



Exploring the Concept of Quality in Hospital Services from the Viewpoint of Patients and Companions: A Qualitative Study

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ABSTRACT

Background: Quality is one of the factors affecting the success of service organizations. The quality of health services is from the patients' perspectives to the best service available in a timely, safe and economical manner. The aim of this article is to explain the concept of hospital services quality from patients and companions perspectives.

Methods: The study was conducted using qualitative approach. The data were collected through semi-structured interviews. Sampling was done purposefully and research interviews were ended once data saturation was achieved. Fifteen patients and thirteen companions were recruited. Findings were analyzed using Framework Analysis method.

Results: The analysis of question about the concept of subjective quality of existence and the ideal quality led to emergence of themes including "emotional and psychological relations" and "customer-oriented" and "environmental and tangible factors". Also, the themes for suggestion of quality improvement included "holding training classes", "improving facilities and amenities of health" and "improving human resource management."

Conclusion: The findings showed that patients in addition to the physical problems of treatment location are concerned to human relations and even clinical treatment issues. In their opinion the relationships between patients and the medical staff, support and respect for the dignity, attention and importance of the personnel to patients and their personnel and environmental factors have a significant impact on the treatment process and the quality is satisfactory.

Keyword: Companions' Perspective, Patient's Perspective, Quality of Hospital Services, Qualitative Study

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Introduction

The service quality importance in the organizations with a lot of customers is rapidly increasing. Service quality management is an important challenge for the service organizations (1). As the service quality has different meanings for various people, there should be a clear perception for the word “Quality” (2). Hygienic service quality from the patient viewpoint is the best service that is on time, secure, economically available and increase the individual health to the highest level (3). High quality services result in an increased efficiency and customer’s satisfaction. It also decreases the organization costs. The first strategy of all the organizations in the world is customer focused. (4) Good quality supervisions are vital for reaching Millennium Development Goals (MDGs). The hygienic supervision managers should have a complete understanding of the ways of practically increasing supervision quality (5). The customer perception assessment is one of the important quality services matters. As the most organizations look for durability, they consider customer satisfaction as their own objective (6). Recognition of the customers’ requests is the most important stage of providing high quality services; however, today the recognition of needs and requests of patients in providing supervisions hasn’t been considered (7). Increasing the quality of the organization performance is important in development (8) By considering the importance of high quality service in the patient’s satisfaction, there should be a quality measurement and correct interventions for increasing quality. The quality of hygienic and therapy services in three dimensions of service, technical and customer quality are measured (9). Service quality is related to the condition and the way customers receive services (service recipient). It usually shows the way of service giving and the environment that the service is taken. The service quality shows the difference of the customers’ expectations (after receiving it) (10). As the most patients don’t have enough knowledge for

assessing the technical qualities of services, their assessment is based on the process of supervisions that have influence on their returning to the hospital (11). Since the quality of services is considered as a mean to comparative advantages and lengthy output of the organization and also helps to obtain hygienic – therapy results for the customers, it can be an important issue for these organizations (6). Accordingly, this study aims to make clear the meaning of the hospital service quality from the viewpoint of patients and companions.

Materials and Methods

This research is a qualitative study for revealing the meaning of the quality from the viewpoint of patients and companions. It has been done in 8 teaching and therapy hospitals of Qazvin. The sampling from the interviewees was goal oriented. The interview has been done for 15 patients and 13 companions. The criterion was staying in hospital for at least 24 hours, the ability and consent for participating in the investigation. The instrument used for collecting data was an interview guide. For collecting data, the semi-structured face to face interview has been used individually. The interviews have been done by a member of the research team until the saturation. Each interview has been done for about 25 minutes on average. In this research, at first the reason of the participants coming to the hospital has been asked. Then the other questions have been asked. All the interviews have been continued till the data saturation. At first, the researcher introduced himself and explained the research goals to the participants and asked them to fill the sociology and consent forms. Before starting the interview, their consent for recording the sound and noting had been taken. The participants were assured that all personal information will be remained confidential when the results are released and all the voice files would be eliminated. The participants were permitted to leave the interview whenever they wanted. Validity and reliability of the study are rooted in four axes (real value, practicability, stability and



continuity based on reality) that have been proposed by Guba and Lincoln. This study has been done by confirming the statements (real value), selecting different participants (practicability), equal answers of the participants to similar questions of different frames (stability) and avoiding prejudice when interviewing (based on reality). For analyzing the qualitative data, the framework analysis method has been used (12). In the process of analyzing the stages of familiarization, the recognition of a thematic framework, indexing or coding, graphing and finally designing and interpreting.

