

Assessment of Nursing Service Quality Based on Patients' Expectations and Perceptions in the Dialysis Ward of a Hospital Complex

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Abstract:

Background and Objective: The quality of nursing services is crucial for improving health outcomes and enhancing patient satisfaction. For patients undergoing hemodialysis, the chronic nature of their condition and their long-term dependence on healthcare necessitate an assessment of the gaps between their expectations and perceptions of nursing services. Such an evaluation can highlight areas requiring improvement in service delivery. This study aims to assess the quality of nursing services in the hemodialysis unit from the patients' perspectives, focusing on their expectations and perceptions, utilizing the SERVQUAL model.

Materials & Methods: This cross-sectional descriptive-analytical study was conducted in 2022 and involved 180 hemodialysis patients from the Dialysis Ward of the Prophet Muhammad Educational, Therapeutic, and Research Complex in Bandar Abbas. Using a census methodology, data were collected through a standardized SERVQUAL questionnaire, which included demographic information and 44 items divided into two sections: expectations and perceptions, across five dimensions of service quality. Eligible participants completed the questionnaire either through self-administration or with assistance from researchers after providing informed consent. Data analysis was performed using SPSS version 25, employing both descriptive and inferential statistical tests with a significance level set at 0.05.

Results: The overall quality gap in nursing services was calculated as -1.58, indicating a shortfall in meeting patients' expectations. The most significant gap was observed in the tangibility dimension, while the assurance dimension exhibited the smallest gap. Statistically significant differences were detected in the dimensions of tangibility, reliability, responsiveness, and empathy ($P < 0.001$); however, no significant difference was observed in the assurance dimension ($P = 0.386$). Furthermore, significant differences were found in the assurance ($P = 0.007$ and $P = 0.008$) and empathy ($P = 0.002$ and $P = 0.005$) dimensions in correlation with the duration of patients' hemodialysis treatment, whereas no significant associations were identified concerning gender, work shift, or type of disease.

Conclusion: The findings of this study demonstrate that hemodialysis patients consistently have expectations that exceed their perceptions across most dimensions of nursing service quality. These systematic discrepancies underscore the inadequacies in the perceived quality of care relative to patients' desired standards. Therefore, it is imperative to enhance the quality of nursing services in the dialysis ward by upgrading physical infrastructure, improving empathetic communication and responsiveness among nursing staff, and adopting a more patient-centered approach to care.

Keywords: Patient Satisfaction, Hemodialysis Units, Hospital, Nursing Services, Patient-Centered Care

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Background and Objective

Hospitals are a fundamental component of the healthcare system, playing an essential role in delivering high-quality health services to diverse populations. The quality of healthcare delivery is characterized by key attributes such as preparedness, accessibility, appropriateness, adequacy, ethical conduct, and continuous support. Collectively, these attributes contribute to achieving desirable, effective, efficient, and cost-effective health outcomes. The primary objectives of hospitals include meeting patients' expectations by providing quality services, which can lead to shorter hospital stays, enhanced patient satisfaction, and reduced healthcare costs.¹ The World Health Organization emphasizes the necessity of universal access to high-quality healthcare services within the framework of sustainable development. Similarly, Iran has integrated this principle into its national health policy, as outlined in its five-year development plans.^{2,3}

Nurses, as the primary providers of health services and caregivers, play a critical role in shaping the quality of patient care. They spend the majority of their time interacting with patients, thereby directly influencing clinical outcomes, safety, and overall patient satisfaction.^{4,5} However, the quality of nursing services in contemporary healthcare settings encounters numerous challenges. Recent studies have revealed concerning levels of care deficiencies due to workforce shortages, excessive workloads, and insufficient participation in training and quality improvement initiatives. Research by Davies et al. has linked these factors to a 7% increase in patient mortality rates, resulting from inadequate nurse-to-patient ratios, caregiving errors, nurse burnout, and suboptimal patient outcomes.^{6,7}

The significance of nursing care is especially pronounced in dialysis departments, which demand consistent, precise, and high-quality nursing support. Patients with chronic kidney failure depend on frequent and prolonged hemodialysis treatments, highlighting the vital role of nurses in preventing clinical complications.⁸

