

## Original Article

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## Emergency Department Patient Satisfaction Assessment using Modified Servqual Model; a Cross-sectional Study

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### Abstract

**Introduction:** The quality of medical services and attention paid to patients in medical centers have been concerning for healthcare providers.

**Objective:** The present study was designed to identify factors affecting patient satisfaction with medical service in the emergency department (ED).

**Method:** This was a cross-sectional study conducted in spring 2016 in Imam Khomeini Hospital, Jiroft, Iran. Patients aged more than 18 years presenting to the ED with a minimum stay of 24 hours were included. Unwillingness to take part, incomplete questionnaires, or unavailability for an interview were considered the exclusion criteria. Data were collected using a 24-item researcher-made questionnaire based on Servqual quality measuring tool with five components of tangibles, reliability, responsiveness, assurance, and empathy.

**Results:** The present study recruited 373 patients with the mean age of 41.7±21.8 years (minimum 18 and maximum 79 years), of whom, 67.1% were men. Mean scores indicate the level of patient satisfaction with the hospital service ranging from relatively satisfied to totally satisfied. The components ranking in improving patient satisfaction were as follows: tangibles 4.59, assurance 2.77, reliability 2.74, responsiveness 2.57, and empathy 2.33.

**Conclusion:** Of the components assessing the patient satisfaction, tangibles were the most effective component and empathy was the least effective one.

**Key words:** Quality of Health care; Patient Satisfaction; Emergency Department; Quality Improvement

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### INTRODUCTION

Customer orientation and client satisfaction are important factors that affect competitiveness, improvement and successful achievement of institutions for future opportunities (1, 2). Several definitions have been provided for satisfaction. "The clients' perceived fulfillment of their demands and expectations" is generally referred to as satisfaction. Thus, the level of satisfaction is a matter of the difference between individual's perceived and expected performances (3). Considering that the main philosophy and mission of patient management is to satisfy public needs, all citizens can therefore be regarded as clients of public organizations (4).

Hospitals and health centers are among the public centers that handle a substantial number of clients every day. It is crucial to provide an attentive approach to patients visiting medical centers and to improve the quality and method of providing services. Proper planning and management will entail public satisfaction whereas, neglecting these

factors may violate human rights (5-7). Satisfaction is a concept that is particularly important in medical care, and it is crucial for the assessment of performance and the quality of services provided by public organizations. Therefore, serious attention to this important issue can profoundly improve the quality of medical service provided in all aspects of the health system (8, 9).

The assessment of patients' expectations and priorities can significantly help authorities in providing clients with better organized services (10-12). Thus, the present study was designed and conducted to assess the importance of factors affecting patient satisfaction with medical services in the emergency department (ED) of a local hospital.

### METHODS

#### *Study design and Setting*

The present cross-sectional study was conducted in Imam Khomeini Hospital, Jiroft, Iran in 2016

with the annual visits of more than 10000 patients and the protocol was approved by the ethics committee of Jiroft University of Medical Sciences. Patients entered the study after their verbal consent for participation.

Despite difficulties faced by the researcher, as recommended by previously, questionnaires were mainly completed in patients' houses 7 days after their discharge and with prior arrangement. However, some questionnaires were completed in the emergency department at discharge to enhance the accuracy of results.

#### **Study population**

All patients older than 18 years of age presenting to the emergency department, with a minimum stay of 24 hours were included in the study. Unwillingness to take part, incomplete questionnaires, or unavailability for an interview were considered the exclusion criteria. Given the annual statistics of patients attending the hospital ED, the confidence interval of 95%, and probability of error of 5%, samples size was determined 384 patients. Sampling was conducted using convenient method during various working shifts and days until the intended sample size was fulfilled.

#### **Data collection and Validation**

Data were collected using a researcher-made questionnaire based on Servqual quality assessment model with five components of tangibles, reliability, responsiveness, assurance, and empathy (13). Of the 24 items of the questionnaire, 21 were based on Servqual criteria and three were added through interviews with experts and the review of literature. An open question was also added at the end of the questionnaire to assess patients' viewpoints on the quality and satisfaction from the healthcare system. The questionnaire items were given scores according to a 5-point Likert scale (totally satisfied=5, satisfied =4, relatively satisfied=3, dissatisfied=2, and totally dissatisfied=1). Total scores of items in each component were determined, and then classified as low, moderate, and high. Face and content validity were confirmed via the viewpoints expressed by 10 professors and experts in this field. Reliability of the tool was computed using internal consistency assessed by 20 patients (Cronbach's alpha=0.995). The translation validity of the questionnaire items were assessed by the expert panel, rechecked by a linguist and piloted in 10 patients.

#### **Definition**

The five component of Servqual are as follows: Component 1) Tangibles are the appearance of

physical facilities, equipment, and hospital personnel. For this component, score from 6 to 14 was considered as low, 15 to 22 as moderate, and 23 to 30 as high.

Component 2) Reliability is the ability to provide services as promised reliably and carefully. For this component, scores from 5 to 12 are considered low, 13 to 18 as moderate, and 19 to 25 as high.