Further, in the current study all ethical issues were observed based on the Helsinki Declaration.

Results

The findings show that the average age of the interviewed patients and their companions were 48/1 and 38/7, respectively. Eight patients were female and 12 were married. Seven companions were female and 10 were married. In general, 10 participants had diploma and under diploma (table 1).

The findings show that the patients and their companions in defining the hospital service qualities refer to the points that are inevitable for having qualified services. The participants have focused on different dimensions that are provided in the form of themes and sub-themes in Table 2.

Mental concept of quality and the existing quality

All of the interviewees in responding the questions regarding their viewpoints about the concept of quality and high quality services, referred to different dimensions like the emotional and psychological relations of therapy staff with each other and with receivers of services, the personnel customer orientation and the tangible and environmental factors.

A. Emotional and psychological relations

1) The need for personnel empathy

Most of the interviewees believe that the feeling that the hospital staff are paying attention to their concerns can affect the quality of the services can affect the process of recovery, relaxation and satisfaction with the quality of

provided services. For example a 68 year old sick man said: 'I expect that when I'm asking my doctor about my disease, he answers me patiently. So where are the rights of a patient?' Or a 53 year old woman that was a companion said: "The doctor said your patient has a tumor. I am having a heart-failure. This is not a good way of telling bad news about a patient."

2) Avoidance of the instrumental look

Some of the participants said that the therapy staff behavior, kindness, patience, self-sacrifice and humanity are the requirements of supervision. They have great influence on the patient acceptance of the treatment processes and his collaboration and make patients and companions satisfied. The interviewees said that the therapy staff didn't pay attention to their emotions and look them mechanically and instrumentally. One of the interviewees (23 year-old sick woman) said: "by considering these behaviors, we wish to dismiss from the hospital as soon as possible. But these bad behaviors continued and they called us as a bed number and our emotions were not important for any one."

B. Customer Orientation

1- Responsibility

The interviewees implied that responsibility is an internal commitment that its absence results in indifference and decreasing of service qualities. For example, a 46 year-old woman companion said: "I think if everyone does his work and duty correctly, then everything will become well." A 40 year-old patient man referred to the customer orientation in this way: "when I am in the hospital, all the personnel should try their best for my treatment and when their goal is this, then all of them do their duty in the this way."

2-Waiting Time

Duration of the hospital service has influence on the consent and the interviewee viewpoint about the services quality. As delay in doing experiments and providing clinical services (like doing surgeon operation), delay in reception and releasing of patients can have influence on the patient health and on the length of staying in hospital, and it can be as an index for measuring quality from their



point of view. A 35 year-old companion woman implied: "I should wait for a lot of time for my turn and then for paying because.... I have a lot of work to do!" Or a 65 year-old sick man said: "I should wait for 6 months but my salary is low and I can't go to private hospital. What should I do? I can't wait any more. I am very sick and tired."