This patient population often experiences a range of complications, including gastrointestinal issues, sleep disorders, depression, hypertension, muscle pain, chronic fatigue, and substantial functional limitations. Therefore, the provision of specialized and comprehensive nursing care is not only critical but imperative.⁹ Inadequate nursing services increase the risk of systemic infections, elevate anxiety and stress levels, and contribute to higher rates of readmission, mortality, and economic burden. Consequently, it is essential to systematically assess patients' expectations and perceptions to effectively prioritize nursing interventions.^{10,11}

Gathering feedback from dialysis patients concerning their needs and expectations can enhance treatment processes and improve their overall quality of life, while simultaneously strengthening the quality of services provided by healthcare organizations.¹⁰ This approach aligns with the principles of patient-centered care, which emphasize evaluating service quality based on patient perceptions and are supported by extensive epidemiological research. Recent studies indicate that higher patient satisfaction in dialysis correlates with lower rates of infectious complications and hospital readmissions.^{12,13} Furthermore, in accordance with international standards for quality management in health services, the regular collection of patient feedback is recognized as an essential instrument for continuous process improvement. This practice can lead to the optimal allocation of nursing resources, reduction of economic burdens, and enhanced nurse retention through decreased burnout.¹³

In this context, the SERVQUAL model is a well-established and validated instrument characterized by a five-dimensional framework that effectively measures the gap between expected and perceived performance. Expectations represent the ideal service level that patients anticipate based on their previous experiences, personal needs, and societal norms. In contrast, perceptions refer to the actual

evaluations of the services they have received. The disparity between expectations and perceptions highlights the existing quality gap.¹⁴ The SERVQUAL model has been extensively applied in numerous studies. For instance, the research conducted by Majlesi demonstrated the model's effectiveness in identifying differences between patients' expectations and perceptions across the five dimensions of service quality.¹⁵ Further studies, including those by Bakhtiari at Vali Asr Hospital's dialysis center, Calvo-Aranda et al. in Spain, Coutinho et al. in India, and Hartanti et al. in Indonesia, illustrate the model's high sensitivity in revealing discrepancies between patients' expectations and perceptions, thereby validating its use for quantitative analyses of hospital services.¹⁶⁻¹⁹

Given the unique circumstances of dialysis patients and the critical role nurses play in their care, along with robust scientific evidence supporting the effectiveness of the SERVQUAL model in identifying service gaps, there is a pressing need to systematically assess the quality of nursing services from the perspective of hemodialysis patients. This study aims to evaluate the quality of nursing services in the dialysis department of the hospital complex by analyzing patients' expectations and perceptions utilizing the SERVQUAL model.

Materials and Methods

This descriptive-analytical study was conducted in the hemodialysis department of the Prophet Mohammad (PBUH) Educational, Therapeutic, and Research Complex in Hormozgan Province during the year 1401 (Gregorian year 2022-2023). A total of 180 hemodialysis patients visiting the dialysis center were included in the study. They were selected as the statistical population due to their accessibility, which facilitated participant recruitment and minimized sampling error through a census approach.

Data collection was conducted using the SERVQUAL questionnaire, a standardized instrument developed by Parasuraman, Berry, and Zeithaml for evaluating service quality across various sectors.²⁰ The

questionnaire comprises two sections. The first section collects demographic information about the patients, including age, gender, education level, occupation, duration of dialysis, type of illness, and economic status. The second section contains 44 questions—22 assessing patients' expectations of services and 22 evaluating their perceptions of service quality. These questions measure patient satisfaction across five quality dimensions: tangibles (4 questions), reliability (5 questions), responsiveness (4 questions), assurance (4 questions), and empathy (5 questions). Responses were recorded using a Likert scale ranging from "strongly agree" (5) to "no opinion" (1). The total score for each subsection (expectations and perceptions) ranges from 22 to 110. A higher score in the expectations subsection indicates greater anticipated service quality, while a higher score in the perceptions subsection reflects a more favorable assessment of the quality of nursing services within the dialysis unit.

The developers of the SERVQUAL instrument established the construct validity of the questionnaire by validating its five core dimensions of service quality, reporting strong reliability with a Cronbach's alpha exceeding 0.80.²⁰ Subsequent research by Bahadori et al. further reinforced this validity by identifying a consistent negative gap across all items and dimensions. Their study also indicated that the overall reliability of the questionnaire remained acceptable, with a Cronbach's alpha of 0.88.²¹ Eligible patients were informed about the study objectives and provided informed consent before independently completing the questionnaire. In cases where patients experienced physical limitations or low literacy, the researcher assisted by reading the questions aloud, ensuring that responses accurately reflected the patients' true opinions.

