



Original Article

Service Quality Gaps in the Provision of Care to Surgical Patients: a Cross-Sectional Study in the Northwest of Iran

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ABSTRACT

Introduction: The evaluation of service quality is a key measurement which provides the necessary information for effective decision making and providing high quality care. This study aimed to investigate the factors affecting the service quality gap for the provision of care from the perspective of surgical patients hospitalized in a teaching hospital in the Northwest of Iran in 2015.

Methods: In this descriptive cross-sectional study a total of 300 patients and 101 nurses were selected by random sampling method. The data regarding patients' expectations and perceptions of the quality of healthcare services were collected using the SERVQUAL questionnaire. Also, the nurses' demographic data were assessed using the demographic data tool.

Results: The mean and standard deviation of the patients' expectations and perceptions of the quality of healthcare services were 66.59(8.52) and 51.81(11.97), respectively. In all dimensions of the quality of healthcare services, the patients' perceptions were lower than their expectations. The greatest gap was observed in the dimensions of assurance and responsibility and the lowest gap was reported in the domains of reliability and empathy. There were statistically significant relationships between the nurses' age, work experiences in surgical wards, professional experiences of nurses, patients' income level and the gap in the quality of healthcare services.

Conclusion: Despite great efforts directed at the field, the healthcare system still faces numerous challenges in the provision of high quality healthcare services to the patients. The health system should support low-income people and employ professional and experienced nurses for improving the quality of healthcare services.

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Introduction

Patients' satisfaction is a key determinant for evaluating the quality of healthcare services. Healthcare organizations aim to improve patients' satisfaction and their survival rate through the evaluation of healthcare services delivered to them.¹ The delivery of optimal healthcare services is a prerequisite for healthcare systems' success.² The provision of high-quality healthcare services increases the likelihood of desired outcomes.³ Quality evaluation is an important component of the evaluation of healthcare systems.⁴ The quality of healthcare services is a strategic indicator to improve the desired outcomes in health care settings.⁵

Nurses are directly involved in almost all aspects of healthcare, including patient care, bedside and medication management, assistance with surgeries and other major operations. Furthermore, nurses are directly responsible for monitoring and assessing patients, and performing immediate interventions to reduce the risks or prevent medical complications and errors.^{6,7}

Nowadays, modern medicine has increasingly underscored the importance of measurement and evaluation from the perspective of patients.⁸ In fact,

evaluation is a key measurement which provides the necessary information for effective decision making and providing high quality care.⁹ The bulk of research in this area indicates that there are many challenges in providing the quality of healthcare services and patient satisfaction.¹⁰ Some theorists believe that the patients' perception of quality affects the provision of high-quality services.¹¹ For quality improvement, the National Surgical Quality Improvement Program (NSQIP), has sought to improve the quality of surgical care for approximately 20 years by providing hospitals with risk-adjusted outcomes allowing for external benchmarking.¹²

From the standpoint of the Britain's National Health System (NHS), quality provides the right services to the right person at the right time in a convenient and practical way, which is based on the humanistic method.¹³ There are also other definitions which emphasize that the quality of healthcare services should have compliance with the patients' expectations.¹⁴

Parasuraman et al., believe that customers' perceptions help to evaluate the quality of healthcare service. They believe that "service quality is defined as the gap between predicted or expected service (customer expectations) and perceived service (customer

perceptions)¹⁵. In this regard, Parasuraman et al., designed the SERVQUAL questionnaire to measure the functional service quality using both the gap concept and service quality dimensions.¹⁶ This questionnaire has been used in a wide range of studies to evaluate both the customer's service expectations and perceptions of the provider's performance.¹⁷

The investigation of customers' perceptions help healthcare managers to establish if patients' expectations and experiences are compatible with the reality or not.¹⁸

Various studies have shown gaps in the different dimensions of healthcare services in different settings.^{5,19,20} Given the importance of assessing patient satisfaction with the quality of healthcare services and the importance of patients' involvement in planning, this study was conducted to investigate factors affecting service quality gaps in the provision of care to surgical patients in a teaching hospital in an urban area in the Northwest of Iran in 2015.

