Evaluation of Service Quality From the Patients' Viewpoint in the Oncology Setting of a University Hospital in Iran

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Abstract

Background: Hospitals are one of the most important units in providing healthcare services. The assessment of the quality of provided services is essential in these settings. Patient satisfaction is one of the key indicators of service quality in healthcare organizations.

Objectives: This study aimed at investigating the gap between the perceptions and expectations of service recipients in Shohada-e-Tajrish Hospital (Tehran, Iran), using the SERVQUAL model in 2020.

Methods: This cross-sectional study was conducted on patients with cancer, who were upon discharge from Shohada-e-Tajrish Hospital. Patients (> 18 years) with a cancer diagnosis, who were being discharged from the oncology ward of the hospital, were included in this study. The sample size was estimated at 118. The required information was collected, using the modified SERVQUAL questionnaire. Statistical analyses were performed in SPSS version 20, using a paired t test and one-sample *t*-test.

Results: The results showed that the quality of the provided services from the patients' perspective was significantly lower than their expectations. The mean gap between the expectations and perceptions of patients was significantly above zero (P < 0.001). The most influential factor in improving patient satisfaction with the quality of services was assurance, followed by reliability, while the least effective factor was empathy. The correlation coefficient between the general status of provided services from the patients' point of view and loyalty was 0.740 (P < 0.001).

Conclusions: The findings of the present study indicated that patient expectations were higher than their satisfaction. Therefore, hospital authorities should take major steps to improve the quality of services, especially reliability and responsiveness, through proper planning, prioritization of services, and review of processes contributing to patient expectations. The existing gaps can also be addressed by considering the perspectives of patients as the clients of healthcare organizations.

Keywords: Patient Satisfaction, Perceptions, Quality of Healthcare, Population Health Management

1. Background

Quality management is the ability to produce a product or deliver a service in a way that satisfies the needs of customers (1). The lack of direct contact with the customer ultimately leads to service failure. Therefore, customers' expectations are not met, resulting in disagreements between the organization and clients in terms of service quality (2). Customers' thoughts and feelings need to be prioritized by all organizations due to the increasing awareness of the public; this prioritization can either strengthen or weaken the organization. Accordingly, concentration on the customers' demands is an essential fea-ture of customer-centered organizations in today's world (3). Overall, proper planning and management entail public satisfaction, whereas negligence may lead to the violation of human rights (4).

Cancer is one of the main causes of mortality, imposing a heavy burden on public health, and posing a major clinical challenge worldwide. In 2018, cancer was responsible for 9.6 million deaths worldwide. Also, cancer mortality is increasing gradually, reaching 16.38 million cases in 2040 (5). Cancer is the third cause of mortality following cardiovascular diseases and injuries in Iran (6). Considering the increasing prevalence of cancer, major attention must be paid to its main casual factors as well as developing diag-

nostic and treatment modalities.

The SERVQUAL model was first developed by Parasuraman et al. in 1980. This tool essentially measures 10 dimensions of service quality. It measures the gap between customer expectations and experiences. In subsequent studies, Parasuraman et al. reduced them into 5 major factors, including tangibles, reliability, responsiveness, assurance, and empathy ([7]).

Customer expectations are defined as factors, which lead an organization to behave or act satisfactorily ([8]). Also, patient perceptions are defined as the patient's interpretations, through which sensory stimuli are recognized and interpreted ([9]). The SERVQUAL model has been applied in several countries, including Romania ([10]), Turkey ([11]), Saudi Arabia ([12]), and Bangladesh ([13]) to measure service quality in hospitals and health organizations.

Research on patients with cancer shows that billing accuracy and waiting time are significant problems for patients ([14]). Some studies have shown that the SERVQUAL model has high validity and reliability in evaluating the quality of medical services in hospitals ([15]). The patient-reported quality of service determines the extent to which a person's experience of health services has fulfilled his/her expectations ([16]). Overall, satisfaction is a concept that is particularly important in medical care and is crucial for the assessment of the performance and quality of services provided by public organizations.

2. Objectives

In this study, we aimed at determining the quality gap of health services in Shohada-e-Tajrish Hospital in Tehran, Iran, using the SERVQUAL model. The evaluation of the strengths and weaknesses of hospital services from the service recipient's perspective can enable managers and policymakers to employ suitable strategies for overcoming their shortcomings.

