FNJN

İSTANBUL UNIVERSITY CERRAHPAŞA

Florence Nightingale Journal of Nursing

DOI: 10.5152/FNJN.2025.24144

Original Article

Patients' Satisfaction with Nursing Care Quality and Its Related Factors: A Cross-Sectional Study

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Cite this article as: Obaidi, A., Rahmani, A., Khader, Y., & Negarandeh, R. (2025). Patients' satisfaction with nursing care quality and its related factors: A cross-sectional study. *Florence Nightingale Journal of Nursing*, 33, 0144, doi: 10.5152/FNJN.2025.24144.

What is already known on this topic?

- *Patient satisfaction is a critical indicator of the quality of nursing care services.*
- *High satisfaction levels are often associated with better health outcomes, treatment adherence, and reduced costs.*
- *Patients' satisfaction has received little attention in evaluations of nursing care quality, particularly in Iraq.*

What this study adds on this topic?

- *Overall status of patient satisfaction with quality nursing care in Iraq was measured to be moderate.*
- *This study found that the factors (nurse-patient communication, environmental conditions, nurse characteristics, primary nurse care) affect the level of patient satisfaction.*
- *Results can be used by nursing leaders to inform practice improvements, guide policy, and tailor interventions that address the specific needs of diverse patient populations, thereby optimizing care delivery and outcomes.*

Abstract

AIM: This study aimed to assess the status of patients' satisfaction with nursing care quality and its related factors in the medical and surgical wards of six public hospitals in Iraq.

METHODS: This cross-sectional study was conducted using three questionnaires. The first questionnaire included six items related to the patient's demographic characteristics and five items related to hospitalization characteristics. The second questionnaire was the Patient Satisfaction with Nursing Care Quality Questionnaire, Arabic version. The last part of the questionnaire included 35 items for assessing related factors of patient satisfaction which evaluated four variables: communication, nurse characteristics, needs expectations, and environment. The study was performed from March 1, 2023, to July 1, 2023, using a multiphase sampling method, and 345 adult patients were recruited. Descriptive statistics were used to summarize the sample characteristics and patient satisfaction scores. The Pearson coefficient, independent *t*-test, and one-way ANOVA examined the association between patient satisfaction and independent variables. Factors with $p < .2$ in bivariate analysis were entered into a regression model using a stepwise method.

RESULTS: The overall patient satisfaction with nursing care quality was (66.39 ± 23.32). Among related factors, nurses' characteristics scored highest (3.68 ± 0.89), followed by needs expectations (3.34 ± 1.10), quality of communication (3.17 ± 1.19), and environmental status (2.59 ± 1.33). Regression analysis revealed a significant association between the Patient Satisfaction with Nursing Care Quality Questionnaire total score and six variables: quality of communication, nurse characteristics, environmental status, primary nurse responsible for care, area of residency, and level of education.

CONCLUSION: This study indicated that patient satisfaction with nursing care quality was moderate in medical and surgical wards, suggesting a need for nurses, hospital administrators, and policymakers to improve patient satisfaction and focus on the factors affecting satisfaction levels.

Keywords: Hospitalized patients, medical–surgical wards, nursing care quality, patient satisfaction

Introduction

Quality of care refers to the extent to which health services for individuals and populations achieve the desired health outcomes. Healthcare organizations monitor the experiences of their patients to evaluate and improve the quality of care. This initiative aims to improve patient safety, clinical effectiveness, and public accountability (Watson, 2009). Nursing care is a major component of hospital healthcare services and is key to reaching the best possible health outcomes (Juanamasta, 2021). Nursing care quality (NCQ) means providing care that meets the standards and requirements of the relevant authorities and addressing the needs and expectations of the clients through the nursing process (Juanamasta, 2021). By

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Received: July 2, 2024
Revision Requested: November 22, 2024
Last Revision Received: April 27, 2025
Accepted: May 26, 2025
Publication Date: September 22, 2025

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providing high-quality nursing care, hospital costs can be lowered, hospital stays can be shortened, and patient satisfaction can be improved (Hussain, 2021). World Health Organization reports that low-quality nursing care causes mortality, human suffering, and substantial economic losses (World Health Organization, 2018).

