

Investigating the Quality of Diagnostic and Treatment Services Purchased From Specialist Doctors Using the Servqual Model and Giving Solutions

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ARTICLE INFO	ABSTRACT
<p>Article type : Original Article</p> <hr/> <p>Article History Received : 17 Aug 2022 Accepted : 22 Feb 2023</p> <hr/> <p>Keyword : Service quality. Servqual model, Tangible, Reliability. Responsiveness.</p>	<p>Introduction: This research aimed to investigate the quality of diagnostic and therapeutic services purchased from specialist doctors using the Servqual model and to provide solutions.</p> <p>Materials and Methods: The opinions of 51 specialists were collected regarding the quality of services provided by doctors using the Servqual standard questionnaire. Then, using the Servqual model, the gap between expectations and perceptions was calculated and ranked based on priority from the largest to the smallest gap. In the following, with the help of the Delphi method, with the cooperation of experts, solutions were collected to improve the dimensions, and after that, the importance of the solutions was determined using the second questionnaire.</p> <p>Results: Gaps in order of priority of reliability, responsiveness, tangibility, assurance, and finally, empathy were determined. Six solutions were determined to improve reliability, 10 to improve responsiveness, 4 to improve physical dimensions (tangible), 9 to improve assurance, and 4 to improve empathy. After ranking the solutions, six solutions that scored lower than the average (3.08) were removed, and 27 solutions were approved.</p> <p>Conclusion: Considering the calculated gap between expectations and perceptions in all dimensions, the following solutions are suggested to reduce the gap; improving the performance of basic insurance organizations, motivating doctors, estimating the price of services based on quality, developing treatment protocols with the help of specialized associations and contracting with doctors by insurance organizations based on the best time for the visit.</p>
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Introduction

Today, in the health services sector, the issue of quality has a special place because the important task and mission of preserving health and taking care of the life of society is the responsibility of this sector.

In the field of health care services, the role of specialist doctors in providing quality diagnostic and therapeutic services at the level of two diagnostic and therapeutic services due to their specialization, the lack of technical knowledge of the patients about the service provided by the doctor, the different methods of providing a specific service by different people are very important.

One of the ways to check and control the quality of diagnostic and therapeutic services is to use a third factor between the doctor and the patient this factor the third is treatment insurance organizations, which by purchasing quality diagnostic and therapeutic services from doctors and providing them to the insured under the group, increase the quality of diagnostic and therapeutic services and increase patient satisfaction. It is not easy to define the quality of diagnostic and therapeutic services due to the unique characteristics of diagnostic and therapeutic services. Diagnostic services are consumed at the same time as they are produced, and people do not have a chance to evaluate the services in terms of quality when they receive them.

The lack of information symmetry between the provider and the recipient. Diagnostic and therapeutic services limit patients' judgments about the quality of diagnostic and therapeutic services.

Patients themselves are part of the treatment process. Therefore, the outcome of diagnostic and therapeutic services, in addition to depending on the treatment process, also depends on the conditions and personality characteristics of the patient (1).

The quality of health care services has two technical dimensions, the quality of outcome and functionality or the quality of the process, in the technical dimension focuses more on the accuracy of procedures and diagnosis.

In contrast, the functional dimension considers the service delivery method due to the patient's lack of knowledge about the technical dimension of healthcare services,

which is usually judged on the functional dimension (2).

What is important in quality is the customer's understanding of it (3). York states that the satisfaction of patients and attention to their demands is one of the essential elements of marketing, and its acceptability in the health and treatment sector has undergone a growing trend (4). Replacing expectations with needs and goals is necessary for the service field (5).

This theory is very simple. Service quality is what meets or exceeds customer expectations. If customers perceive the service delivery to be better than expected, they will be happy, and if it is not as expected, they will be upset. They base their quality judgment on their subjective perception of service satisfaction (6).

Features of diagnostic and therapeutic services (health services)

1-Intangible: Varicose vein or heart surgery cannot be touched, and patients may be able to realize the quality of this service and express their satisfaction or dissatisfaction a few weeks after the surgery.

