



## Quality standards and its compatibility rating prioritizing: the viewpoint of providers and recipients of hospital services in Iran

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### ABSTRACT

**Introduction:** Quality of health services is the rate of achievement to the most desirable resultants of health, so that provided services are effective, efficient, and affordable. Thus, quality evaluation can be an important source of information for recognition of problems and favorable plans in provision of treatment services.

**Method:** In this cross-sectional study, criteria of quality in hospital services and the compatibility rate from viewpoint of providers and recipients of services in Iran were studied using simple random sampling method in 4 provinces of country among 1485 people. Data were gathered using a designed questionnaire; criteria of quality in views of providers and recipients of services in six dimensions were studied. The data were analyzed using SPSSW-20 software. In order to analyze the information, descriptive tests and to determine the compatibility rate between the two groups, Chi-square test were used at a significance level of 0.05.

**Results:** Based on the results of this research, most percentage of accordance between the two groups of providers and recipients of services was in "Human Resources" dimension and in 1st priority ("Knowledge and specialty and skills of physicians and nurses and other people involved in patient care" criterion) with a frequency of 76.3 and 73.1 percent. Among the six studied dimensions, compatibility rate between the two groups, in "Access to Service and Care", "Respecting Values and Emotional Support", and "Management and Coordination of Care System" dimensions was significant ( $P < 0.001$ ).

**Conclusion:** Quality evaluation is an important source of information for recognition of problems and favorable plans in provision of effective health services. Therefore, recognition of different views of beneficiary groups and specially attempts to make perceptions of providers and recipients closer in the context of quality criteria are essential.

**Keywords:** Quality, Standard, Hospital, Evaluation

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### Introduction

Quality of Services has become increasingly important in the present day business, especially for industries with too many costumers. As an essential strategy, it can help a company to reach a competitive advantage and gain necessary profitability in long term (1, 2). In the current society, there are a lot of organizations which supply different types of products and services. In costumers' view, what distinguishes these products is their quality. Costumers expect to use a product with a good quality. Moreover, one of the important issues in health sector is quality of services and cares provided for patients. Quality of health services is the rate of achieving the most desirable outcome of health, so that provided services are effective, efficient, and affordable (3, 4). The quality of service issue

in hospitals is considered as the most important element in the healthcare system (5). Therefore, quality evaluation can be an important source of information for recognition of problems and favorable plans for delivery of treatment services (6).

From another perspective, quality consists of two dependent parts: 'Quality in Fact' (QiF) and 'Quality in Perception' (QiP). QiF is achieving your own expectations (according to standards), whereas QiP denotes achieving your costumers' expectations (7).

Thus, when defining quality, it is important to recognize different views of beneficiary groups including patients, care providers, expense remitters and the general public (8). On the other hand, the patient is the main axis of service and the only reason of existence of hospitals. Therefore, their satisfaction is an important indicator of quality of

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healthcare (9). On the other hand, service providers' role is also important in the quality of the healthcare provided and satisfaction of the patients.

Patients, like any other human, have vital needs. These needs will provide a useful framework for providing necessary cares. Thus, care and treatment groups must have enough knowledge about the needs and how to satisfy them and understanding the situations which lead to satisfying these needs (10). Patient satisfaction is one of the important goals of a treatment group that has a significant role in improving the patient's health. Provided services must be relevant to patient's needs, so that they can cause their satisfaction. Patient satisfaction is the patient's general perception of the quality of healthcare delivery, so using their opinions, we can consider the reasons of dissatisfaction and take action to solve them (11). Understanding the quality of service will finally affect the customer's satisfaction. People will be satisfied when their perception of the received services conforms to their expectations (12).