Patient satisfaction is a key indicator of healthcare quality, as it reflects the patient's expectations and perceptions. Patient satisfaction has now become an established measure in evaluating the quality and efficiency of healthcare (Mohammed Alhussin et al., 2024). Both the Joint Commission on Accreditation of Healthcare Organizations and the Agency for Healthcare Research and Quality have emphasized the importance of measuring patient satisfaction for performance improvement and clinical effectiveness (Shearer & Baker, 2023). Measuring patient satisfaction could also promote practical skills and competencies, identify shortcomings, detect problems, and provide quality nursing care that meets patients' needs (Oren et al., 2016). Assessing patient satisfaction is a challenging task due to its complexity and multidimensionality. Patient satisfaction is inherently subjective and heavily influenced by individual expectations. Nevertheless, it no longer means denying the influence of multiple factors that affect patient satisfaction. Negarandeh and his colleagues showed that the primary factor that significantly influences patient satisfaction is the nurses' failure to comprehend and address the needs and expectations of patients (Negarandeh et al., 2014). When nurses do not meet patients' expectations by providing appropriate and precise care, it leads to lower levels of patient satisfaction (Ameryoun et al., 2017). Identifying the factors affecting patient satisfaction is crucial for nurses to continually enhance the quality of nursing care. Various factors can influence patient satisfaction by reviewing the literature on nursing care (Alshehry et al., 2019, Ng and Luk, 2019). These factors include demographic information, hospitalization records, and related factors such as nurse-patient communication, nurse characteristics, patient needs and expectations, and the physical environment (Ammo et al., 2014, Ahmed et al., 2014, Tang et al., 2013, Tsegaw, 2017, Wagner & Bear, 2009). For example, a study conducted by Gishu et al. found that the level of satisfaction with the environment was below average (Gishu et al., 2019a). In addition, the age of participants, which had a significant association with the level of patient satisfaction, is higher among older patients than younger patients (Al Harbi et al., 2022, Alhowaymel et al., 2022). It is essential to consistently evaluate patients' satisfaction with the NCQ because it provides an indicator for policymakers and healthcare managers to assess NCQ.

In recent years, numerous studies have been carried out to assess patient satisfaction with nursing care. For example, studies conducted in Türkiye (Karaca & Durna, 2019), Nigeria (Mobolaji-Olajide et al., 2020), and Brazil (Freitas et al., 2014) found that patient satisfaction with nursing care was high. Moreover, the overall patient satisfaction with nursing care was 69% in Iran (Farmahini Farahani et al., 2014), 67% in Kenya (Ndambuki, 2013), and 33% in Ghana (Dzomeku et al., 2013). In contrast, studies conducted in Ethiopia (Kasa & Gedamu, 2019) and India (Samina et al., 2008) revealed that most hospitalized patients had a negative perception of nursing care.

In Iraq, only four studies have previously measured patient satisfaction with nursing care in different settings and regions. The Al-Najaf city of Iraq revealed that 56% of patients were satisfied with nursing care (Khaleel & Al-Hussein, 2015). Similarly, Ebrahim and Issa found that 64% of patients were satisfied in Basra south of Iraq (Ebrahim & Issa, 2015). On the other hand, the majority of patients (88.5%) were dissatisfied in Baghdad (Dadoosh & Sadeq, 2022), and nearly half (49.1%) of patients were dissatisfied in Thi-Qar south of Iraq (Hussien et al., 2008). No study has measured patient satisfaction with NCQ in Karbala and Babel (Al-Ali et al., 2020), and only one study has been performed in Najaf (Khaleel & Al-Hussein, 2015). Therefore, patient satisfaction with nursing care is unclear in these cities, which indicates a knowledge gap that needs adequate attention. This study aimed to assess the status of patient satisfaction with NCQ and its related factors in medical and surgical wards across six public hospitals in three cities of Iraq (Karbala, Najaf, and Babel).

Research Questions

1. What is the level of patient satisfaction with NCQ in the three cities of Iraq?
2. What factors are related to patient satisfaction with NCQ among patients hospitalized in the three-city region, Iraq?

Methods

Study Design

A descriptive-correlational design was employed.

Sample

This study utilized a multiphase sampling method, in which six public hospitals were selected through a simple random sampling technique. Participants who agreed to take part in the study were enrolled through consecutive sampling techniques. Five hundred fifty adult patients were approached to participate in the study; 450 met the inclusion criteria, and 345 agreed to participate. All patients who were admitted to the hospital were assessed for inclusion and exclusion criteria. The inclusion criteria were patients aged 18 years or older, staying in medical and surgical wards for at least two nights, and having full consciousness. Patients who were unable to respond, did not have enough time to complete the questionnaires, or were not interested in participating in the study were excluded.