3. Methods

This cross-sectional study was performed on patients with cancer undergoing discharge processes in Shohada-e-Tajrish Hospital of Tehran, Iran. According to the sample size formula ($n = \frac{Z^2 \times P\,(1-P)}{d^2}$), the sample size was estimated at 118 (P = 50%, α = 5%, d = 9%). Finally, 104 patients completed the questionnaires.

The questionnaires were completed while the patient was being discharged from the hospital, and the patient's companion was following the discharge processes; therefore, the patients could answer the questions calmly. From December 2019 to February 2020, 104 patients, who were referred to the oncology ward of Shohada-e-Tajrish Hospital, were selected via simple random sampling. All patients older than 18 years with a cancer diagnosis, who stayed in the oncology ward for a minimum of 24 hours, were included in the study. On the other hand, patients with life-threatening conditions, such as severe somatic and psychiatric disorders or severe cognitive, motor, and visual problems, were excluded.

The necessary information was collected according to the objectives of the study by reviewing similar manuscripts, using the modified SERVQUAL questionnaire ([17]). The SERVQUAL questionnaire, with 5 service quality components, has been used for the assessment of satisfaction in many developing countries, including Pakistan and Lebanon ([18], [19]). Previous studies, such as the ones conducted by Gonzalez-Valentin et al. ([20]) in Spain and Zarei et al. ([21]) in Iran have also confirmed the validity and reliability of this model.

The modified SERVQUAL questionnaire consists of two parts. The first part includes items to determine the patient's demographic characteristics, such as age, sex, educational level, and insurance coverage status. The second part of the questionnaire contains 33 questions, rated on a 5-point Likert scale. This part is divided into two categories (one for expectations and one for perceptions) with 15 questions each. There are also 3 general questions, rated on a 5-point Likert scale, about the quality of hospital services.

In the SERVQUAL questionnaire, questions 1 to 3 are related to tangibles, questions 4 to 6 are related to reliability, questions 7 to 9 are related to responsiveness, questions 10 to 13 are related to assurance, and questions 14 and 15 are related to empathy. The general opinion of patients about hospital services was asked in question 33. Their loyalty, which was defined as a willingness to return to the hospital, was determined in question 32. Also, the patient-physician relationship was examined in question 31. Every item was scored from 1 to 5. The maximum possible score was 5, which represents the most positive viewpoint.

Data analysis was performed, using descriptive and analytical methods. The obtained data were processed in SPSS version 20.0. For descriptive variables, frequency, percentage, mean, and standard deviation were reported. Also, the paired t test and one-sample t test were used to analyze the data.

The study protocol was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (approval ID: IR.SBMU.RETECH.REC.1398.247). The questionnaires were anonymously completed, and the collected information was considered confidential. Also, the patients' answers to the questions did not affect the treatment process.

4. Results

The results showed that the average age of patients was 52.31 ± 16.19 years. Also, the majority of patients had Social Security Organization insurance (57.6%). Most patients had been referred to the center several times (68%). Table 1 presents the demographic and basic details of the patients.

Table 1. Demographic and Basic Details of the Patients[a]

Variables	Values
Sex	
Female	45.1 (46)
Male	54.9 (56)
Marital status	
Single	10.2 (10)
Married	83.7 (82)
Divorced	1 (1)
Widow	5.1 (5)
Age, y	
< 20	2 (2)
21 - 30	7.8 (8)
31 - 40	18.6 (19)
41 - 50	15.7 (16)
> 50	55.9 (57)
Educational level	
Illiterate	16.8 (17)
Elementary school	17.8 (18)
High school	44.6 (45)
University	20.8 (21)
Insurance status	
Iran Health Insurance	21.2 (21)
Social Security Organization	57.6 (57)
Armed Forces	4 (4)
Rural	3 (3)
Others	9.1 (9)
Not insured	5.1 (5)
Referral status	
First time	32 (32)
Several times	68 (68)

[a] Values are expressed as No. (%).