3- Therapy Staff Responsibility

Most of the interviewees believe that for responsibility of improving individual and social health, it is necessary to record the activities that have been done. Some of the interviewees complain that the hospital personnel didn't clearly respond to their questions and it makes them confused about their therapy continuation. The following statements confirmed the impact of proper reporting on the treatment process and the concept of quality in the provision of hospital services in the minds of patients and their companions: "if the therapy process is going to be continued, I would like to be informed in order to take care of myself to become better sooner." (Patient- a 25 year-old woman). My father was in infectious ward for 3 days and I asked the nurse: "why his catheter is full of blood?" He answered: "I don't know!" The companion continued: "Nobody answers correctly. What can I do?" (Patient's companion - a 45year-old man)

4-Purposeful supervision

Purposeful supervision from the patient viewpoint means the expert presentation on the patient's bedside. A lot of patients consider the quality of the hospital services in meeting the primary needs of the patient. Some of the interviewees say: "the related expert should come and see the patient, no one hears our voice, and we are human beings not the robots (patient-a 61 year-old man)." "On the tableau above the patient, there should be written the therapy processes so as his companion knows his condition and doesn't have stress anymore." (companion –a 42 year- old man).

C-Environmental and tangible factors

1-Hospital services

These services from the interviewee viewpoint contain on time changing the bed sheets and the clothes of patients, cleaning the rooms, W.C and

the hospital corridors that have influence on their first vision about the quality and condition of the hospital. As a 32 year-old companion woman points: "the servants' services are important. The first day that we came here, W.C. badly smelled, so I asked my husband to go to the other hospital. The other interviewee said: "look, this bed sheet that has been brought for me is dirty. I told the servant to change it, but he didn't pay attention." (Patient- a 76 year –old man).

2-Physical structure and equipment

From the participants' viewpoint, physical structure and equipment have influence on the patient and his companion morale as well as the effectiveness of the clinical staff and the speed of delivery of health services. They are also linked to the quality concepts perceived by them and their expectations about quality of received services. For example, one of the interviewees said: "They write tests for children in the hospital and they have the equipment, so they do it quickly." (Patient companion-a 27 year-old woman). "The hospital design is boring. I myself, as a companion cannot tolerate here." (Patient companion-a 54 year–old woman).

3-Suitable nutrition

By considering the interviewees' opinions, food like the other environmental and tangible factors is one of the important factors for the patients and their companions' perception about hospital quality services. The patients consider the hospital food quality, as their importance in the hospital and how much they can meet their needs and expectation and have influence on their viewpoints about hospital service quality. For example, one of the patients said: "Its food is not good. Last night, they took fish but it was burnt uneatable (with ridiculous laughter). The patients in the hospital expect that their food has high quality."

Suggestions for increasing quality

Personnel training

Some of the interviewees assess personnel training classes very useful, like the classes about the human relations and communication skills with the service receivers and increasing the therapy personnel responsibility. For example, one of the



patient's companions (a 32 year-old man) said: "I think training classes are necessary. They need to learn behavioral principles in communicating with patients." A 45 year-old patient woman said: "hospital personnel should be trained in this case as they are employed in the hospital and also these classes should be repeated to increase their quality."

Hygienic and welfare equipment and facilities improvement

Many interviewees have suggestions for hygienic, welfare equipment and facilities improvement, such as; providing enough human resources, hospital equipment improvement, suitable ventilation of wards and saloon, cleanness of W.C., cooling and warming system improvement and using standard cleaning materials. A 29 year-old patient man implies: "The number of doctors and therapy staff should be increased. The room is very small. The beds should be repaired. They should clean the W.C." There are suggestions about welfare improvement such as

food quality improvement. A 36 year-old patient woman said: "the food should be appropriate based on our disease". Furthermore, a 46 year-old patient's companion had suggestions about better cooking of the hospital food and adopting strategies to improve food and bread.

Human resources management improvement

The interviewees had suggestions about the welfare of the patients and their companions by more attention of the personnel. Some of them pointed to create a supervision system and personnel performance assessment by the management. The others pointed that the personnel responsibility resulted from their work conciseness. Also a group of interviewees implied that the work condition of the personnel is important. A 41 year-old man said: "As the personnel don't change their shifts a lot, they are tired and cannot take care of the patients." A 54 year-old patient companion man said: "If the strict management system encourages and reprimands on time, the personnel activities will become better.