Materials and methods

This descriptive cross-sectional study was conducted on patients hospitalized in the surgical wards of a teaching hospital in Tabriz city in the northwest of Iran. The study's protocol was reviewed and approved by the ethics committee of Tabriz University of Medical Sciences (Code: TBZMED.REC.1394.525).

A total of 300 patients and 101 nurses were selected through random sampling method. The inclusion criteria for patients were being Iranian, candidates for emergency and elective surgery, and more than 20 years old. All nurses with more than one year's experience in the surgical wards who were willing to participate in the study were included.

According to a pilot study, by considering 95% confidence interval and 80% power using G-Power software, the sample size was estimated 266 people. Also, considering 10% possibility of attrition rate, 300 patients were chosen using a random sampling method. A list of random numbers was generated and the eligible patients who were on the list of surgery were recruited. The patients' expectations and perceptions of the quality of healthcare services were collected using the SERVQUAL questionnaire. Also, nurses' demographic data were assessed using the demographic data tool.

The SERVQUAL questionnaire consisted of 32 questions including 15 questions for expectations and perceptions and 2 general questions for the quality of healthcare services. Questions 1-3 were related to the domain of tangibles, questions 4-6 to reliability, questions 7-9 to responsibility, questions 10-13 to assurance, and questions 14-15 to empathy. A 5-point Likert from "very much" to "very little" was used in this questionnaire.

SERVQUAL questionnaire measures the quality of service based on the individuals' perception (P) on how well a given service delivery meets their expectations (E) of a given service delivery. Therefore, the service quality (SQ) is calculated by the following formula: $SQ = P - E$. In line with this formula, the difference between the

participants' perceptions and expectations in each five domains and the total score were considered as service quality gap in that domain.

The Persian version of this questionnaire has been assessed in terms of psychometric properties by Heidarnia et al., who reported acceptable validity and reliability.²¹ In this study the reliability of the SERVQUAL questionnaire was determined by calculation of Cronbach's alpha coefficient, which were 0.97 and 0.92 for expectations and perceptions domain, respectively. The SERVQUAL questionnaire was filled out by the participants after the surgery and on the discharge day from hospital. The patients were provided with appropriate information about the study aim and methods. Those who agreed to participate in this study signed a written informed consent form. The collected data were analyzed, using an inferential and descriptive method by the SPSS software version 13.

Results

The mean age of the patients was 44.99 years (SD=17.53). More than half of whom (57.7%) were male. The majority of the patients needed eye, nose and throat surgeries and the lowest number of them were to undergo orthopedic surgeries. Also, about half of the patients (54%) had an intermediate economic level (Table 1).

Table 1. Demographic characteristics of patients participated in the study (n=300)

Variables	N (%)
Surgery type	
General	57 (19)
ENT (Ear- Nose-Throat)	83 (27.7)
Urology	50 (16.7)
Neurology	37 (12.3)
Jaw and face	13 (4.3)
Thorax	35 (11.7)
Orthopaedic	5 (1.7)
Kidney transplant	7 (2.3)
Trauma	13 (4.3)
Gender	
Male	173 (57.7)
Female	127 (42.3)
The economic condition	
Income, more than spending	10 (3.4)
Income, less spending	124 (42)
Income, equal payment	161 (54.6)
Marital status	
Single	65 (11.7)
Married	235 (78.3)
Educational level	
Illiterate	96 (32.1)
Primary	70 (23.4)
Middle school	43 (14.4)
High school	55 (18.4)
Collegiate	35 (11.7)
Insurance type	
Social security insurance	106 (35)
Health service	21 (7)
Rural insurance	64 (21.3)
Armed forces insurance	19 (6.3)
Health insurance	69 (23)
Other	21 (7)
Age*	44.99 (17.53)
Hospitalization day*	2.91 (2.75)
Hospitalization number*	1.31 (0.68)

Data presented as mean (SD)

With regard to the patients' perceptions of the quality of healthcare services, the highest and lowest mean scores belonged to the domains of reliability 10.65 (2.40), responsibility 10.13 (2.71), and empathy 6.78 (1.88), respectively. The means (SD) of the patients' expectations and perceptions of the quality of healthcare services were 66.59 (8.52) and 51.81 (11.97), respectively.