2-Variability: Diagnostic and therapeutic services are often performed by people such as doctors, nurses, and paramedics, and the method of providing the service is different according to the person who performs it, so it is said that the services provided by people have inherent variability. For example, two heart surgeons may significantly differ in heart bypass surgery skills.

3-Inseparability: Services cannot be separated from the people who provide them. The connection between the issue of inseparability and mismatch emphasizes the complexity of health services and their purchase.

4- Inventory (maintenance): More inventory is a common concept among commodity producers. While the services are also included in the inventory discussion, when a payment is made for a doctor who provides a service, but his services are not used, there is a service inventory. For example, when a hospital has a burn doctor. He hires until a burn patient arrives, and the doctor is unemployed. The cost of this inventory is high. Of course, unlike service inventory, goods are tangible.

5-Interaction with customers: According to the mentioned features and the sensitive nature of the health sector that comes from dealing with people's lives and health, it can be concluded that:

- Buying diagnostic and therapeutic services is more difficult than buying goods.
- Buying health services is more difficult than buying public services (2).

Main Objective:

Investigation the quality of diagnostic and treatment services purchased from specialist doctors using the Servqual model and give solutions (Case study: North Khorasan, Razavi, and South Khorasan Health Insurance General Departments)

Sub-goal

1. Investigating the situation dimension of physical appearances (tangible) diagnostic services purchased from specialist doctors.
2. Checking the reliability of diagnostic and therapeutic services purchased from specialist doctors.
3. Investigating the responsibility (Responsiveness) of specialist doctors providing diagnostic and therapeutic services.
4. Checking the quality assurance of diagnostic and therapeutic services purchased from specialist doctors.
5. Investigating the empathy of specialist doctors providing diagnostic and therapeutic services.
6. Determining improvement strategies for dimensions of diagnostic and therapeutic services with a lower score.

Materials and Methods

This research is applied in terms of purpose and descriptive survey in terms of execution method, which is conducted as a case study. In this research, the researcher aims to investigate the quality of diagnostic and therapeutic services purchased from specialist doctors using the Servqual model to calculate the gaps and finally provide solutions to reduce the gaps. In this research, a questionnaire was prepared in two stages. In the first stage, after the concepts and hypotheses of the research were formed and the basic and necessary information related to them was provided and prepared, using the standard Serqual questionnaire, experts' opinions about the quality of services provided by doctors were collected, and the reliability of the questionnaire was checked with the help of SPSS26 and Excel software. The reliability of the questionnaire was calculated by Cronbach's alpha method for all dimensions and the entire questionnaire using SPSS 26 software. The result of calculating Cronbach's alpha is described in table 1. Considering that Cronbach's alpha calculated for the dimensions and the whole questionnaire is higher than the acceptable limit of 0.7, the questionnaire has the necessary reliability. Cronbach's alpha of the second questionnaire was also calculated using SPSS 26, and the number was 0.715, which is more than the acceptable limit of 0.7 and shows that the second questionnaire also has the required reliability.

Table1: Reliability of the questionnaire

Servqual Dimensions Cronbach's Alpha	Tangible	Reliability	Responsiveness	Assurance	Empathy
Expectations	0.818	0.729	0.900	0.744	0.874
Perceptions	0.814	0.714	0.822	0.704	0.864
Cronbach's Alpha of the Questionnaire = 0.927					

Then, using the Servqual method, the gap between expectations and perceptions was calculated, and all dimensions whose gap scores were negative (dimensions that caused experts' dissatisfaction). We have determined the basis of priority (the largest gap to the smallest gap). Parasuraman, Berry, and Zitamel presented the gap or

SERVQUAL model in 1983. This model tries to measure the quality of service from the customer's point of view by analyzing the gap between the customer's expectations and perception. The SERVQUAL model evaluates the quality of services provided through the following dimensions:

1. **Tangibles:** This component refers to the appearance of the equipment and the appearance of the employees.
2. **Reliability:** This dimension refers to the ability to provide accurate and continuous service as promised to customers.
3. **Responsiveness:** The desire and enthusiasm of employees to provide timely service to customers is considered in this dimension.
4. **Assurance:** This dimension refers to the ability and knowledge of the employees, which leads to the stability of service quality and the creation of confidence and trust in customers.
5. **Empathy:** In this dimension, understanding the customers' demands and expectations and focusing on each customer is considered.