Data Collection

This research was conducted in six public hospitals, namely Al-Hussaini and Al-Hindi Hospitals in Karbala, Al-Sadder and Al-Hakeem Hospitals in Al-Najaf, and Imam Sadiq and Marjain Hospitals in Babel during the period from March 1, 2023, to July 1, 2023. The researcher collected the data in the medical and surgical wards by using face-to-face interviews with individuals who willingly took part in the research and filled out the questionnaires. The questionnaires were subsequently handed out to the participants, with an estimated average interview completion time of 15 minutes. Subsequently, the questionnaires were completed independently by the participants and returned.

Data Collection Tools

First scale was Characteristics of the participants related to their demographics and hospitalization in different hospitals.

second scale was Patient satisfaction with quality nursing care (PSQNCQ-AR).The last part of the questionnaire included 35 items for assessing related factors of patient satisfaction which evaluated four variables: communication (9 items), nurse characteristics (9 items), needs expectations (8 items) and environment (9 items). The data were collected utilizing three questionnaires in this study. The first questionnaire included six items related to the patient's demographic characteristics and five items related to the characteristics of participants (such as gender, age, marital status, area of residency, educational level, work status, duration of hospital stays, type of room, kind of hospital, type of ward, and having insurance). The second questionnaire was the Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQ). The Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) was developed in 2005 by Laschinger, McGillis Hall, Pedersen, and Almost. It is based on the Patient Judgments of Hospital Quality Questionnaire, which was developed by a multidisciplinary research team at the Hospital Corporation of America (Laschinger et al., 2005b, Reck, 2013). The original English version of the instrument comprises 21 items and provides five response options: excellent, very good, good, fair, and poor. There are 19 items related to PSNC, two of which focus on discharge instructions and post-discharge care coordination, as well as two additional items regarding overall quality of care and hospital recommendations. Previous Cronbach's alpha reliability coefficients have shown high values, ranging from 0.90 to 0.94 (Fröjd et al., 2011, Laschinger et al., 2005b). The PSNCQQ can be integrated into existing hospital quality monitoring systems to track patient satisfaction. Additionally, it can serve as an evidence-based indicator, reflecting its contribution to the patient care process as an outcome measure, and helping to assess changes in departmental and institutional practices. This feedback offers valuable insights for nurse administrators (Abdel Maqsood et al., 2012, Laschinger et al., 2005b). The patients were asked to choose their level of satisfaction based on a 5-point Likert scale (poor-excellent). Only one item (23) had response options ranging from strongly disagree to strongly agree about the recommendation of the hospital to family and friends. Each item of the PSNCQQ has a phrase that shows the question content or "signpost" followed by a question that has a more detailed "descriptor" (Laschinger et al., 2005a). For instance, the initial item of the tool, "information you were given," is utilized as the signpost for the descriptor that follows "how clear and complete the nurse's explanations were about tests, treatments, and what to expect." The PSNCQQ has been translated into several languages, including Turkish (Karaca & Durna, 2019), Serbian (Milutinović et al., 2012), Poland (Ksykiewicz-Dorota et al., 2011) and Arabic (Al Bashayreh et al., 2019). According to a recent study, PSNCQQ was a frequently used questionnaire (Qirko et al., 2024). In this study, the Arabic version of the Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ-Ar) was utilized, which was translated by Al Bashayreh et al. They confirmed the validity of this tool, demonstrating that all items achieved a Content Validity Index exceeding 0.75. Additionally, the instrument exhibited excellent reliability, with a Cronbach's alpha coefficient of 0.96 (Al Bashayreh et al., 2019). According to the reliability analysis conducted in this study, this instrument demonstrates excellent reliability, achieving a Cronbach's alpha coefficient of 0.97.

