.05$ .

**Results:** The majority of nurses (65.7%) reported high levels of nursing care quality, while 61% indicated good patient-reported outcomes. A strong positive correlation was found between nursing care quality and patient-reported outcomes ( $r = 0.68$ ,  $p < 0.001$ ). Significant associations were observed between nursing care quality and demographic variables such as age, education, and experience ( $p < 0.05$ ), while gender showed no significant association.

**Conclusion:** Nursing care quality significantly influences patient-reported outcomes. Enhancing nursing education, training, and workplace support can improve care quality and patient outcomes in public sector hospitals of Pakistan.

### Introduction:

Quality healthcare delivery is a key goal of modern health systems, with nursing care being central to this aim. Nurses, as the largest segment of the healthcare workforce,

significantly impact patient recovery and satisfaction [1]. Recent focus has shifted to evaluating healthcare quality through patient-centered indicators, particularly patient-reported outcomes (PROs), which reflect

patients' perceptions of their health and care experiences. PROs are vital in assessing healthcare effectiveness as they provide insight into patients' views on symptoms, functional status, and satisfaction, aligning with global priorities for quality, safety, and accountability [2].

Nursing care quality encompasses technical skills, communication, empathy, and responsiveness, crucial for meeting patients' needs. High-quality care correlates with better patient outcomes, including fewer complications and higher satisfaction [3]. In Pakistan, public hospitals struggle with resource constraints, high patient loads, and staffing shortages, hindering care quality [4]. Structural issues like inadequate staffing and training negatively affect nursing performance and patient experiences. Evaluating nursing care quality's direct impact on patient outcomes is essential for enhancing healthcare delivery in local contexts [5].

Patient satisfaction, a key proxy for patient-reported outcomes, has been extensively studied regarding nursing care quality [6]. A cross-sectional study in Pakistan found that most patients rated nursing care as "very good" or "excellent," with satisfaction primarily influenced by nurses' competence, responsiveness, and communication [7]. Research in Lahore public hospitals corroborated these findings, revealing a significant link between nursing care quality and patient satisfaction levels. Overall, effective nursing care is crucial for enhancing healthcare quality and patient-centered outcomes [8].

In cardiac care, nursing plays a crucial role due to patients' critical conditions. A study in Pakistan revealed high patient satisfaction with nursing regarding technical skills and teamwork, though communication needs improvement. Patient-centered care emphasizes involving patients in decisions and customizing care to their preferences. Quality nursing care is vital, as nurses execute care plans and facilitate communication between patients and healthcare providers. Research indicates that patient-centered approaches improve patient satisfaction and trust in healthcare systems [9].

In Pakistan, limited research connects nursing care quality to patient-reported outcomes (PROs), especially in public sector hospitals,

despite a growing emphasis on patient-centered care. Most studies prioritize patient satisfaction without addressing broader PRO dimensions like quality of life and functional outcomes. Public hospitals cater primarily to low- and middle-income populations, facing challenges such as overcrowding, resource limitations, and high patient-to-nurse ratios that compromise nursing care quality. Factors influencing nursing care include education, experience, workload, and organizational support, where educated nurses tend to provide better, evidence-based care [10]. Conversely, high workloads can diminish care quality. Communication emerges as a vital element, significantly impacting PROs; effective communication enhances understanding and satisfaction, while poor communication leads to misunderstandings and dissatisfaction, further affecting patient outcomes [11].

Healthcare policymakers must acknowledge nurses' essential role in quality healthcare outcomes. Strengthening the nursing workforce and enhancing working conditions can improve care quality and patient experiences. Nursing care quality significantly influences patient-reported outcomes, especially in hospitals [12]. Existing studies in Pakistan suggest a positive relationship, yet more comprehensive research is essential, particularly in public sector hospitals. This study seeks to examine this relationship to enhance nursing practice, improve patient care, and guide healthcare policies.

### Methodology

A quantitative, cross-sectional analytical design was employed to examine the association between nursing care quality and patient-reported outcomes (PROs). The study was conducted in public sector tertiary care hospitals in Multan, Pakistan, including medical, surgical, cardiac, and orthopedic units. These settings were selected due to high patient turnover, diverse case mix, and the central role of nurses in direct patient care. The target population consisted of registered nurses working in inpatient departments of selected public hospitals. Nurses directly involved in patient care were included because they are primary providers influencing patient outcomes.

A total of 210 nurses were recruited using a non-probability convenience sampling technique. This sample size is considered adequate for cross-sectional studies examining associations and is consistent with similar nursing research. The inclusion criteria for the study was Registered nurses working in inpatient units, minimum 6 months of clinical experience and willingness to participate. Nursing students and interns, nurses in administrative roles only, and nurses on leave during data collection were excluded from the study.