The SERVQUAL model examines the expectations and needs of customers from services along with their perceptions in these five dimensions and then uses gap analysis to examine the quality of the services provided. In the SERVQUAL model, five types of gaps are considered. Since the fifth gap is a function of the direction and extent of the other four gaps, this gap is known as the quality gap (7). Investigation of the quality gap, three situations may be achieved.

1. The customer's perceptions are higher than his expectations, in which case the quality is excellent.
2. The proportionality of the customer's perceptions with her expectations, in which case the quality is good.
3. The customer's perception lower than of her expectations and the expectations are not met, in which case the quality is poor.

In the second step, with the help of the Delphi method, in cooperation with experts in the supervision and medical records of North Khorasan, Razavi Khorasan, and South Khorasan health insurance departments, solutions were collected to improve the

dimensions. In the third stage, the improvement solutions proposed by the experts were collected in the second questionnaire, and the importance of the solutions presented with the help of the experts was determined using a five-point Likert scale. In this research, the purposeful sampling method of the judgment type has been used to select the experts; with this sampling method, experts with the following specifications have been used to evaluate the quality of the research services:

- Specialists who have enough experience and knowledge about how to provide the services of doctors
- They are constantly in contact with specialist doctors due to their job and organizational position.

The statistical population of this research consists of 51 experts in the field of insurance and health services in the North Khorasan, Razavi and South Khorasan provinces.

These people include the vice presidents of insurance and health services, chiefs, supervision experts, and medical records of general departments and cities, which have been selected with a purposeful judgment method.

Results

According to the calculations of the weighted scores of each of the dimensions, tangible, reliability, responsiveness, assurance, and empathy shows that the gap between perceptions and expectations is negative, so the score of the experts' perceptions (services real) is less than their expectations (expected services) and indicates the experts' dissatisfaction of purchased services from specialist doctors in the mentioned dimension.

According to the calculations, the biggest gap among these five dimensions is related to reliability, responsiveness, tangibles, assurance, and empathy.

Table2: Calculating the weighted score of the Servqual scale

SERVQUAL	Mean distance score of dimensions	Average weight of each dimension	Weighted score
Tangibles	-54.5	16.34	-890.53
Reliability	-57.4	22.97	-1318.48
responsiveness	-55	19.75	-1086.25
Assurance	-18.75	25.62	-480.38
Empathy	-31.2	15.32	-477.98
Weighted average score			-850.723

At this stage, with the help of experts in the health insurance field in North Khorasan, Razavi and South provinces, and using the Delphi method, we summarize solutions to improve the status of diagnostic and therapeutic services purchased from specialist doctors.

The results after scoring and selecting the solutions with a score higher than the average are as follows:

1. Solutions for improving reliability.

- Entering into a per capita contract to reduce the motivation of doctors from providing more visits and services than allowed
- Increasing the influence of the insurance book or insurance policy by reducing the patient's out-of-pocket payment (OOP), increasing the share of the organization, and creating mutual benefits for the doctor to create a contract with the insurance, which results in interest in solving the patient's problems and meeting expectations.
- Examining the technical and supervisory background of the doctor from other insurance organizations of the Medical Council or Deputy of treatment University of Medical Sciences Before entering into a contract.
- The effective supervision of the Iran Health Insurance Organization and the Ministry of Health, Treatment, and Medical Education on the way of providing the services of specialist doctors through the selection of providers (doctors), price determination based on quality, and others.
- Timing how to provide visits and services and control and supervise compliance with standard time to provide diagnostic and therapeutic services to patients.

2. Solutions for improvement responsiveness.

- Signing a contract and control during the provision of diagnostic and therapeutic services through various tools, such as an Electronic prescribing system based on the hours specified in the official license.
- Setting up online appointments and providing necessary information to patients by installing posters and announcements to determine the index related to providing services and announcing it to patients to create a platform for determining the quality of diagnostic and therapeutic services.