In a study, it was mentioned that the majority of patients defined quality as physicians' efforts which consists of every possible effort for patients (13). In another study conducted by Picker institute through interview with 450,000 patients during 12 years, the results showed that the patients believe these 8 dimensions as quality:

- Patients' respected values and beliefs and their expressed needs
- Access to services and cares
- Emotional support while providing services
- Information, communication, and education
- Sense of empathy in care team
- Physical comfort
- Participation of patient and his/her family in service providing decisions
- Sense of continuity of care (14)

Generally, different studies have been conducted for evaluation of health care quality using SERVQUAL model in order to determine the patients' expectation and perceptions in health sector environments. Since awareness about the opinions of recipients and providers of service is necessary, and due to the importance of subject and limited number of scientific and systematic researches conducted about determination of quality criteria in view of recipients and providers of health service, this research aimed to study the prioritizing and quality from viewpoint of providers and recipients of hospital services across different provinces of Iran using criteria of quality in 6 dimensions ("Human Resources", "Equipment and Physical Space", "Information, Communications, and Education", "Access to Service and Care", "Respecting Values", and "Management and Coordination of Care System").

## Methods

This is a cross-sectional study conducted during the year 2013 in educational hospitals of Medical Science Universities of 4 central and northwestern provinces of Iran. The studied population of hospital service providers and recipients were educational hospitals in studied

provinces accessible in terms of data gathering. 800 service recipients were selected such that there were 200 people in each province and they were distributed equally in each hospital. Hospitals were selected through a purposeful method so that in each hospital, 50 service recipients were selected. The reason for selection of provinces was possibility of gathering accessible information. Selection of service recipients inside the hospital was based on simple random sampling. Also, the criterion of adding the service recipients to the study was receiving service from hospital at least once. The criterion of choosing hospitals in each province was based on occupation rate of over 50% and population of the area covered, so in this study, psychiatric and subspecialized hospitals weren't studied. In order to select service providers, census sampling was used, noting the criterion of at least one year of work history in the hospital. In this regard, 685 people were finally studied. In order to design a research instrument, after library studies and gathering sufficient information about the quality and its place in health sector, especially hospital services, the research team designed a questionnaire with 6 dimensions ("Human Resources", "Equipment and Physical Space", "Information, Communications, and Education", "Access to Service and Care", "Respecting Values", and "Management and Coordination of Care System"). Face validity was used to refine the items so that the questionnaire was presented to 20 specialists and every item of it was checked and those with score of less than 1.5 were omitted. In the next step, i.e. the questionnaire's content validity check, specialists and experts were asked to classify each item as "necessary", "useful but not necessary" and "not necessary"; through content analysis and using CVR (Content Validity Ratio) index, we chose the most important and the most accurate content (Item necessity). The items were then interpreted using Law she's table and the items within the range of statistical acceptability ( $P < 0.05$ ) were accepted. In this regard, the questionnaire was piloted so as to make sure of the participants' (i.e. service recipients and service providers) understanding. The pilot sample consisted of 20 persons from each group. Their opinions were applied in order to simplify the items. In the next step, CVI (Content Validity Index) was checked and items with a score of less than 0.7 were omitted. This index indicates the comprehensiveness of judgments related to validity or applicability of the final tools. Also, Cornbrash's alpha coefficient was 0.82. Finally, the questionnaire was edited and arranged in two parts. Part A consisted of demographic information such as age, gender, etc. Part B was about quality dimensions and their criteria. Six dimensions were "Human Resources" with 4 criteria, "Equipment and Physical Space" with 5 criteria, "Information, Communications, and Education" with 5 criteria, "Access to Service and Care" with 6 criteria, "Respecting Values" with 8 criteria, and "Management and Coordination of Care System" with 7 criteria. The questionnaires were filled out by providers and recipients of services. The questionnaire were filled by service providers' group in a manner in which they had to specify their priority for each one of six dimensions of quality in educational hospitals by mentioning at most 3 criteria with

priorities 1 to 3 in each dimension.

The questionnaires were filled out by service recipients' group supposing they have visited an educational hospital in their own city to receive service, they had to specify their priority order for each one of six dimensions of quality of hospital services by mentioning at most 3 criteria with priorities 1 to 3 in each dimension.

The data were analyzed with SPSSW-20 software. In order to analyze the data using SPSS software, descriptive tests and chi-square test to determine intra-category compromise factor were used at a significance level of 0.05.