More than two thirds of nurses (85.1%) were female with a mean of age 36.88 years (SD=6.64). The majority of them (91.1%) had bachelor degree with mean work experience 12.25 years (SD=6.23) in nursing (Table 2).

Table 2. Demographic characteristics of nurses participated in the study (n=101)

Variables	N (%)
Gender	
Male	15 (14.9)
Female	86 (85.1)
Marital status	
Single	18 (17.8)
Married	83 (82.2)
Educational level	
Bachelor	92 (91.1)
Master	9 (8.9)
Age*	36.88 (6.64)
Work experience*	12.25 (6.23)
Work experience in surgery wards*	6.72 (6.61)

*Data presented as mean (SD)

The results indicated that the mean score of overall service quality gap (total questionnaire) was -14.78 (13.63), and the greatest service quality gap was found in the dimensions of assurance -3.98 (4.13) and responsibility -3.16 (3.14). Moreover, the lowest service quality gap was reported in the domains of reliability (-2.57 (2.70) and empathy -2.10 (2.15) (Table 3).

Table 3. Mean and standard deviation of expectations, perceptions and healthcare service gap from the perspective of patients

Dimensions of healthcare quality	Expectation* Mean (SD)	Perception* Mean (SD)	Service gap Mean (SD)
Tangibles	13.17(1.84)	10.32(2.61)	-2.84 (2.91)
Reliability	13.26(1.79)	10.65(2.40)	-2.57(2.70)
Responsibility	13.32(1.86)	10.13(2.71)	-3.16(3.14)
Assurance	17.93(2.48)	13.92(3.55)	-3.98(4.13)
Empathy	8.90(1.28)	6.78(1.88)	-2.10(2.15)
Total	66.59(8.52)	51.81(11.97)	-14.78(13.63)

* P-value between all data Expectation and Perception < 0.01

The analysis showed that only the patients' income level had a statistically significant relationship with the reported service quality gap. It meant that from the perspectives of the patients at a low economical level, the service quality gap between expectations and perceptions were greater than that for other patients (P=0.008) (Table 4).

The Pearson correlation test showed statistically significant inverse relationships between the nurses' age (r=-0.13, P=0.016), work experiences (r=-0.14, P=0.016), work experiences in surgical wards (r=-0.17, P=0.003) and professional experiences (r=-0.15, P=0.008) (Table 5).

Table 4. The relationship between gap and the income level in surgical patients

Variable	N	Mean (SD)*	95% CI for Mean		ANOVA F	P**
			Lower Bound	Upper Bound		
Low	161	-16.88 (14.09)	-19.07	-14.69	4.86	0.008
Moderate	124	-12.70(12.66)	-14.96	-10.45		
High	10	-7.42(15.37)	-18.42	3.57		
Total	295	-14.80(13.73)	-16.38	-13.23		

*Mean of service gap (Std. Deviation), **Correlation is significant at the 0.01 level

Table 5. The relationship between the service gap and the characteristics of nurses caring for patients

Service gap	Age	Work experience	Work experience in surgery wards	Professional experience
r	-0.13*	-0.14*	-0.17**	-0.15**
P	0.016	0.016	0.003	0.008

*Correlation is significant at the 0.05 level, **Correlation is significant at the 0.01 level

Discussion

The results of this study showed that the patients' expectations of the quality of healthcare services have not been met. With regard to the patients' perceptions of the quality of healthcare services, the greatest mean score was for the domain of reliability and the lowest mean scores were for the domains of responsibility and empathy. The shortage of human resources in the work environment of the nurses inevitably compromises the required attention which is supposed to be paid to the psychological and emotional aspects of work. Andaleeb stated that a lack of responsibility and interest on the part of healthcare staff can lead to inappropriate use of money, time and energy.²² A study by Hekmatpour et al., on the evaluation of the quality of healthcare services in Arak showed that the highest perceptions were for the domains of assurance and reliability.¹⁹ Similarly, Mohammadnia showed that the highest quality of healthcare services was for the domain of reliability and the lowest quality was for responsibility.²³ Conversely, a study conducted by Mohammadi et al., in Zanjan found that the highest perception belonged to the domain of tangibles and the lowest one to the domain of reliability.²⁴ Also, in the study of Jenaabadi et al., the highest and lowest scores belonged to the tangibles and empathy dimensions, respectively.²⁵