Data were collected using a structured, self-administered questionnaire consisting of three sections:

#### **Section A: Demographic Data**

Included variables such as: Age, gender, educational level, years of experience, and clinical specialty.

*Section B: Nursing Care Quality Scale:* Nursing care quality was measured using an adapted version of the Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ). The tool assesses multiple dimensions of nursing care including: Communication, responsiveness, professional competence and emotional support using a 5-point Likert scale: from 1 = Strongly Disagree to 5 = Strongly Agree. Scoring Interpretation (Cutoff Values): Low quality: < 2.5, moderate quality: 2.5 - 3.5, and high quality: > 3.5 [13].

*Section C: Patient-Reported Outcomes (PROs) Scale:* Patient-reported outcomes were measured using a modified PROMs-based questionnaire, assessing: Patient satisfaction, perceived health improvement, and emotional well-being, and functional status measured on a 5-point Likert scale. Scoring Interpretation (Cutoff Values): Poor outcomes: < 2.5, average outcomes: 2.5 - 3.5, and good outcomes: > 3.5 [14]. The questionnaire was reviewed by a panel of experts in nursing research and clinical practice to ensure relevance, clarity, and cultural appropriateness. Minor modifications were made based on expert feedback. A pilot study was conducted on 10% of the sample (n = 21 nurses) to test feasibility, clarity, and reliability. These participants were excluded from the final study. Internal

consistency of the instrument was assessed using Cronbach's alpha coefficient: Nursing Care Quality Scale:  $\alpha = 0.88$ , patient-Reported Outcomes Scale:  $\alpha = 0.85$ , and Overall questionnaire:  $\alpha = 0.90$ . These results demonstrate that the instrument had strong internal consistency. After obtaining ethical approval, data were collected over a period of 4-6 weeks from February to April 2026. Permission was obtained from hospital administration. Nurses were approached during duty hours, informed about the study purpose, and provided with consent forms. Questionnaires were distributed and collected after completion.

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 25. In Descriptive Statistics the frequency and percentage (demographics), and mean and standard deviation (scale scores). Chi-square test as used for association between demographic variables and attitudes, while Pearson correlation coefficient (r) to assess relationship between nursing care quality and patient-reported outcomes, and p-value  $\leq 0.05$  considered statistically significant. Approval obtained from Institutional Review Board (IRB), informed consent obtained from participants, the confidentiality and anonymity ensured and participation was voluntary, with the right to withdraw at any time.

#### **Results**

It presents the analysis and interpretation of data collected from 210 nurses. Both descriptive and inferential statistics were applied to examine the relationship between nursing care quality and patient-reported outcomes.

#### **Demographic Characteristics of Participants**

The majority of participants were female (92.4%), reflecting the gender distribution in nursing. Most nurses were aged 31-40 years (43.8%), indicating a relatively experienced workforce. A large proportion held Post-RN qualifications (70.5%), and most had more than 11 years of experience (61%), suggesting a mature and experienced sample.

Table 1: Demographic Characteristics of Participants		
Category	Frequency (n)	Percentage (%)
<b>Gender</b>		
Male	16	7.6
Female	194	92.4
<b>Age</b>		
21-30 years	52	24.8
31-40 years	92	43.8
41+ years	66	31.4
<b>Education</b>		
BSN (4 years)	10	4.8
Post RN	148	70.5
RN Diploma	52	24.8
<b>Experience</b>		
1-2 years	10	4.8
2-5 years	16	7.6
6-10 years	56	26.7
11+ years	128	61.0

**Nursing Care Quality Scores and Patient-Reported Outcomes (PROs)**

The majority of nurses (65.7%) reported high levels of nursing care quality, with a mean score of 3.62. This indicates that nursing care in the selected hospitals is generally perceived as good,

although some variability exists. Most respondents (61%) reported good patient-reported outcomes, indicating that patients generally experience positive health outcomes and satisfaction with care (see Table 2).

Table 2: Nursing Care Quality Scores and Patient-Reported Outcomes (PROs)			
Level	Frequency (n)	Percentage (%)	Mean ± SD
<b>Nursing Care Quality Scores</b>			
Low (<2.5)	8	3.8	3.62 ± 0.58
Moderate (2.5-3.5)	64	30.5	
High (>3.5)	138	65.7	
<b>Patient-Reported Outcomes (PROs)</b>			
Poor (<2.5)	10	4.8	3.58 ± 0.61
Average (2.5-3.5)	72	34.3	
Good (>3.5)	128	61.0	

**Relationship between Nursing Care Quality and PROs**

There is a **strong positive correlation** ( $r = 0.68$ ,  $p < 0.001$ ) between nursing care quality and

patient-reported outcomes. This indicates that as the quality of nursing care improves, patient-reported outcomes also improve significantly.