As shown in Table 2, the mean total score of patient expectations was 4.65 ± 0.33 out of 5. The mean score of patients' perceptions of hospital quality was 3.94 ± 0.74 out of 5. Furthermore, the results showed that the highest and lowest mean scores of patients' expectations were related

to the dimensions of assurance (4.70 ± 0.34) and empathy (4.53 ± 0.60), respectively. Also, the highest and lowest mean scores of patients' perceptions were related to assurance (4.08 ± 0.73) and empathy (3.82 ± 1.04), respectively. The largest and smallest quality gaps were also related to responsiveness (-0.79) and assurance (-0.62), respectively. The quality gaps were statistically significant regarding all dimensions (P < 0.001).

To calculate the gap between the perceptions and expectations of patients, which is referred to as satisfaction in the SERVQUAL model, the score of patient expectations was deducted from the patient perception score for each dimension. A positive gap score showed that in the desired dimension, the patients' expectations were lower than their perceptions, and patient satisfaction was achieved in that area. On the other hand, a negative gap score indicated that the patients' expectations exceeded their perceptions.

The general opinion of patients about hospital services was asked with the following question (mean score: 3.78 ± 0.96): "What is your general view about the services received at this hospital?". The loyalty level was defined as the person's willingness to return to the hospital and was assessed with the following question (mean score: 3.93 ± 1.16): "If I get the same problem again, I'll go to this hospital for treatment".

Also, the patient-physician relationship was examined with the following question (mean score: 4.15 ± 1.17): "Did you communicate with your doctor over the past week?". The correlation coefficient between the general status of services from the patient's point of view and their loyalty was 0.740 (Spearman's test; P < 0.001).

As shown in Table 3, there was no significant association between sex and quality gap; in other words, the quality gap was almost similar in males and females. Although there was no significant association between marital status and quality gap, the gap was larger in married patients.

As shown in Table 4, the least significant difference was in the quality gap among patients with uterine, brain, and small intestine cancers. On the other hand, the greatest difference was found in patients with bladder, lung, testicular, and liver cancers. There was no significant correlation between the type of cancer and patients' perceptions (P = 0.069), expectations (P = 0.51), and quality gap (P = 0.79) based on the ANOVA results.

5. Discussion

The results of the present study showed that patients' expectations were higher than their perceptions of the quality of provided services in all quality dimensions.

Table 2. The Patients' Perceptions and Expectations and Comparison of the Significance of Differences with the Assumed Mean/Quality Gap

Categories	Perceptions			Expectations			Quality Gap		
	$\overline{X} \pm$ SD	Assumed mean	P Value	$\overline{X} \pm$ SD	Assumed mean	P Value	$\overline{D} \pm$ SD	Zero number	P Value
Tangibles	3.95± 0.8	3	< 0.001	4.65± 0.39	3	< 0.001	-0.7± 0.84	0	< 0.001
Reliability	3.94± 0.76	3	< 0.001	4.67± 0.43	3	< 0.001	-0.73± 0.75	0	< 0.001
Responsiveness	3.84± 1.04	3	< 0.001	4.63± 0.45	3	< 0.001	-0.79± 1.01	0	< 0.001
Assurance	4.08± 0.73	3	< 0.001	4.7± 0.34	3	< 0.001	-0.62± 0.68	0	< 0.001
Empathy	3.82± 1.04	3	< 0.001	4.53± 0.6	3	< 0.001	-0.71± 1.06	0	< 0.001
Total	3.94± 0.74	3	< 0.001	4.65± 0.33	3	< 0.001	-0.71± 0.68	0	< 0.001

Table 3. Associations Between the Patient's Demographic Characteristics and Quality Gap Based on the Studied Quality Dimensions