The last part of the questionnaire included 35 items for assessing related factors of patient satisfaction which evaluated four variables: communication (9 items), nurse characteristics (9 items), needs expectations (8 items), and environment (9 items). All items were evaluated using a 5-point Likert scale ranging from "never" to "always," where "never" = 1, "rarely" = 2, "sometimes" = 3, "often" = 4, and "always" = 5. Quality of communication to evaluate the nurse-patient relationship, for example, how often nurses provide useful information and the extent to which nurses address patients' emotions, including fear, stress, and empathy. The validity of the communication instruments was confirmed by a panel of experts in a previous study conducted in Iran by Lotfi and his colleagues, with a Cronbach's alpha of 0.87 (Lotfi et al., 2019). In this study, the reliability analysis for this questionnaire yielded a Cronbach's alpha of 0.95. The nurse characteristics instrument was adopted from a previous study (Utami et al., 2018), with a Cronbach's alpha of 0.93. This instrument assesses nurses' professional knowledge, skills, and experience in performing nursing care procedures, as well as the influence of high self-confidence on their skill level. In this study, the reliability analysis of this instrument yielded a Cronbach's alpha of 0.91. The Patients' Needs and Expectations tool, which includes aspects such as monitoring safety and security and responding promptly, was validated and found reliable in a previous study by (Bowling et al., 2012), with an acceptable Cronbach's alpha = 0.70. In this study, the reliability analysis for this tool revealed a Cronbach's alpha of 0.92. The last instrument was environmental status; it measures aspects such as cleanliness, organization, and equipment availability in the ward. Hayder and his colleagues confirmed the validity of this instrument and adapted it to Iraqi culture (Hayder et al., 2017). The reliability of this tool was confirmed with a Cronbach's alpha of 0.72, which is considered an acceptable level for establishing reliability (Alkazemi et al., 2019). In this study, the reliability analysis of this questionnaire yielded a Cronbach's alpha of 0.96.

Statistical Analysis

Data analysis was performed using SPSS version 23.0 software (IBM Corp.; Armonk, NY, USA). Descriptive statistics, such as the mean, standard deviation, frequency, and percentage, were used to summarize the sample characteristics and patient satisfaction scores according to the type of variables. The association between patient satisfaction (dependent variable) and numerical independent variables including age, communication, nurse characteristics, needs expectations, and the environment was examined using the Pearson coefficient. Furthermore, the association of categorical independent variables with PSNCQQ total score was assessed with an independent *t*-test and one-way ANOVA. In cases where one-way ANOVA showed significant differences between the scores of PSNCQQ in categories, Tukey's post hoc test was used to determine which categories were different. In addition, all independent factors with $p < .2$ in bivariate analysis (communication, nurse characteristics, needs expectations, and the environment) were entered into the regression model using the stepwise method. A *p*-value of less than .05 was considered statistically significant.

Ethical Considerations

To conduct the study, approval was obtained from the health offices of the three cities (Karbala, Najaf, and Babel). Institutional

permissions were also secured from the relevant hospitals. This study was carried out as part of the requirements for a PhD in nursing and was approved by the Institutional Research Ethics Committees of School of Medicine-Tehran University Medical Sciences (Date: 09.05.2022; Approval no: IR.TUMS.MEDICINE.REC. 1401.115). Patients who voluntarily participated in the study were verbally informed about its purpose and were assured that their participation was entirely voluntary, with their personal information and confidentiality protected. Both verbal and written consent were obtained from the participants. Additionally, permission was granted by the authors who developed the survey for its use in the study. In this study, the Arabic version of the PSNCQQ (PSNCQQ-Ar) was utilized. To secure authorization for employing this questionnaire in this study, the researcher was reached out to via email to seek approval.

Results

A total of 345 patients completed the questionnaire. The descriptive statistics showed that the age of participants (40.6%) was between 18 and 39 years old. Females constituted 52.5% of the patient population, and most of the participants were urban residents (68.1%). Approximately 71.9% of them were married, with primary and intermediate graduates (28.7%). Hospitals generally offer two primary types of patient accommodations: public (or shared) rooms and private rooms. In this study, public rooms account for 79.7% of the patients and are structured to host multiple individuals in a single area, usually featuring basic amenities and shared facilities. There is a clear distinction between public and private rooms; the shared nature of public rooms can elevate the risk of exposure to infectious diseases. Conversely, private rooms provide greater individual space, often resulting in higher levels of patient satisfaction, as reflected in the varying satisfaction rates between private and public sector hospitals. In addition, 66.7% of hospitalized patients were admitted to the medical unit. More than half of the sample (51.3%) reported that primary nurses responsible for nursing care were not available. A total of 91.9% of participants did not have medical insurance (Table 1). The results of tests of normality for various variables using two different tests: Kolmogorov–Smirnov and Shapiro–Wilk. These tests are used to determine if a dataset is normally distributed. All the variables listed, both the Kolmogorov–Smirnov and Shapiro–Wilk tests indicate that the data significantly deviates from a normal distribution (p-value < .05) (Table 2).