Table 3: Relationship between Nursing Care Quality and PROs		
Variables	r-value	p-value
Nursing Care Quality & PROs	0.68	0.000

**Association between Demographic Variables and Nursing Care Quality**

No significant association was found between gender and nursing care quality ( $p > 0.05$ ), indicating that both male and female nurses provide similar levels of care. A significant association was found between age and nursing care quality ( $p < 0.05$ ). Younger nurses demonstrated higher quality scores, possibly

due to recent training and updated knowledge. Education level is significantly associated with nursing care quality ( $p < 0.001$ ). Nurses with BSN qualifications showed the highest quality scores, indicating the importance of higher education. Experience is significantly associated with care quality ( $p < 0.05$ ). Less experienced nurses showed slightly higher performance, possibly due to updated training (see table 4).

	Low	Moderate	High	p-value
<b>Gender</b>				
Male	0	4	12	0.521
Female	8	60	126	
<b>Age</b>				
21-30	0	10	42	0.001
31-40	4	30	58	
41+	4	24	38	
<b>Education</b>				
BSN	0	0	10	0.000
Post RN	6	48	94	
Diploma	2	16	34	
<b>Experience</b>				
1-2 years	0	0	10	0.002
2-5 years	0	6	10	
6-10 years	2	20	34	
11+ years	6	38	84	

**Regression Analysis**

Nursing care quality is a **significant predictor** of patient-reported outcomes ( $\beta = 0.71, p <$

$0.001$ ), indicating that improvements in care quality lead to better patient outcomes.

Variable	Beta ( $\beta$ )	p-value
Nursing Care Quality	0.71	0.000

**Discussion**

The study explores nursing care quality's impact on patient-reported outcomes in public hospitals in Pakistan, interpreting results with existing literature and proposing conclusions, practical implications, and future research recommendations.

The study revealed that 65.7% of nurses reported high nursing care quality, with a mean score of  $3.62 \pm 0.58$ , indicating generally positive perceptions within selected public sector hospitals. This aligns with previous findings in Pakistan highlighting patients'

favorable reviews of nursing care, especially in technical skills and responsiveness [15]. Factors like nurses' clinical experience contribute positively, but moderate and low scores reflect variability in care quality due to workload, staffing shortages, and resource limitations [16]. Findings showed 61% of participants reported good patient outcomes, with a mean score of  $3.58 \pm 0.61$ , indicating general positive health experiences during hospitalization. Results support prior research linking improved patient-reported outcomes to responsive, communicative, and patient-centered care.

While the majority experienced positive outcomes, some reported average or poor outcomes, underscoring the need for ongoing healthcare quality improvement [17].

One key finding of the study is a strong positive correlation ( $r = 0.68$ ,  $p < 0.001$ ) between nursing care quality and patient-reported outcomes, indicating that better nursing care leads to improved patient experiences. This is supported by international literature showing that high-quality nursing care enhances patient satisfaction and recovery [13]. Regression analysis further confirms nursing care quality as a significant predictor of patient-reported outcomes ( $\beta = 0.71$ ,  $p < 0.001$ ), emphasizing its crucial role in healthcare quality and the need to strengthen nursing services.

The study revealed no significant link between gender and nursing care quality ( $p > 0.05$ ), indicating similar care levels from male and female nurses, aligned with previous research [18]. A significant association was identified between age and nursing care quality ( $p < 0.05$ ), with younger nurses achieving higher scores, likely due to recent education and updated clinical practices; similar trends were noted in the literature [19]. Education level had a highly significant correlation with care quality ( $p < 0.001$ ), with BSN holders scoring highest, emphasizing the role of higher education in enhancing nursing skills and patient care. Research supports that greater educational qualifications lead to improved patient outcomes [0]. Additionally, experience correlated significantly with care quality ( $p < 0.05$ ), with less experienced nurses exhibiting slightly higher scores, potentially due to enthusiasm and adherence to updated protocols.

The study's cross-sectional design limits causal inference; data from selected public hospitals restrict generalizability, and self-reported questionnaires may introduce bias affecting nurses only.

#### Conclusion:

The study establishes a significant positive relationship between nursing care quality and patient-reported outcomes (PROs) in Pakistan's public hospitals. Most nurses exhibited high care quality, leading to favorable patient

outcomes such as satisfaction, perceived health improvement, and overall care experience. Variability in nursing care quality was influenced by demographic factors; nurses with higher education and fewer experience years displayed better care practices, indicating the importance of knowledge and training. Gender had no significant effect on care quality, highlighting a shared commitment among nurses. The findings underscore the necessity of a patient-centered care approach, where effective communication and emotional support are prioritized. In the context of Pakistan's public healthcare system, characterized by high patient loads and limited resources, nurses play a crucial role in enhancing care quality and improving patient outcomes. The study emphasizes the need for investment in nursing education, ongoing training, and supportive work environments to sustain quality care, thus asserting that prioritizing nursing care is vital for improving healthcare delivery and patient experiences.

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