Patient's Demographic Characteristics	Tangibles		Reliability		Responsiveness		Assurance		Empathy		Total Quality	
	χ^2	± SD	χ^2	± SD	χ^2	± SD	χ^2	± SD	χ^2	± SD	χ^2	± SD
Sex												
Female	-0.59	0.86	-0.68	0.75	-0.71	0.98	-0.56	0.68	-0.51	0.94	-0.65	0.73
Male	-0.78	0.83	-0.65	0.72	-0.77	1.05	-0.64	0.66	-0.85	1.13	-0.66	0.63
P value	0.27	0.85	0.77	0.53	0.11	0.94						
Marital status												
Single	-0.6	1	-0.3	0.53	-0.5	0.91	-0.55	0.83	-0.2	1.08	-0.43	0.54
Married	-0.69	0.8	-0.72	0.74	-0.77	1.04	-0.55	0.59	-0.75	1.03	-0.69	0.68
P value	0.741	0.08	0.43	0.97	0.11	0.24						
Age, y												
< 20	-1.66	1.41	-0.66	1.88	0	1.41	-0.87	1.59	-1.5	0.7	-0.94	1.4
21 - 30	-0.62	1.11	-0.54	0.64	-0.5	0.64	-0.9	0.89	0.06	1.01	-0.5	0.59
31 - 40	-0.79	0.8	-0.92	0.85	-0.96	1.23	-0.57	0.66	-0.86	1.28	-0.92	0.85
41 - 50	-0.82	0.86	-0.92	0.62	-0.95	0.97	-0.92	0.54	-0.53	0.88	-0.74	0.78
> 50	-0.6	0.8	-0.55	0.67	-0.66	0.98	-0.48	0.61	-0.75	1	-0.56	0.55
P value	0.43	0.26	0.5	0.13	0.18	0.35						
Educational level												
Illiterate	-0.47	0.56	-0.47	0.7	-0.58	0.87	-0.3	0.43	-0.61	1.09	-0.51	0.6
Elementary school	-0.33	0.48	-0.52	0.71	-0.35	0.61	-0.57	0.62	-0.86	0.92	-0.55	0.53
High school	-0.86	1.1	-0.76	0.78	-0.87	1.16	-0.72	0.69	-0.7	1.02	-0.73	0.75
University	-0.91	0.85	-0.74	0.89	-1.01	1.13	-0.88	0.84	-0.82	1.39	-0.85	0.87
P value	0.15	0.55	0.32	0.05	0.8	0.59						

Table 4. Perceptions and Expectations of Patients and the Gap Based on the Type of Cancer

Diagnosis	Expectations		Perceptions		Gap	
	$\overline{X}$	± SD	$\overline{X}$	± SD	$\overline{D}$	± SD
Ca. uterine	4.41	0.58	4.38	0.54	-0.030	0.04
Ca. brain	4.59	0.36	4.52	0.57	-0.070	0.21
Ca. small intestine	4.59	0.33	4.35	0.54	-0.240	0.23
Ca. colon	4.73	0.24	4.33	0.52	-0.400	0.43
Ca. breast	4.52	0.38	3.95	0.82	-0.570	0.7
Ca. stomach	4.49	0.26	3.83	0.18	-0.660	0.45
Ca. liver	4.61	0.32	3.91	0.53	-0.700	0.85
Ca. testis	4.62	0.45	3.75	0.73	-0.870	0.96
Ca. lung	4.72	0.06	3.12	0.5	-1.600	0.5
Ca. bladder	4.96	0.04	3.35	0.15	-1.610	0.1

Among 5 dimensions of the SERVQUAL model, responsiveness and reliability showed the largest gaps. Previous studies found the largest gaps in responsibility (22, 23) and reliability (24, 25). In contrast, some studies found the smallest gap in responsibility (26) and reliability (27). This dissimilarity can be caused by those different characteristics of patients, different facilities of health organizations, and the diverse nature of services.

In the present study, the most influential factor in improving patient satisfaction with the quality of services was assurance, followed by reliability, while the least effective factor was empathy. This finding is similar to the

results of a study conducted by Mohammadi-Sardo et al. (28). The present results also showed that the patient's sense of security, when interacting with the hospital staff, is of great importance for patients; the staff also need to be knowledgeable and polite. It has been shown that human elements are more important than non-human factors in the perception of the patient's quality of care (29).

In this study, there was no significant relationship between the quality gap and demographic characteristics and education. Compared to the study by Agha Molaei et al. (30), the relationship between service quality and age, and employment was not significant. However, this finding is different from the findings reported by Gholami et al. (31), which showed that as the patients' mean age and educational level increased; the negative service quality gap also increased. In the study of Tarahi et al. (32), the quality gap had a reverse correlation with the age of patients. These differences may be caused by the different study groups used by each mentioned study.