Table 1.
Socio-Demographic and Related Characteristics of Participants (N = 345)

Characteristics	Category	N	%
Gender	Male	164	47.5
	Female	181	52.5
Age in years	18–39	140	40.6
	40–59	121	35.1
	60–99	84	24.3
Area of residency	Urban	235	68.1
	Rural	110	31.9
Marital status	Single	46	13.3
	Married	248	71.9
	Divorced	34	9.9
	Widowed	17	4.9
Position status	Student	24	7.0
	Employee and self employed	105	30.4
	Housewife	92	26.7
	Unemployed	43	12.5
	Retired	81	23.5
Educational level	No education	43	12.5
	Primary and intermediate	99	28.7
	Secondary and vocational	78	22.6
	Diploma	29	8.4
	Bachelor and postgraduate	74	21.4
	No answer	22	6.4
Type of room	Private room	70	20.3
	Public room	275	79.7
Kind of hospital	General	270	78.3
	Specialty	75	21.7
Type of ward	Medical unit	230	66.7
	Surgical unit	115	33.3
Primary nurse responsible for nursing care	Yes	124	35.9
	No	177	51.3
	I am not sure	44	12.8
Having insurance	Yes	28	8.1
	No	317	91.9

Patient Satisfaction Status

The average score of PSNCQQ for the respondents was (66.39 ± 23.32), with a range from 22 to 110. When analyzing items individually, the low mean scores of the level of satisfaction were for the nurses' regular activities, item 11 "the daily routine of the nurses" (2.55 ± 1.45), and item 18 the guidance for leaving the hospital "discharge instructions" (2.54 ± 1.51). The lowest mean scores for the planning of care following discharge for item 19 "coordination of care after discharge" were 2.47 ± 1.48. However, the highest mean scores of the level of satisfaction were with item 7 about the way the nurses demonstrate empathy and kindness "concern and caring by nurses" (3.39 ± 1.15), item 16 "restful atmosphere provided by nurses" (3.30 ± 1.20), and item 14 about "skill and competence of nurses" (3.24 ± 1.23) as presented in Table 3. The participants rated item 23, which asked them "Based on the nursing care I received, I would recommend this hospital to my family and friends" (3.66 ± 0.99), ranging from 1 to 5 (strongly agree–strongly disagree).

Patient Satisfaction and Its Related Factors

The association of categorical independent variables with PSNCQQ total score was assessed with an independent t-test and one-way ANOVA, and the result is presented in Table 4. Concerning the level of education, the one-way ANOVA yielded a significant result; however, the subsequent post hoc analysis indicated that there were no differences among the various education levels. Because the p-value is not significant in one-way ANOVA, there is no need to investigate differences between different levels of education in post hoc analysis. However, there is a significant difference in marital status between single and divorced individuals, with a p-value of .02.

Then, all independent variables with a p-value less than .2 were included in the linear regression model using the stepwise method. According to the regression analysis results, only

Table 2.
Tests of Normality for Various Variables

	Kolmogorov–Smirnov[a]			Shapiro–Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Age	.087	345	.000	.963	345	.000
Gender	.354	345	.000	.636	345	.000
Area of residency	.434	345	.000	.587	345	.000
Marital status	.391	345	.000	.707	345	.000
Position status	.190	345	.000	.877	345	.000
Type of room	.280	345	.000	.731	345	.000
Kind of hospital	.483	345	.000	.508	345	.000
Type of ward	.427	345	.000	.595	345	.000
Having insurance	.536	345	.000	.303	345	.000

[a]Lilliefors significance correction.

six variables had a significant linear relationship with patient satisfaction with NCQ. Quality of communication, the status of the environment, the primary nurse responsible for nursing care, nurse characteristics, area of residency, and lastly level of education were variables that had a significant association with adult patients' satisfaction with NCQ. The result of the regression analysis is presented in (Table 5).

Discussion

This study assessed patient satisfaction with NCQ and its related factors in the medical and surgical wards of six public hospitals across three different X cities (X, X, and X). The findings showed that the overall status of patient satisfaction with NCQ was moderate. However, there has been increasing interest in utilizing patient satisfaction as an indicator to measure and improve the performance of the NCQ (Mohammed Alhussin et al., 2024). As far as the authors know, this is the first X study that measured patient satisfaction with NCQ and its related factors in these three cities. This study's findings were consistent with some national studies from diverse regions of X (Ismayyir, 2020). However, these findings do not align with a study that was conducted in X at X Teaching Hospital that stated high patient satisfaction with NCQ (Habib et al., 2013). Indeed, the quality of healthcare can vary significantly based on the infrastructure, availability of medical instruments, and the