- Creating a competitive environment and making strategic purchases (what service from whom at what price) to provide good and excellent diagnostic and therapeutic services to patients.
- Amending the administrative regulations for the strategic purchase of health services based on Clause "C" of Article 74 of the Sixth National Development Plan Law in order to provide for the implementation mechanisms for compiling treatment protocols based on clinical guidelines and requirements of organizations and insurance funds to implement these protocols.
- Compilation of treatment protocols under clinical guidelines by assigning them to specialized associations with the effective supervision of the Health Insurance Organization of Iran and the Ministry of Health, Treatment, and Medical Education.
- Observing appointments through online appointments and showing the Referral time and appointment in the waiting room to all patients.
- Using health marketing and social campaigns to improve the level of Ability and health insurance literacy.
- The effective supervision of the Iran Health Insurance Organization and the Ministry of Health, Treatment, and Medical Education on the way of providing the services of specialist doctors through the selection of providers (doctors), price determination based on quality, and others.

3. Solutions related to improving physical dimensions (tangibility).

- Coordinate with the operating banks to grant doctors facilities if they need to upgrade the required equipment and facilities if they have a positive record of doctors in regulatory cases.
- Signing contracts with doctors subject to compliance with environmental cleanliness and grooming of employees and monitoring this issue continuously
- Checking the performance of medical and non-medical equipment used in the office at the beginning of the contract and during continuous insurance monitoring.

4. Solutions for improvement Assurance.

- Setting up online appointments and providing necessary information to patients

by installing posters and announcements to determine the index related to providing services and announcing it to patients to create a platform for determining the quality of diagnostic and therapeutic services.

- Creating a competitive environment and making strategic purchases (what service from whom at what price) to provide good and excellent diagnostic and therapeutic services to patients.
- Amending the administrative regulations for the strategic purchase of health services based on Clause "C" of Article 74 of the Sixth National Development Plan Law to provide for the implementation mechanisms for compiling treatment protocols based on clinical guidelines and requirements of organizations and insurance funds to implement these protocols.
- The requirement to include any health technology (services, drugs, and goods) in the health insurance package along with the clinical guidelines on how to provide the service
- Compilation of treatment protocols under clinical guidelines by assigning them to specialized associations with the effective supervision of the Health Insurance Organization of Iran and the Ministry of Health, Treatment, and Medical Education.
- Preparing an ethical charter and installing it in the office to clarify for patients and make them aware of their rights when visiting the office.
- Dealing with delinquent insureds and disciplinary measures to support doctors.
- Using health marketing and social campaigns to improve the level of Ability and health insurance literacy.

5. Solutions related to improving empathy.

- Setting up online appointments and providing necessary information to patients by installing posters and announcements to determine the index related to providing services and announcing it to patients to create a platform for determining the quality of diagnostic and therapeutic services.
- Controlling doctors' performance through existing software systems and examining how to provide services to patients to monitor the perception of patient needs by doctors.

- Signing contracts with doctors based on the best visit time and providing diagnostic and therapeutic services by doctors based on the period specified in the clinic license.

Discussion

The absolute value of the gap calculated in the reliability dimension shows that the reliability dimension is the first gap with a weighted score of -1318.48 in terms of priority among the five dimensions of the Servqual model.

There is a need to determine solutions to improve the quality of doctors' services regarding reliability. The absolute value of the gap calculated in the dimension of responsiveness shows that the dimension of responsiveness is the second gap with a weighted score of -1086.25 in terms of priority among the five gaps in the dimensions of the Servqual model.