The reliability indicates that healthcare services are delivered appropriately and on time. In view of the fact that all surgical cares and services must be carried out in an accurate and timely manner, the reliability of services based on the patient's perception was found to be better than other dimensions. It achieved the highest score of the patients' perceptions in this study. The domain of empathy indicated emotional support from the patient and attention to his/her needs. In this respect, Boshoff and Gary described empathy as factors affecting patients' loyalty.²⁶ The results of a study by Cabe showed that the patients were dissatisfied with communication, attention, empathy and friendly communication of the nurses, which affected their perspectives of the quality of healthcare services.²⁷ From the nurses' perspectives, as

reported by Gorji *et al.*,²⁸ there is a gap between expectations and perceptions for empathy and assurance. Therefore, nurse managers should encourage the nurses to provide patient-centered care that leads to patients' satisfaction.

There is a need to improve empathy, responsibility and on time care in healthcare settings. In this study, there was a gap between expectations and perceptions in all domains as patients' expectations were greater than their perceptions. The greatest gap was in the dimensions of assurance and responsibility and the smallest gap was reported in the domains of reliability and empathy. In the other studies, empathy was the domain where the score was less. For example, in the study of Bavafa *et al.*, the lowest score in perceptions related to the empathy.²⁹

Similarly, Bahrami *et al.*, in Yazd found a negative gap in the domain of tangibles and responsibility.³⁰ The study of Baker *et al.*, in Turkey³¹ and Karassavidou *et al.*, in Greece³² reported gaps in healthcare services in all domains; this findings supports the findings of the current study.

In fact, the negative gap between perceptions and expectations regarding healthcare services indicates a lack of attention to the quality of healthcare services, which requires the attention of managers and policy makers.³³ In some studies, there was a positive gap in service quality. For example, Regaira *et al.*, in a study on critical care units in Spain³⁴ and Sadigh Soheil in Malaysia³⁵ reported positive gaps indicating that patients' perceptions were greater than their expectations. Moreover, Caha in Turkey reported that since the patients' perceptions were close to their expectation of the quality of healthcare services, many patients preferred to receive the required care in private hospitals rather than public ones.³⁶

In this study, patients' economic level had an inverse relationship with the gap in the quality of healthcare services. In line with our results, Palihawadana and Barnes showed that the cost of healthcare services affected the patients' perceptions of the quality of services.³⁷ However, Regaira *et al.*, found no relationship between demographic data and the quality of healthcare services.³⁴ Baker *et al.*, found the role of age and educational level so important in the development of patients' expectations of the quality of services.³¹ In a study by Kebriaei *et al.*, an inverse relationship was found between education and the quality of services and there was a positive relationship between age and the quality of services.³⁸

In this study, the nurses' demographic characteristics including age, work experience in surgical wards, and professional work experiences had inverse relationships with the service quality gap indicating that any improvement in these characteristics could lead to the closeness between patients' perceptions and expectations. The study of Cabe showed that if nurses try to improve their knowledge and skills, the patients' trust would be improved and the quality gap could be reduced.²⁷ Joseph *et al.*, stated that the gap in the quality of healthcare could be reduced through education to healthcare staff.³⁹

The findings of the current study with regard to the role of nurses' experiences in the reduction of quality gap were in line with the findings of Gorji *et al.*,²⁸ indicating that nurses' knowledge and skills improves the patients' trust and reduces the gap. Therefore, certain educational programs are required for understanding the patients' needs, continuous evaluation and reward systems for internalizing respectful behaviors by healthcare staff during the provision of care.

Conclusion

Despite great efforts, the healthcare system faces numerous challenges in the provision of high quality healthcare services to patients. The health system should support low-income people and employ professional and experienced nurses for improving the quality of healthcare services. More studies are needed to explore factors affecting the quality of care and understanding patients' experiences. This study was conducted in a public hospital in northwest Iran and its findings cannot be generalized to the private hospitals, or other national and international settings. International studies are suggested for the investigation of the improvement of the quality of healthcare services.

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Ethical issues

None to be declared.

Conflict of interest

The authors declare no conflict of interest in this study.

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