The current study showed that the total quality gap score was negative. In Iran, some studies have found a negative gap regarding all dimensions of quality (21, 33). Ajam et al. (34) found a positive gap in all dimensions, except for assurance and responsibility. They reported that the free-of-charge services, and most importantly, the deprivation of people from health services were the main reasons for this finding.

Compared to the study carried out by Teshnizi et al. (35), the results of the present study showed that patients with cancer had higher expectations than the general population in all quality domains, except for responsibility; however, the quality gap was smaller than the general population in all domains. This difference could be due to a long time of their hospitalization or their special condition. A study conducted by Lumby et al. (36) showed that the type of surgery in patients with cancer had significant effects on their satisfaction. However, we found no significant association between the type of cancer and satisfaction with services.

The present study had some limitations. This was a single-center study conducted in a short period. Therefore, to generalize the present results to the general population, the results must be validated by independent research groups. The patients may judge the quality of services by appearances. One of the important reasons for choosing a private hospital may be its appealing appearance (37). Finally, in this study, only the patients' perspectives about the quality of services were investigated. At the same time, it is necessary to study the viewpoints of staff, such as physicians, managers, and other service providers.

It is suggested that the authorities of educational and healthcare organizations, who are struggling with high hospital costs, conduct valid research to resolve disparities in an applied manner. Also, the authorities of healthcare organizations should pay attention to the patients' feedback to improve the quality of services in Iranian hospitals. It is also recommended to establish effective customer service training programs, which can help hospital employees' skills and increase their understanding of patients' expectations and emotional needs.

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Footnotes

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Ethical Approval: The study protocol was approved by the ethics committee of Shahid Beheshti University of Medical Sciences (approval ID: IR.SBMU.RETECH.REC.1398.247).

Informed Consent: The questionnaires were completed anonymously, and the collected information was considered confidential. Also, the patients' answers to the questions did not affect the treatment process.

References

1. Shafiq M, Naeem MA, Munawar Z, Fatima I. Service Quality Assessment of Hospitals in Asian Context: An Empirical Evidence From Pakistan. *Inquiry : A Journal of Medical Care Organization, Provision and Financing.* 2017;**54**:46958017714664. doi: 10.1177/0046958017714664. [PubMed Central: PMC5798721].

2. Asefzadeh S, Gholami S, Rajaee R, Najafi M, Alijanzadeh M. Evaluation of the Quality of Health Service Providers: The Iranian People Perspective 2014. *Electronic Physician.* 2016;**8**(3):2073–80. doi: 10.19082/2073. [PubMed Central: PMC4844471].

3. Rezaei S, Hajizadeh M, Zandian H, Fathi A, Nouri B. Service quality in Iranian hospitals: A systematic review and meta-analysis. *Medical Journal of the Islamic Republic of Iran*. 2018;**32**:59. doi: 10.14196/mjiri.32.59. [PubMed Central: PMC6113587].

4. Karagun O, Yesilagac H, Gulalp B, Gokel Y. What Can We Do to Improve Patient Satisfaction in the Emergency Department? A Prospective Study in a Turkish University Hospital. *Adv J Emerg Med*. 2018;**2**(4). e41. doi: 10.22114/AJEM.v0i0.94. [PubMed: 31172104]. [PubMed Central: PMC6548146].

5. Cao B, Bray F, Beltrán-Sánchez H, Ginsburg O, Soneji S, Soerjomataram I. Benchmarking life expectancy and cancer mortality: global comparison with cardiovascular disease 1981-2010. *BMJ (Clinical research ed.)*. 2017;**357**:j2765. doi: 10.1136/bmj.j2765. [PubMed: 28637656].

6. Saadat S, Yousefifard M, Asady H, Moghadas Jafari A, Fayaz M, Hosseini M. The Most Important Causes of Death in Iranian Population; a Retrospective Cohort Study. *Emergency (Tehran, Iran)*. 2015;**3**(1):16–21. [PubMed: 26512364].

7. Parasuraman A, Zeithaml VA, Berry LL. SERVQUAL: A multiitem scale for measuring customer perceptions of service quality. *Journal of Retailing*. 1988;**64**:12–40.