Component 3) Responsiveness is the willingness to help patients and provide services immediately. For this component, scores from 4 to 9 were considered as low, 10 to 15 as moderate, and 16 to 20 as high.

Component 4) Assurance is personnel's knowledge and courtesy, and ability to generate hope and assurance in patients. For this component, scores from 4 to 9 were considered as low, 10 to 15 as moderate, and 16 to 20 as high.

Component 5) Empathy is the care and particular attention of hospital personnel to patients. For this component scores from 5 to 12 are considered low, 13 to 18 as moderate, and 19 to 25 as high.

#### **Statistical analysis**

Data was analyzed by SPSS-21 and were described as frequency, frequency percentage, mean, and standard deviation. Data related to the study hypotheses were analyzed using chi-square and independent t tests, and the effect of items on patient satisfaction was analyzed by Friedman test. The significance level was considered as  $P < 0.05$ .

## **RESULTS**

Five hundred and forty patients were eligible of whom 167 were excluded. The rate of missing data was less than 10% due to the patients' unresponsiveness after discharge. A total of 373 patients with the mean age of  $41.7 \pm 21.8$  years (minimum 18 and maximum 79 years) participated in the study, of whom, 67.1% were men. Table 1 presents participants' demographic details, showing that 78.6% of them were married, 77.1% were aged between 21 and 50 years, 60% had high school diploma or less education, 55.8% were employed, and 57.9% had been hospitalized for the first time. Appendix 1 shows the level of participants' satisfaction categorized by questionnaire items. Mean scores indicate the level of patient satisfaction from hospital care, ranging from relatively satisfied to totally satisfied.

Table 2 shows satisfaction scores rated by the study participants.

Friedman test analysis assessed the ranking of the satisfaction components as follows: tangibles 4.59, assurance 2.77, reliability 2.74, responsiveness 2.57, and empathy 2.33.

**Table 1:** Demographic and basic details of participants

Variable	Number (%)
<b>Gender</b>	
Male	250 (67.1)
Female	123 (32.9)
<b>Marital status</b>	
Single	80 (21.4)
Married	293 (78.6)
<b>Age (years)</b>	
≤20	21 (5.6)
21-30	93 (25.0)
31-40	96 (25.7)
41-50	99 (26.5)
51-60	48 (12.9)
61-70	10 (2.7)
>70	6 (1.6)
<b>Education level</b>	
Diploma and less	224 (60.1)
Advanced diploma	43 (11.5)
Bachelor's degree	77 (20.7)
Master's degree	24 (6.4)
PhD and higher	5 (1.3)
<b>Employment status</b>	
Employed	208 (55.8)
Retired	40 (10.7)
Housewife	125 (33.5)
<b>Frequency of hospitalization</b>	
1	216 (57.9)
2	53 (14.2)
3	35 (9.4)
4	43 (11.5)
≥5	26 (7.0)

**DISCUSSION**

The Servqual five quality components has been used for the assessment of satisfaction in many developing countries, including Pakistan, Lebanon, and Saudi Arabia (14-16). Previous studies such as those conducted by Gonzalez-Valentin et al. in Spain and Zarei et al. in Iran have also confirmed the validity and reliability of this model. However, female gender, higher education level, poor general satisfaction from the hospital, and incomplete information about the nurses' identity were proposed as most effective factors on the use of this scale (2, 17).

In a study by Aghamolaei et al., using Servqual model in Bandarabbas, Iran, the results suggested

a poor level of patient satisfaction (18). On the other hand, a satisfaction survey performed by Hashemi et al. reported controversies in one of the major referral hospitals of Tehran, Iran (19). Andaleeb et al. in Bangladesh and Uzun et al. in Turkey also assessed patient satisfaction with Servqual questionnaire (10, 20). In our study, the most influential factor that may improve patient satisfaction from the ED service was identified as tangibles (4.59 ranking score) followed by assurance (2.77) and the least effective, empathy (2.32). This meant that the issue of tangibles in hospitals such as ambient qualifications, medical spaces, facilities and equipment, physical tools and the appearance of hospital personnel had the highest effect on patient satisfaction.

The issue of reliability was the second factor that affected satisfaction, and derived from the ability of healthcare system to fulfill its promises precisely and continuously, showing interest in solving patient's problems, and providing patients with a flawless report. The third factor that affected patient satisfaction was responsiveness, which include informing patients about received care, providing immediate service, enthusiasm to help patients and response to patient requests.

In contrast to the present study, in a study conducted by Pakdil et al. in Turkey using Servqual model, responsiveness and empathy were more effective than other components in the assessment of satisfaction, and they recommended this model as an appropriate method for the evaluation of patients' preferences and real experiences (21). Furthermore, in a study conducted by Chou et al. in Taiwan, responsiveness was identified as the most effective factor on patient satisfaction (22).

**Limitations**

This was a single-center study conducting in a short period. Considering effective social and cultural factors on the patients' satisfaction in various societies would be helpful and important to interpret the results and to compare with previous studies. Data collection in patients' houses after discharge, although low, but resulted in missing data.