Table 3.
Patient Satisfaction with Nursing Care Quality (N = 345)

Item #	Item Characteristics	*N*	Minimum	Maximum	Mean	Standard Deviation
1.	Information you were given	345	1.00	5.00	3.11	1.24
2.	Instructions	345	1.00	5.00	3.02	1.22
3.	Ease of getting information	345	1.00	5.00	3.16	1.20
4.	Information given by nurses	345	1.00	5.00	3.18	1.22
5.	Informing family or friends	345	1.00	5.00	3.12	1.26
6.	Involving family or friends in your care	345	1.00	5.00	3.19	1.15
7.	Concern and caring by nurses	345	1.00	5.00	3.39	1.15
8.	Attention of nurses to your condition	345	1.00	5.00	3.18	1.27
9.	Recognition of your opinions	345	1.00	5.00	2.72	1.38
10.	Consideration of your needs	345	1.00	5.00	3.05	1.25
11.	The daily routine of the nurses	345	1.00	5.00	2.55	1.45
12.	Helpfulness	345	1.00	5.00	3.15	1.16
13.	Nursing staff response to your calls	345	1.00	5.00	3.00	1.32
14.	Skill and competence of nurses	345	1.00	5.00	3.24	1.23
15.	Coordination of care	345	1.00	5.00	3.12	1.21
16.	Restful atmosphere provided by nurses	345	1.00	5.00	3.30	1.20
17.	Privacy	345	1.00	5.00	3.17	1.31
18.	Discharge instructions	345	1.00	5.00	2.54	1.51
19.	Coordination of care after discharge	345	1.00	5.00	2.47	1.48
20.	Overall quality of care and services	345	1.00	5.00	2.87	1.37
21.	Overall quality of nursing care	345	1.00	5.00	2.85	1.33
22.	In general, would you say your health is	345	1.00	5.00	2.93	1.07
23.	Based on the nursing care I received, I would suggest this hospital to my family and friends	345	1.00	5.00	3.66	0.99

Table 4.
Results of Independent t-Test and One-Way ANOVA Assessing Differences in Patient Satisfaction Across Categories of Independent Variable

			Patient Satisfaction		
Variables	**Category**	***N***	**Mean**	**SD**	***p***
Gender	Male	164	65.93	23.10	.72*
	Female	181	66.81	23.57	
Area of residency	Urban	235	69.17	22.58	.001*
	Rural	110	60.46	23.89	
Marital status	Single	46	74.26	25.14	.03**
	Married	248	65.82	23.30	
	Divorced	34	59.08	20.50	
	Widowed	17	68.11	19.22	
Level of education	No education	43	58.48	17.71	.04**
	Primary and intermediate	99	67.08	25.03	
	Secondary and vocational	78	70.16	23.51	
	Diploma	29	67.24	20.02	
	Bachelor and post graduate	74	68.58	22.82	
	No answer	22	56.95	26.33	
Position status	Student	24	68.91	22.96	.354**
	Employee and self employed	69	69.03	22.44	
	Housewife	92	66.14	24.03	
	Unemployed	43	63.23	26.44	
	Retired	81	64.19	22.07	
Type of ward	Medical	230	64.31	23.14	.019*
	Surgical	115	70.55	23.22	
Type of room	Private room	70	82.05	19.49	<.001**
	Public room	118	62.41	22.55	
Primary nurse responsible for your nursing care ¥	Yes	124	82.90	17.65	.001**
	No	177	56.19	20.07	
Having insurance	Yes	28	77.50	18.50	.003*
	No	317	65.41	23.48	

Note: SD = standard deviation.
*Independent *t*-test.
**One-way ANOVA.
¥In the response of the question "taking care from a primary nurse," 44 patients were not sure about that and were excluded in the analysis.

expertise of the nursing staff. X, being the capital, might have access to better resources and technology. This could lead to more effective nursing practices and higher patient satisfaction compared to other cities with fewer resources. It is a crucial aspect to consider when comparing healthcare practices and patient satisfaction across different regions.