8. Boulding W, Kalra A, Staelin R, Zeithaml V. A Dynamic Process Model of Service Quality: From Expectations to Behavioral Intentions. *Journal of marketing research*. 1993;**30**:7–27. doi: 10.2307/3172510.

9. Teas R. Expectations, Performance Evaluation, and Consumers' Perceptions of Quality. *Journal of Marketing*. 1993;**57**(4):18–34. doi: 10.2307/1252216.

10. Purcărea VL, Gheorghe IR, Petrescu CM. The Assessment of Perceived Service Quality of Public Health Care Services in Romania Using the SERVQUAL Scale. *Procedia Economics and Finance*. 2013;**6**:573–85. doi: 10.1016/S2212-5671(13)00175-5.

11. Altuntas S, Dereli T, Yilmaz M. Multi-criteria decision making methods based weighted SERVQUAL scales to measure perceived service quality in hospitals: A case study from Turkey. *Total Quality Management & Business Excellence - TOTAL QUAL MANAG BUS EXCELL*. 2012;**23**:1–17. doi: 10.1080/14783363.2012.661136.

12. Al-Borie HM, Damanhouri AM. Patients' satisfaction of service quality in Saudi hospitals: a SERVQUAL analysis. *Int J Health Care Qual Assur*. 2013;**26**(1):20–30. doi: 10.1108/09526861311288613. [PubMed: 23534103].

13. Akter M, Hani U, Upal M. Service quality perception and satisfaction: A Study over Sub urban public hospitals in Bangladesh. *Journal of Services Research*. 2008.

14. Anderson EA, Zwelling LA. Measuring service quality at the University of Texas M.D. Anderson Cancer Center. *Int J Health Care Qual Assur*. 1996;**9**(7):9–22. doi: 10.1108/09526869610150200. [PubMed: 10162922].

15. Scardina SA. SERVQUAL: a tool for evaluating patient satisfaction with nursing care. *J Nurs Care Qual*. 1994;**8**(2):38–46. [PubMed: 8312593].

16. Lis CG, Rodeghier M, Gupta D. The relationship between perceived service quality and patient willingness to recommend at a national oncology hospital network. *BMC Health Serv Res*. 2011;**11**:46. doi: 10.1186/1472-6963-11-46. [PubMed: 21349200]. [PubMed Central: PMC3051883].

17. Heidarnia M, Riazi-Isfahani S, Abadi A, Mohseni M. Cross cultural adaptation and assessing validity and reliability of SERVQUAL questionnaire in hospital service quality. *Pejouhesh dar Pezeshki (Research in Medicine)*. 2014;**38**(2):98–105.

18. Shaikh BT, Mobeen N, Azam SI, Rabbani F. Using SERVQUAL for assessing and improving patient satisfaction at a rural health facility in Pakistan. *East Mediterr Health J*. 2008;**14**(2):447–56. [PubMed: 18561738].

19. Haj-Ali W, Bou Karroum L, Natafgi N, Kassak K. Exploring the relationship between accreditation and patient satisfaction - the case of selected Lebanese hospitals. *Int J Health Policy Manag*. 2014;**3**(6):341–6. doi: 10.15171/ijhpm.2014.116. [PubMed: 25396210]. [PubMed Central: PMC4226624].

20. Gonzalez-Valentin A, Padin-Lopez S, de Ramon-Garrido E. Patient satisfaction with nursing care in a regional university hospital in southern Spain. *J Nurs Care Qual*. 2005;**20**(1):63–72.

21. Zarei E, Froushani A, Rashidian A, ghazi-tabatabaie M. Service quality of private hospitals: The Iranian Patients' perspective. *BMC health services research*. 2012;**12**:31. doi: 10.1186/1472-6963-12-31.

22. Aghamolaei T, Eftekhaari TE, Rafati S, Kahnouji K, Ahangari S, Shahrzad ME, et al. Service quality assessment of a referral hospital in southern Iran with SERVQUAL technique: patients' perspective. *BMC Health Serv Res*. 2014;**14**:322. doi: 10.1186/1472-6963-14-322. [PubMed: 25064475]. [PubMed Central: PMC4115484].