Table 1. The background information of the interviewees in the perception of hospital quality services study

| Item | | Patient (number) | patient | Patient companion(number) | Patient companion |
|----------------|---------------------------|------------------|---------|---------------------------|-------------------|
| Sexuality | female | 8 | 53.3 | 7 | 53.8 |
| | male | 7 | 38.7 | 6 | 46.2 |
| Marital status | married | 12 | 80 | 10 | 80 |
| | single | 3 | 20 | 3 | 20 |
| Education | Diploma and under diploma | 10 | 66.6 | 10 | 80 |
| | graduate and higher | 5 | 33.4 | 3 | 20 |

Table 2. Themes and sub-themes of the hospital quality services

| Question Axis | Themes | Sub-Themes |
|--|---|---|
| Mental concept of quality and the existing quality | Emotional and psychological relations | Need of the personnel unanimity Avoidance of instrumental look |
| | Customer orientation | Personnel responsibility Waiting time Therapy staff responsibility Guidance in therapy |
| | Tangible and environmental factors | Hospital services Physical structure and equipment Suitable nutrition |
| Suggestions for improving quality | Training classes Improving facilities and hygienic and welfare equipment Improving human resources management | - |



Discussion

Quality is defined as a set of specifications and attributes of a product or service. Therefore, a correct service is given with a suitable person, a suitable place, suitable equipment, in a correct way, on time, and with a suitable price. Regarding the nature of hygiene and therapy area, quality becomes more important, since the result of low quality services is irreparable and may result to the high expenses for the system. Furthermore, it should be implied that quality from the patient's view point is the best kind of services that are on time, secure, economically available and can improve the human health to the highest level that at last can improve the patient's consent (1,9). The findings show that emotional relations of patients and their companions with the therapy staff, their support and respect, the personnel attention to the patients and their companions and environmental factors have significant influence on the therapy process and quality consent. In emotional and psychological dimension, a lot of participants pointed to the unanimity and attention to the patient complaint and anxieties in explaining the word "quality". These items have important roles (13). It is clear that the way of personnel behavior shows the existing morals of a society. Forgiveness, patience and compassion are necessary in a group work. Many interviewees implied that attention to the patient and his companion is an important factor in making quality concept. From their view point, purposeful supervision results in solving problems and helps them to come to the physical, mental, social, economic and moral relaxation. Responsibility in the nurse professional life style is a basic nature. Escaping it will lead to disorder, complexity and damage. Patient neglect and his security, accompanied with "the request for supervision quality", have increased the responsibility of the nurse. In other words, the nurse responsibility is an important presupposition in quality management programs (14-18). The results show that, the hospital service quality perception from the patient and his companion viewpoint depends more on the tangible and visual factors and on the personal

behavior. The tangible and environmental factors contain facilities and psychological welfare equipment that show the patient perception of service quality. From the view point of many interviewees, it has a direct relation with the way of giving hospital services, physical structure, welfare equipment and nutrition conditions. Therefore, for improving hospital service quality, there should be some actions to eliminate the existing barriers and improve the facilities needed by the stakeholders. The findings also show that the main factors related to the patient self-releasing from the hospital are the environmental factors such as cleanliness, light, sound and hoteling facilities (19).

Specializing more time to the continuous training about the correct way of communicating and the therapy staff behavior, making necessary condition and equipment, supervision improvement and the personnel checking of the patients are very important. About the personnel training role in providing qualified services, it can be concluded that from the interviewees' viewpoint, training means a collection of skills, practical techniques and behaviors that can influence the personnel behavior with the patients and their companions. It can also improve the quality of personnel performance. The results in Iran show that the most gap between the expected quality and the realized quality from the patient view point is in the accountability dimension (20). There had been different studies in the field of hospital service quality perception from the customer view point that showed there are a lot of challenges in this field. For example, in a research in I.C.U. ward of a hospital in Australia, it has been shown that 3 factors including; "keeping homogeneity in a complex environment", "quick, effective and respectful communication", and "knowledge from the experiment and the formal education" influence the quality (21). The result of research studies show that from the view point of receivers and providers of therapy services the quality is different. In order to provide qualified services, reforming the current process, continuous training of the staff, effective performing of the