There is a need to determine solutions to improve the quality of doctors' services regarding responsiveness. The absolute value of the gap calculated in the Tangible shows that the Tangible is the third gap with a weighted score of -890.53 in terms of priority among the five dimensions of the Servqual model. There is a need to determine solutions to improve the quality of doctors' services in the Tangible. The absolute value of the gap calculated in the assurance dimension shows that the assurance dimension is the fourth gap with a weighted score of -480.38 in terms of priority among the five dimensions of the Servqual model. In the case of discretion, there is a need to determine solutions to improve the quality of doctors' services in terms of the assurance. The absolute value of the gap calculated in the dimension of empathy shows that the dimension of empathy is the fifth gap with a score of 477.98- in terms of priority among the five gaps in the dimensions of the Servqual model. In the case of discretion, there is a need to determine solutions to improve the quality of doctors' services in the dimension of empathy. In total, the weighted score calculated for each dimension shows that the score of the experts' perceptions is lower than the score of their expectations, and the services purchased by the doctors do not meet the satisfaction and expectations of the experts. Therefore, with the cooperation of

specialist doctors and insurance organizations, solutions should be determined to improve the services provided or purchased by doctors, and the necessary infrastructure and culture should be provided for their implementation.

Research limitations

- Due to the limited scope of the research to three provinces and the lack of collecting the experts' opinions from other provinces, generalizing the research results should be done with caution.
- Considering the specific period, the results of the current research do not have the necessary certainty for all periods, and its generalization to other periods requires careful consideration.
- The possibility of errors in the answers of the experts to the questionnaire questions due to the closeness of the concepts of the questionnaire questions and the presence of negative questions.

Conclusion

- According to the gap calculated in the dimensions of accountability and assurance, it is suggested that basic insurance organizations use marketing and social health campaigns to improve capability and insurance literacy.
- According to the gap calculated in the dimension of reliability, it is suggested to conclude contracts with doctors on a per capita basis to reduce doctors' motivation to provide more visits and services than allowed.
- According to the gap calculated in the dimensions of responsiveness and reliability, it is suggested that the basic insurance organizations (health insurance, social security, and armed forces insurance) and the Ministry of Health, Treatment, and Medical Education, through the selection of providers and price determination Based on quality. They should effectively monitor the quality of services provided by doctors.
- According to the gap calculated responsiveness and assurance, it is suggested that the Health Insurance Organization of Iran and the Ministry of Health, Treatment, and Medical Education entrust the development of treatment protocols under clinical guidelines to specialized associations. Furthermore, effectively monitoring of the

protocol implementation will improve the dimensions of responsiveness and assurance.

- According to the gap calculated in the tangible dimension, it is suggested that the performance of medical and non-medical equipment used in the office should be checked at the beginning of the contract and during continuous monitoring by insurance departments.
- According to the gap calculated in empathy, it is suggested that the insurance organizations contract with the doctors based on the best time for providing visits and services by doctors and based on the time stated in the clinic license.

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References

1. Mosadeghrad AM, Sokhanvar M. An evaluation of quality of services in Tehran Hospitals using the HEALTHQUAL model. *Scientific Journal of Medicine of the Islamic Republic of Iran* :Iran, 2017; 35 (1):9-19[in persian]
2. Kalantari AR, Jafari M, Dehnavieh R, Kashwarzi A. Strategic purchasing in Iran health insurance organization challenges and solutions. first ed. Kerman: Kerman cultural services; 2016:51-52[in persian]
3. Grunros C. Management and marketing of customer management services in competition in the field of services. (Translation). Heidarzadeh K, Mirveisi M, ed. first ed. Tehran: Mehraban Publishing Institute; 2015:134[in persian]
4. Asadi Boalhosni M. (Thesis). Examining the level of patients' satisfaction with the quality of services provided by the doctors and nurses of Sinai Hospital. Tehran: Islamic Azad University Central Tehran Branch; 2014:17.
5. Ghobadian A, Speller S, Jones MA. Service Quality: Concepts and Models. *Business International Journal of Quality & Reliability Management* 1994 ,vol (11):43-66.
6. Lovelock C, Wright L. principles of service marketing and Management. (Translation). Farzandeh B, 2nd ed. Esfahan: Amookhteh publications; 2002:140
7. Parasuraman A, Zeithaml VA and Berry LL. SERVQUAL: a multipleitem scale for measuring consumer perceptions of service quality. *Journal of Retailing* 1988; 64(1): 12-40.