Table 1- Demographic characteristics of patients and results of a comparative test of their perceptions and expectations

Variable	Frequency (percentage)	Mean±standard deviation Expectations	Mean±standard deviation Perceptions	Statistical index of general expectations	Statistical index of general perceptions
Gender	Female	100 (67.70)	90.52 ± 14.30	T=0.693 P=0.489	T=0.644 P=0.521
	Male	50 (33.30)	88.88 ± 12.26		
Age	Under 30	2 (1.33)	10.8 ± 2.83	F=8.75 P<0.001	F=8.72 P<0.001
	30-39	13 (8.67)	100.08 ± 9.32		
	49-40	27 (18)	98.56 ± 13.05		
	59-50	25 (16.67)	90.50 ± 19.62		
	69-60	47 (31.33)	87.17 ± 10.09		
	70 and above	36 (24)	82.41 ± 7.88		
Education level	Illiterate	47 (31.3)	79.45 ± 9.00	F=85.067 P<0.001	F=71.458 P<0.001
	Below diploma	56 (37.3)	85.82 ± 9.66		
	Diploma	35 (23.3)	104.23 ± 5.91		
	University education	12 (0.8)	109.00 ± 1.80		
Employment status	Unemployed	4 (2.7)	66.25 ± 29.53	F=11.672 P<0.001	F=9.672 P<0.001
	Housewife	46 (30.7)	87.89 ± 11.70		
	Employee	13 (8.7)	107.46 ± 4.52		
	Freelancer	67 (44.7)	88.52 ± 11.79		
	Retired	20 (13.3)	93.00 ± 12.04		
Income level	Low	66 (42.7)	12.44 ± 12.44	F=20.530 P<0.001	F=15.532 P<0.001
	Medium	69 (46)	91.35 ± 12.36		
	High	17 (11.3)	105.24 ± 9.71		
Work shift	Morning	47 (31.1)	91.06 ± 11.83	F=1.013 P=0.366	F=0.726 P=0.486
	Evening	63 (42.2)	90.83 ± 13.25		
	Night	40 (26.7)	87.35 ± 16.01		
Duration of hemodialysis	Less than 12 months	50 (33.3)	86.40 ± 15.66	F=2.353 P=0.075	F=1.312 P=0.273
	12 to 23 months	37 (24.7)	90.00 ± 11.80		
	24 to 59 months	44 (29.3)	91.82 ± 12.25		
	60 months and above	19 (12.7)	95.05 ± 12.78		
Comorbidities	Kidney failure	12 (8)	87.00 ± 14.01	F=0.786 P=0.536	F=0.972 P=0.425
	Diabetes	47 (31.3)	91.28 ± 12.69		
	Blood pressure	70 (46.7)	89.04 ± 11.97		
	Kidney diseases	10 (6.7)	95.60 ± 13.25		
	Other diseases	11 (7.3)	88.45 ± 24.64		

To ensure data integrity, questionnaires were completed in the presence of the researcher, who provided clarifications as necessary.

This research was conducted with the ethical approval of the Ethics Committee for Research at Hormozgan University of Medical Sciences, which allocated the ethical code IR.HUMS.REC.1402.011.

The data were analyzed using an independent samples t-test to examine the relationship between patients' perceptions and expectations of nursing service quality based on their gender. A one-way ANOVA was conducted to evaluate the effects of education level, occupation, income, work shift, comorbidities, and duration of hemodialysis on these perceptions and expectations. Furthermore, a paired t-test was performed to compare patients' perceptions and expectations of nursing service quality. All statistical analyses were carried out using SPSS version 25, with a significance level set at 0.05.

Findings

A total of 150 patients participated in the study, resulting in an 83.3% response rate. Of these participants, 67.7% were female, and 33.3% were male.

The predominant age group among individuals receiving hemodialysis services was 60 to 69 years, comprising 31.3% of the cohort. The majority of respondents (68.6%) had educational qualifications below the diploma level. Regarding occupational status, 44.7% of the patients were self-employed, and approximately 46% reported an average income. Most individuals attended the dialysis center during the afternoon shift (42%), and 33.3% of patients had undergone hemodialysis for less than 12 months. Hypertension was the most prevalent comorbidity, affecting 46.7% of the participants.