triage system, using encouraging and stimulus systems should be considered (22). Human resources are the most important assets of an organization and their effective management is the key of success for an organization. From the interviewees' viewpoint, human resource management means policies and actions that depend on the staff activities especially for training the staff, activity assessment, rewarding and creating a healthy environment for the staff of the organization. As Roselansery et al. point, the best management can improve service quality and the receivers consent in the education therapy center of Kermanshah medical sciences university (23). In their research, it can be concluded that a weak relation is between bedside services and interpersonal aspect of supervision. Therefore, for improving healthy supervision quality assessment of patients, bedside supervision service quality and interpersonal service quality should be considered separately (24). Monderson and Zuling (25) result that managers should do their best on services that have priority from the patient's viewpoint for improving the quality. It could be concluded that the service quality is a kind of judgment that the customer after receiving the services do, based on his perception of the service process. From this judgment, he can compare his expectation with the received service (26). Regarding facilities and availability of the purposed society, the study has been done in educational and therapy hospitals that have had some limitations for this study; since, the effective field and structure factors on the patient

consent in these hospitals is different from private, charity and public hospitals.

Conclusion

The study findings show that the patients pay more attention to the physical and environmental factors and also to the human and bedside matters. From their viewpoint, the emotional relation between the patient and his companion and the therapy staff, reciprocal respect, personnel attention to the patient and his companion and environmental factors are effective in therapy process and the quality of consent. Furthermore, the interviewees believe that the hospital service quality perception is meeting the patients' needs by providing high quality services accompanied with "suitable communication, support, reciprocal respect and responsibility". In general, the final definition of quality from the participants view point is: "providing services in a way that meets physical, emotional, psychological, social and moral needs of patients."

Conflicts of interest

Authors have no conflicts of interest to declare.

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Author's contributions

Zolghadr S designed research, Zolghadr S and Aghababaei A and Darba M conducted research, Kalhor R analyzed data; and Zolghadr S wrote the paper. All authors read and approved the final manuscript.

References

- 1) Punnakitakashem P, Buavaraporn N, Maluesri P, Leelartapin K, editors. Healthcare Service Quality: Case Example of a Hospital with Lean Implementation. POMS 23rd Annual Conference, Chicago, Illinois, USA, April; 2012.
- 2) Tabarsi G, Ahmadizad A. Evaluation of the quality of health care centers covered by the Foundation of Martyrs and Veterans Affairs of Tehran. Veteran Medical Journal; 2011. [In Persian]
- 3) Joshi S K. Quality management in hospitals. First Edition .Published by Jaypee Brothers Medical Publishers (P) Ltd .New Delhi; 2009. ISBN: 9788184484885
- 4) Mohammadnia M, Delgoshai B, Tofighi S, Rihai L, Omrani A. Nursing Services Quality in Hospitals of Social Security Organization