**Table 2:** The expert panel scoring to each of the five components in the present study and the assessment of their effect size

Component	Score			Mean ± SD	P value
	Low	Moderate	High		
	Number (%)				
Tangibles	11 (2.9)	88 (23.6)	274 (73.5)	24.98±4.67	0.000
Reliability	21 (5.6)	83 (22.2)	269 (72.2)	20.33±4.69	0.000
Responsiveness	43 (11.5)	67 (18.0)	263 (70.5)	15.72±4.10	0.000
Assurance	32 (8.6)	56 (15.0)	285 (15.0)	16.55±3.74	0.000
Empathy	48 (12.9)	101 (27.1)	224 (60.0)	18.8±5.28	0.000

**CONCLUSIONS**

Tangibles were the most effective component in patient satisfaction from the healthcare service whereas empathy was the least effective one.

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**AUTHORS' CONTRIBUTION**

All the authors met the standards of authorship based on the recommendations of the International Committee of Medical Journal Editors.

**CONFLICT OF INTEREST**

None declared.

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None declared.

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**Appendix 1:** The expert panel scoring to each of the five components in the present study and the assessment of their effect size

Row	Item	Totally dissatisfied	Dissatisfied	Relatively satisfied	Satisfied	Totally satisfied	Mean ± SD
		n(%)					
1	New and modern hospital equipment	3(0.7)	16(4.3)	80(21.4)	207(55.7)	67(17.9)	3.86±0.78
2	Attractiveness of physical facilities and tools in this hospital	0(0.0)	37(10.0)	101(27.1)	184(49.3)	51(13.6)	3.67±0.84
3	Well-presented and tidy hospital personnel	0(0.0)	8(2.1)	37(10.0)	114(30.7)	214(57.1)	4.42±0.76
4	Hospital cleanliness and hygiene	3(0.7)	8(2.1)	40(10.7)	125(33.6)	197(52.9)	4.36±0.81
5	Proper and regular working hours of hospital	3(0.7)	5(1.4)	55(15.7)	105(28.6)	205(53.6)	4.33±0.84
6	Patient's matters are recorded on a special card, booklet, or form	8(2.1)	5(1.4)	40(10.7)	115(30.7)	205(55.0)	4.35±0.89
7	Patient services are provided as promised	8(2.1)	27(7.1)	85(22.9)	120(32.1)	133(35.7)	3.92±1.03
8	Personnel attend to patient's problems with sincerity	5(1.4)	35(9.2)	64(17.1)	125(33.6)	144(38.6)	4.33±0.84
9	Hospital provides correct services the first time	5(1.4)	16(4.3)	50(13.6)	147(39.3)	155(41.4)	4.35±0.89
10	Hospital provides services as promised on time	5(1.4)	16(4.3)	67(17.9)	133(35.7)	152(40.7)	3.92(1.03)
11	Hospital informs patient about procedures to be carried out	0(0.0)	16(4.3)	72(19.3)	117(31.4)	168(45.0)	3.98±1.03
12	Hospital personnel provide early services	8(2.1)	32(8.6)	67(17.9)	131(35.0)	135(36.4)	4.15±0.91
13	Personnel are always welcome helping patients	13(3.6)	37(10.0)	40(10.7)	131(35.0)	152(40.7)	4.1±0.94
14	Patients' hygienic needs are performed without complaint	5(1.4)	53(14.3)	50(13.6)	136(36.4)	129(34.3)	4.17±0.89
15	Personnel are not too busy to respond to patients' requests	0(0.0)	43(11.4)	58(15.7)	165(44.3)	107(28.6)	3.95±1.04
16	Personnel's conduct is reassuring for patients	8(2.1)	26(7.1)	53(14.3)	128(34.3)	158(42.1)	3.99±1.12
17	Patient is sure to receive services he has paid for	0(0.0)	32(8.6)	45(12.1)	133(35.7)	163(43.6)	3.88±1.08
18	Personnel are always courteous toward patients	3(0.7)	26(7.1)	29(7.9)	133(35.7)	182(48.6)	3.90±0.95
19	Personnel are knowledgeable enough to respond to patients' questions	5(1.4)	26(7.1)	35(9.3)	168(45.0)	139(37.1)	4.07±1.02
20	Hospital pays special attention to patients	19(5.0)	29(7.9)	75(20.0)	138(37.1)	112(30.0)	4.14±0.94
21	Hospital personnel pay special attention to patients	13(3.6)	56(15.0)	80(21.4)	131(35.0)	93(25.0)	4.24±0.93
22	Personnel are wholeheartedly interested in patients	13(3.6)	27(7.1)	109(29.3)	133(35.7)	91(24.3)	4.09±0.94
23	Doctors visit patients personally every day and control his state of health	11(2.9)	44(11.8)	59(15.8)	103(27.6)	156(41.9)	3.8±1.11
24	Hospital personnel predict and meet patients' specific needs	3(0.7)	45(12.1)	22.9(85)	133(35.7)	107(28.6)	3.63±1.12