Table 2- Patients' expectations and perceptions of the quality of nursing services based on the duration of hemodialysis

Dimensions	Probability	
	Expectations	Perceptions
Tangibles	0.590	0.881
Trustworthiness	0.334	0.618
Accountability	0.445	0.771
Assurance	0.007	0.008
Empathy	0.002	0.005
Total	0.075	0.273

Table 3- Average dimensions of perceptions and expectations and the gap in the quality of nursing services from the perspective of patients

Dimensions	Mean±standard deviation (expectations)	Mean±standard deviation (perceptions)	Gap	Test statistic	Probability
Tangibles	14.72 ± 2.93	13.39 ± 2.399	-1.333	-10.574	P<0.001
Trustworthiness	21.75 ± 2.77	21.37 ± 2.68	-0.373	-5.072	P<0.001
Accountability	17.39 ± 2.28	16.94 ± 2.12	-0.453	-7.923	P<0.001
Assurance	15.61 ± 2.94	15.55 ± 2.89	-0.060	-0.869	0.386
Empathy	20.51 ± 3.85	20.28 ± 3.75	-0.227	-3.040	P<0.001
Total	89.97 ± 13.63	87.53 ± 12.17	-2.447	-9.717	P<0.001

The results indicated no statistically significant differences in patients' perceptions and expectations based on gender, work shift, or type of illness across all evaluated dimensions. However, significant differences were observed regarding age, education level, occupation, and income level (see Table 1).

Additional analyses (see Table 2) demonstrated no significant relationship between the duration of hemodialysis and patients' expectations and perceptions in the dimensions of tangibles, reliability, and responsiveness ($P > 0.05$). Conversely, statistically significant differences were observed in both expectations or perceptions related to the duration of hemodialysis in the dimensions of assurance ($P = 0.007$ and $P = 0.008$) and empathy ($P = 0.002$ and $P = 0.005$).

As shown in Table 3, patients generally had higher expectations than their perceptions of nursing service quality across most dimensions, with the exception of the assurance dimension. This finding indicates that the healthcare services provided do not meet patients' expectations in the majority of areas assessed. The largest discrepancy was observed in the tangibles dimension, while the smallest gap occurred in the assurance dimension. The differences in the tangibles, reliability, responsiveness, and empathy dimensions were statistically significant ($P < 0.001$), whereas no significant difference was found in the assurance dimension ($P = 0.386$). The negative gap values indicate that the quality of services delivered consistently fell short of patient expectations.

Discussion and Conclusion

Hospital services, as a specialized subset of healthcare, require significant interaction between healthcare providers and patients, along with the active engagement of patients in the service delivery process.²² While extensive research has been conducted on healthcare service quality in hospitals in developed nations, there is a notable scarcity of studies examining patients' perceptions of hospital service quality, particularly within specialized units such as dialysis, in

developing countries.²³⁻²⁶ Given that many patients undergoing dialysis experience a reduced overall quality of life and spend prolonged periods in hospital settings, inadequate service provision can result in various complications, including infections and prevalent psychological issues such as anxiety and depression.^{27,28} Therefore, it is essential to prioritize the unique needs of these patients, ensuring they receive high-quality, appropriate care to support their overall health and well-being.

Empirical research has indicated that preventive nursing interventions, both during and after dialysis, can significantly assist patients adjust to the treatment process and achieve a safe, complication-free experience.²⁹⁻³² A study by Grynychak emphasized the crucial role nurses play in delivering quality care to patients with kidney failure within dialysis units. The study identified comprehensive patient assessments, the development of individualized care plans, patient education, and emotional support as essential nursing responsibilities in this context. Furthermore, nurses are responsible for monitoring patient safety throughout the dialysis process and fostering continuous collaboration with interdisciplinary teams.³³ By advocating for patients' rights and participating in ongoing education and quality improvement initiatives, nurses can substantially enhance the overall care experience and treatment outcomes for individuals undergoing dialysis.

The results of the present study demonstrate a significant relationship between patients' perceptions and expectations and various demographic variables, including age, educational level, occupation, and income. Notably, younger patients exhibited heightened expectations and perceptions regarding the quality of nursing services, which corroborates the findings of Yousefi et al.³⁴ Additionally, research conducted by Aiken et al. and Alasad et al. indicates that younger patients, possessing a more acute awareness of their rights and standards of care, tend to evaluate nursing services more critically. Conversely, older patients, due to their

extensive experience with illness and greater adaptation to treatment regimens, frequently report higher levels of satisfaction.^{35,36} This divergence may reflect the influence of age in shaping patients' expectations and perceptions of nursing service quality.