- Using Servqual Model. Hospital Journal. 2010; 8(3):68-74. [In Persian]
- 5) Sodani P. Managing quality in health care. WHO South-East Asia Journal of Public Health. 2012:119.
 - 6) Janaabadi H, Ebili K, NastiZayi N, Yaqubi N. Interval between patients' perceptions and expectations of service quality of Zahedan health centers using SERVQUAL model Payesh Journal. 2011; 10(4):449-57. [In Persian]
 - 7) Zarei E, Arab M, Rashidiyan A, QaziTabatabayi S, RahimiForoushani A. The relationship between the quality of the services provided and the perceived value By hospitalized patients. journal of Mazandaran Medical University. 2011; 22(98):105-12. [In Persian]
 - 8) Sedighi J, Farzadi F, Maftoon F, Noorae M, Zafarghandi MR, Harirchi E, et al. Performance assessment Model Design for Medical Science University. Payesh, Journal of Health Sciences Research Institute, University Jihad, 2005; 4(4): 297- 85. [In Persian]
 - 9) Tabrizi J. Quality of delivered care for people with type 2 diabetes: A new patient-centred model. Journal of research in health sciences. 2009; 9(2):1-9. PMID: 23344165
 - 10) Momani K, Noor N A M. E- Service quality. ease of use, usability and enjoyment as antecedents of E-CRM performance: An Empirical investigation in Jordan mobile phone services. The Asian Journal of Technology Management Volume 2, Number 2, December 2009, 11-25. Available online at www.sbm.itb.ac.id/ajtm.
 - 11) Arab M, Tabatabaei S, Rashidian A, Foroushani AR, Zarei E. The Effect of Service Quality on Patient loyalty: a Study of Private Hospitals in Tehran, Iran. Iranian journal of public health, 2012; 41(9): 71-7. PMID: PMC3494218
 - 12) Berg, B. An introduction to content analysis, in: Qualitative research methods for the social sciences, Allyn & Bacon, 1998, chapter 11: 223-252.
 - 13) Adriaansen M, Achterberg ThV, Borm G. The usefulness of the staff-patient interaction responsescale for palliative care nursing for measuring the empathetic capacity of nursing students. J Prof Nurs 2008; 24(5): 315-23. DOI:10.1016/j.profnurs.2007.10.003
 - 14) Schluter J, Seaton P, Chaboyer W. Understanding nursing scope of practice: a qualitative study. Int J Nurs Stud 2011; 48(10): 1211-22.
 - 15) Clancy A, Svensson T. 'Faced' with responsibility: Levinasian ethics and the challenges of responsibility in Norwegian public health nursing. Nurs Philos 2007; 8(3): 158-66.
 - 16) Gallagher RM, Rowell PA. Claiming the future of nursing through nursing-sensitive quality indicators. NursAdm Q 2003; 27(4): 273-84.
 - 17) Roussel L, Swansburg RC. Management and leadership for nurse administrators. 6th ed. Sudbury, MA: Jones and Bartlett; 2006.
 - 18) Bolton LB, Aydin CE, Donaldson N, Brown DS, Nelson MS, Harms D. Nurse staffing and patient perceptions of nursing care. J Nurs Adm 2003; 33(11): 607-14.
 - 19) Noohi K, Komsari S, Nakhaee N, Yazdi Feyzabadi V. Reasons for Discharge against Medical Advice: A Case Study of Emergency Departments in Iran. *International journal of health policy and management*. 2013; 1(2):137-42. DOI: 10.15171/ijhpm.2013.25
 - 20) Aghamolaei T, Eftekhari 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(1): 322. DOI:10.1186/1472-6963-14-322
 - 21) Storesund A, McMurray A. Quality of practice in an intensive care unit (ICU): a mini-ethnographic case study. *Intensive Crit Care Nurs* 2009; 25(3):120-7.
 - 22) Mohammadlou F. Reviewing the concept of quality and the facilitating presenting factors and barriers to high-quality health care in the Shahid Motahari hospital emergency from the stakeholders perception. MSc thesis in Executive management. Faculty of Economics and Administrative Sciences. University of Isfahan; 2011.



- 23) Razlansari M, Teymouri B, AlipourShirsavar H, Taleqani M, Hoseyn A. Perceived service quality using SERVQUAL model of the patients hospitalized in teaching hospitals of Kermanshah University of Medical Sciences in 2012. *J Clin Res Paramedical Sci*. 2013; **3**(3):74-82.
- 24) Llanwarne NR, Abel GA, Elliott MN, Paddison CA, Lyratzopoulos G, Campbell JL, et al. Relationship between clinical quality and patient experience: Analysis of data from the english quality and outcomes framework and the National GP Patient Survey. *The Annals of Family Medicine*. 2013; **11**(5):467-72.
- 25) Gharibi F, Tabrizi J, Ramezani M, editors. Quality improvement of service provided to patients referred to physiotherapy clinics Rehabilitation, Tabriz University of Medical Sciences The first national congress of the student's clinical governance and continuous quality improvement; 2012: Tabriz university of medical sciences
- 26) Rust RT, Lemon KN, Zeithaml VA. Return on marketing: using customer equity to focus marketing strategy. *Journal of marketing*. 2004; **68**(1):109-27.