Table 5.
Regression Analysis Results Showing Unstandardized (B) and Standardized (β) Coefficients for Patient Satisfaction

	Unstandardized Coefficients		**Standardized Coefficients**						
Item #	**B**	**Standard Error**	**Beta**	***t***	**Sig.**	**R**	**R Square**	**Adjusted R Square**	**F**
Communication	.871	.124	.403	7.003	.000	.813a	.662	.661	670.998
Environment	.653	.088	.337	7.418	.000	.840b	.705	.704	409.435
Primary nurse responsible	−4.264	1.082	−.121	−3.940	.000	.850c	.722	.720	295.718
Nurse characteristic	.362	.128	.125	2.833	.005	.853d	.728	.725	227.256
Area of residency	−4.316	1.494	−.086	−2.888	.004	.856e	.732	185.504	.728
Level of education	−.929	.459	−.060	−2.022	.044	.858f	.736	156.675	.731

Dependent Variable: PSNCQ.
Durbin–Watson 1.753.

In an international context, the findings of the present study are consistent with research conducted in Jordan (Elayan & Ahmad, 2018) and Saudi Arabia (Al Qahtani and Al Dahi, 2015), where they reported moderate patient satisfaction with NCQ. Nevertheless, these findings are inconsistent with some studies performed in Iran (Zarei et al., 2015; Lotfi et al., 2019), where they reported a high level of satisfaction with the nursing care they received. The use of different questionnaires in these studies may have resulted in the difference, such as the questionnaire created by the researcher in the study by Zarei (Zarei et al., 2015) and the two instruments used in the study by Lotfi et al. (2019), which may justify these differences with the results. Moreover, a recent study carried out in Saudi Arabia showed that patients expressed high levels of satisfaction with nursing care, particularly regarding the privacy provisions made by nurses, as evidenced by questionnaire scores (Mohammed Alhussin et al., 2024).

This study showed that nurse-patient communication, environmental conditions, nurse characteristics, primary nurse care, residency area, and education level are all related to overall patient satisfaction. This study revealed that there was a moderate level of communication between patients and nurses, which aligned with the findings of a similar study conducted in Iran (Yusefi et al., 2022). In contrast, the quality of communication was reported as high in studies conducted in Türkiye (Karaca & Durna, 2019) and Saudi Arabia (Mohammed Alhussin et al., 2024). These differences could result from the nature of the disease, the instrument used, the sampling method, and the time to complete the questionnaire. These findings also showed that patient satisfaction was significantly correlated with the quality of communication. These results highlight the importance of having a good communication relationship between nurse and patient, which involves honest communication, careful listening, and health education for enhancing patient satisfaction. Many experts emphasize that communicating effectively is very important for enhancing the level of patient satisfaction with NCQ (Negarandeh et al., 2014; Ayele Woldasemayat et al., 2022). Thus, efforts should be made by managers of hospitals and nursing to consider the communication process as a priority to improve patient satisfaction.

The study's findings indicate a moderate status of the environment from patients' perception, which was similar to another study (Edvardsson et al., 2017). These findings also showed that patient satisfaction was significantly correlated with the status of the environment. A previous study was inconsistent with our result; it showed that the environment has no association with patient satisfaction (Zarei et al., 2015). The possible reason for this difference may be that the satisfaction level could differ according to the social and cultural values of patients. This study recommends that nurses create and maintain a healthy environment by keeping it clean, organized, and well-equipped, making it feel like home and providing opportunities for positive distractions, as well as using the status of the environment as a nursing intervention, which can lead to higher patient satisfaction with nursing care, as many nursing theories suggest, such as Jean Watson and Martha Rogers (Edvardsson et al., 2017).

The results also revealed that patients perceived nurses' characteristics at a moderate level; additionally, these findings indicated that there was a significant positive correlation between nurse characteristics and overall patient satisfaction. The results were consistent with the previous study (Hosseinzadeh, 2019); however, these findings were higher than those of the previous study (Lotfi et al., 2019). The possible explanation for the differences may be that participants were not nurses and did not have enough skills and experience to evaluate their care. This finding highlights the importance of nurses' characteristics during nursing procedures and emphasizes the need for nursing managers to support nurses' knowledge, experience, and self-confidence in delivering nursing care, as this can enhance patient satisfaction.

Based on these findings, this study revealed that a notable correlation existed in the status of satisfaction with the primary nurse responsible for nursing care. This result was consistent with previous studies conducted in the UK (Aiken et al., 2021) and Saudi Arabia (Al Harbi et al., 2022). However, the findings differ from another study that found no significant association between the status of patient satisfaction and the primary nurse responsible for nursing care (Gishu et al., 2019b). This could possibly be due to differences in study design, sample characteristics, or cultural factors. For instance, this study may have focused on a specific patient population or healthcare setting where the role of the primary nurse was more prominent in influencing patient satisfaction. Additionally, variations in nursing practices, nurse-patient relationships, or the level of care provided could explain why the results contrast with those of the other study. These differences underscore the importance of contextual factors in understanding patient satisfaction.