Moreover, the findings of the study reveal that patients with higher educational attainment have elevated expectations and perceptions regarding the quality of nursing services. This observation aligns with the work of Rademakers et al., which suggests that individuals with advanced education tend to have a heightened awareness of patient rights and standards of care, access broader social networks, engage with more informative resources, and identify shortcomings in service quality, thereby raising their expectations of nursing care. In contrast, patients with lower educational backgrounds often rate the quality of services more favorably, possibly due to lower expectations or greater acceptance of their circumstances.³⁷ These findings underscore the significant role education plays in shaping patients' perceptions and expectations of nursing service quality and highlight the need for care that corresponds to patients' levels of awareness.

Additionally, the current study indicates that individuals with higher income levels and occupational statuses have greater expectations and perceptions of service quality. Supporting evidence from Girmay et al. suggests that employed patients with higher incomes tend to have superior expectations of nursing service quality and demonstrate more favorable perceptions of the care received. This trend may stem from their enhanced familiarity with care standards, broader experiences within healthcare systems, and increased sensitivity to nurses' professional behaviors and responsiveness. Conversely, patients with lower income and occupational statuses generally maintain simpler expectations, emphasizing the human and supportive dimensions of care, including kindness, patience, and personalized attention from nursing staff.³⁸ Recognizing these distinctions

can enable nurses to provide more patient-centered care, enhance therapeutic communication, and improve overall patient satisfaction.

The findings of this study indicate that the duration of hemodialysis does not significantly influence patients' perceptions and expectations concerning the dimensions of tangibles, reliability, and responsiveness. However, notable differences were observed in the areas of assurance and empathy. These results suggest that as patients undergo treatment for extended periods, they become increasingly attuned to the significance of professional conduct, trust-building, and personalized attention from nursing staff. In contrast, the practical and tangible aspects of care appear less affected by the duration of hemodialysis. This aligns with findings from Girmay et al., which also indicated that patients with prolonged treatment experiences develop heightened perceptions and expectations regarding the supportive and human elements of their care.³⁸ Such insights underscore the necessity of addressing these dimensions during the treatment of hemodialysis patients.

The study further highlights a pervasive gap in service quality across various dimensions within the dialysis department, with the exception of the assurance dimension. The presence of a negative gap in most areas signifies that, from the patients' perspective, the current quality of nursing care falls significantly short of their desired standards, indicating that their expectations remain largely unmet. Similar findings reported by Gilavand in Iranian university hospitals revealed that patients generally have higher expectations for service quality than what they perceive they are receiving.³⁹ The substantial gap observed in the tangibles dimension reflects considerable patient dissatisfaction with the environment, equipment, cleanliness, layout, and staff appearance. Conversely, the smaller gap in assurance suggests that, despite overall dissatisfaction, patients maintain a relatively favorable view of the competence, skills, and trustworthiness of the nursing staff.

The results of this study further demonstrate that, within the dialysis department, patients generally possess greater expectations than their actual perceptions of nursing services across most dimensions of service quality, as measured by the SERVQUAL questionnaire. The most significant negative gap was observed in the tangibles dimension, while the smallest was noted in the assurance dimension. This pattern correlates with demographic factors including younger age, higher education, and higher income levels—each associated with heightened expectations and perceptions—as well as longer durations of dialysis treatment, which correlate with increased sensitivity to assurance and empathy. These consistent gaps indicate that the perceived quality of care does not meet patients' desired standards, underscoring the urgent need for patient-centered care that enhances interactions with healthcare personnel and implements preventive nursing interventions to reduce complications, enhance adaptability, and promote overall well-being. To address these issues, it is recommended to develop and implement continuous educational programs for nursing staff that focus on enhancing tangible aspects, empathy, and responsiveness. Additionally, upgrading the physical infrastructure of the dialysis department—including equipment, cleanliness, and layout—is essential. Care should be tailored to align with patients'

demographic characteristics, such as age and education level. Strengthening interdisciplinary collaboration among nurses, physicians, and specialists is also critical to ensuring patient safety and reducing complications. Furthermore, multicenter longitudinal studies should be conducted to assess the sustainability of changes in service quality and their impact on patients' quality of life.

Limitations of the current study include reliance on self-reported SERVQUAL data, which may be subject to response bias; the restriction of the sample to a single hospital complex, limiting the generalizability of the results; and the inability to control for external variables such as nurses' workloads or prevailing economic conditions.

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