23. Lim PC, Tang NK. A study of patients' expectations and satisfaction in Singapore hospitals. *Int J Health Care Qual Assur Inc Leadersh Health Serv*. 2000;**13**(6-7):290–9. doi: 10.1108/09526860010378735. [PubMed: 11484647].

24. Torabipour A, Sayaf R, Salehi R, Ghasemzadeh R. Analyzing the Quality Gapsin the Services of Rehabilitation Centers Using the SERVQUAL Technique in Ahvaz, Iran. *Jundishapur J Health Sci*. 2016;**8**(1). e60320. doi: 10.17795/jjhs-32560.

25. Gholami M, Jabbari A, Kavosi Z, Gholami M. Service Quality in Iran's Medical Tourism: Hospitals in Shiraz City. *International Journal of Travel Medicine and Global Health*. 2016;**4**(1):19–24. doi: 10.20286/ijtmgh-040119.

26. Tabatabaei SM, Behmanesh Pour F, Share Mollashahi S, Sargazi Moakhar Z, Zaboli M. The Quality Gap in the Services Provided by Rural Maternity Units in Southeast of Iran. *Health Scope*. 2015;**4**(4). e25344. doi: 10.17795/jhealthscope-25344.

27. Gholami A, Gazerani A, Behfar K, Asghari A, Mohammadzadeh H, Samadi A, et al. Quality Evaluation of Educational Services Gap in Neyshabur Faculty of Medical Sciences Based on Service Quality Scale. *Shiraz E-Medical Journal*. 2014;**15**. doi: 10.17795/semj21869.

28. Mohammadi-Sardo MR, Salehi S. Emergency Department Patient Satisfaction Assessment using Modified Servqual Model; a Cross-sectional Study. *Advanced journal of emergency medicine*. 2019;**3**(1).

29. Yazdi-Feyzabadi V, Gozashti MH, Komsari S, Mohammadtaghizadeh S, Amiresmaili M. Quality assessment of clinical education services in teaching hospitals located in Kerman, Iran. *Electronic Physician*. 2015;**7**(7):1427–34. doi: 10.19082/1427. [PubMed Central: PMC4700886].

30. Agha Molaei T, Zare S, Poudat A, Kebriaei A. Customers'perceptions and expectations of primary healthcare services quality in health centers of bandar abbas. *Hormozgan Med J*. 2007.

31. Gholami A, Noori A, Khojastepoor M, Asgari M, Sajadi H. Gaps in the quality of primary health care services provided by health centers-Care Nishapur city. *Scientific Journal of shahed university*. 2011;**18**(92):1–11.

32. Tarahi MJ, Hamozadeh P, Bijuanvand M, Lshgrara B. Survey on quality of health services provided in Khorramabad health care centers using the SERVQUAL model. *J Lorestan Uni Med Sci*. 2012;**14**:13–21.

33. Nekoei-Moghadam M, Amiresmaili M. Hospital services quality assessment: hospitals of Kerman University of Medical Sciences, as a tangible example of a developing country. *Int J Health Care Qual Assur*. 2011;**24**(1):57–66. doi: 10.1108/09526861111098247. [PubMed: 21456498].

34. Ajam M, Sadeghifar J, Anjomshoa M, Mahmoudi S, Honarvar H, Mousavi SM. Assessing Quality of Healthcare Service by the SERVQUAL Model: A Case Study of a Field Hospital. *Journal-Mil-Med*. 2014;**15**(4):273–9.

35. Teshnizi SH, Aghamolaei T, Kahnouji K, Teshnizi SMH, Ghani J. Assessing quality of health services with the SERVQUAL model in Iran. A systematic review and meta-analysis. *Int J Qual Health Care*. 2018;**30**(2):82–9. doi: 10.1093/intqhc/mzx200. [PubMed: 29408970].

36. Lumby J, England K. Patient satisfaction with nursing care in a colorectal surgical population. *Int J Nurs Pract*. 2000;**6**(3):140–5. doi: 10.1046/j.1440-172x.2000.00194.x. [PubMed: 11249412].

37. Campos DF, Negromonte Filho RB, Castro FN. Service quality in public health clinics: perceptions of users and health professionals. *Int J Health Care Qual Assur*. 2017;**30**(8):680–92. doi: 10.1108/ijhcqa-09-2016-0140. [PubMed: 28958202].