Regarding the place of residence, this study showed a significant positive correlation between patient satisfaction and area of residence. The findings are similar to a study conducted in Saudi Arabia, which found that patients' residency in rural areas had greater satisfaction than patients who lived in urban areas (Al Harbi et al., 2022). In the research conducted at Jimma Medical Center Hospital in Ethiopia, the study identified patients residing in rural areas as having a positive correlation with their perception of nursing care (Ayele Woldasemayat et al., 2022). This might be related to urban areas having moderate hospital infrastructure and more advanced healthcare services. Therefore, rural patients may perceive urban hospitals as providing better healthcare than their rural ones.

This study also found that the level of patient education significantly correlated with their satisfaction with nursing care; this finding is consistent with recent studies conducted in Türkiye (Karaca & Durna, 2019) and Oman (Al Bashayreh et al., 2019). However, the study did not find any correlation between educational level and patient satisfaction (Shinde & Kapurkar, 2014). These study findings showed that participants expect more from nursing care as their educational levels increase. Patients with high levels of education possess more information regarding their medication and expect high care standards; thus, they are more critical in this regard.

Study Limitations

Several limitations need to be considered. Firstly, the research was conducted in three cities and therefore the findings cannot

be generalized nationwide. Secondly, this study was carried out on patients from the medical and surgical wards, and thus its results cannot be generalized to other areas of specialties. Moreover, measuring the quality of nursing care from the patient's perspective is a subjective process, and relying solely on quantitative scales like questionnaires may not fully capture all of the patient's judgments. Therefore, incorporating qualitative methods alongside quantitative approaches in future research could offer a more comprehensive understanding of patient satisfaction with the quality of nursing care and its influencing factors. Finally, the sample included patient hospitalization in public hospitals; as a consequence, the results cannot be generalized to private hospitals.

Conclusion and Recommendations

This study utilized a comprehensive tool to evaluate patient satisfaction with nursing care quality (PSNCQ) in medical and surgical wards across three cities in X. The findings indicate a moderate level of patient satisfaction, influenced by four key factors: nurse-patient communication, environmental conditions, nurse characteristics, and patients' needs and expectations. Among these, nurse characteristics received the highest satisfaction scores while the environment scored the lowest.

This study highlights the importance of considering patient demographics and hospital environment in nursing management, offering evidence-based recommendations for targeted staff training and personalized care approaches to enhance patient satisfaction with NCQ. The results can be used by nursing leaders to inform practice improvements, guide policy, and tailor interventions that address the specific needs of diverse patient populations, thereby optimizing care delivery and outcomes.

It is recommended that hospital management focus on improving environmental aspects such as lighting, corridor functionality, medical equipment maintenance, and noise levels. Strategies for enhancing NCQ should include on-site staff training, establishing a NCQ audit team, improving communication skills, providing specialized care in wards, and attending to patient needs and privacy. Regular surveys of nursing practices are essential for monitoring changes in patient satisfaction over time. Future research should involve individuals with advanced evaluative abilities—such as nurses or medical professionals—to assess nursing services more accurately since some patients may lack the necessary background for comprehensive evaluations.

Data Availability Statement: The data that support the findings of this study are available on request from the corresponding author.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Institutional Research Ethics Committees of School of Medicine-Tehran University Medical Sciences (Date: 09.05.2022; Approval no: IR.TUMS.MEDICINE.REC.1401.115).

Informed Consent: Written informed consent was obtained from participants who participated in this study.

Peer-review: Externally peer-reviewed.

Acknowledgements: All those involved in this study are writers of this manuscript. The authors are very grateful for the feedback provided in this study.

Author Contributions: Concept – R.N., A.O.; Design – R.N., A.O., A.R., Y.K.; Supervision – R.N.; Resources – R.N., A.O., A.R.; Materials – A.O. and R.N.; Data Collection and/or Processing – A.O., R.N.; Analysis and/or Interpretation – R.N., A.O., A.R., Y.K.; Literature Search – A.O., A.R.; Writing Manuscript – A.O.; Critical Review – R.N., Y.K., A.R.

Declaration of Interests: The authors declare that they have no competing interests.

Funding: The research work was conducted with the financial supports of The Tehran University of Medical Sciences partially funded this research—Grant Number: 72245.

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