## Results

Results of demographic information of studied groups, shows that 56.8 percent of service recipients were female and 43.3 percent were male whereas 79 percent of service providers were female and 21 percent were male. General results are provided in Table 1.

In order to study compatibility rate between viewpoint of providers and recipients of hospital services in different dimensions, chi-square statistical test was used and statistical breakdown results in different dimensions are as follows:

Primary results (Table 2) showed that in "Human Resources" dimension, top three priorities in both providers and recipients of services were "Knowledge and specialty and skills of physicians and nurses and other people involved in patient care" (76.3 and 73.1 percent), "Commitment and good behavior of hospital employees" (69.7 and 57.6 percent), and "Appropriate and adorned appearance of hospital's physicians,

nurses, and staff" (59.8 and 43.8 percent). In this regard, both groups had similar opinions in selecting their 1st priority.

In "Equipment and Physical Space" dimension, the results shows that top three priorities in both providers and recipients of services were "Modern and advanced equipment in wards (e.g. Operating Room, CCU, and ICU) and diagnostic units" (64.3 and 60.6 percent), "Safety of hospital's environment" (30.8 and 29.2 percent), and "Environmental health, amenities in hospital" (28.3 and 27.7 percent). Results show that both groups had similar opinions about their 1st and 2nd priorities (Table 3).

Results in "Information, Communications, and Education" dimension (Table 4).

showed that in service providers' view, the 1st priority was "Existence of HIS (Health Information System) – Using computer in providing services in hospital" with frequency of 50.8 percent while in service recipients' views, the 1st priority was "Making information and hospital reception possible via Internet or telephone" with a frequency of 34.2 percent and the same criterion was the 2nd priority in service providers' view with a frequency of 31.4 percent and "Providing information about treatment methods and making it possible to choose the treatment method" was the 2nd in service recipients' view with a frequency of 27 percent. "Providing patients, information about equipment, specialties, and hospital services via Internet or IVR" was the service providers' 3rd priority with a frequency of 26.1 percent and "Participation of patient and his/her family in service providing decisions" was the service recipients' 3rd priority with a frequency of 31.5 percent.

**Table 1.** Demographic information of providers and recipients of service

Service Recipients				Service Providers		
Variable		n	%	n	%	
Gender	Female	454	56.8	541	79	
	Male	346	43.3	144	21	
Age	< 20	48	6	2	0.3	
	20-39	485	60.6	515	75.2	
	40-59	213	26.6	163	23.9	
	>60	54	6.8	5	0.7	
Education	Diploma and lower	479	59.9	25	3.6	
	Associate	104	13	58	8.5	
	Bachelor	189	23.6	465	67.9	
	Master	24	3	34	5	
	Doctor and Higher	3	0.4	103	15	
Marital Status	Single	182	22.8	202	29.5	
	Married	562	70.5	469	68.5	
	Other	53	6.7	14	2	
Residency Status	Urban	608	76.1	Resident	571	84
	Rural	190	23.8	Non-Resident	109	16

**Table 2.** Comparison of quality criteria in “Human Resources” dimension from the views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Human Resources	1st	Knowledge and specialty and skills of physicians and nurses and other people involved in patient care	76.3	Knowledge and specialty and skills of physicians and nurses and other people involved in patient care	73.1	3.539	P>0.055
	2nd	Commitment and good behavior of hospital employees	69.7	Commitment and good behavior of hospital employees	57.6	38.520	P<0.001
	3rd	Appropriate and adorned appearance of hospital's physicians, nurses, and staff	59.8	Appropriate and adorned appearance of hospital's physicians, nurses, and staff	43.8	37.101	P<0.001

**Table 3.** Comparison of quality criteria in “Equipment and Physical Space” dimension from views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Equipment and Physical Space	1st	Modern and advanced equipment in wards (e.g. Operating Room, CCU, and ICU) and diagnostic units	64.3	Modern and advanced equipment in wards (e.g. Operating Room, CCU, and ICU) and diagnostic units	60.6	7.230	P>0.055
	2nd	Safety of hospital's environment	30.8	Safety of hospital's environment	29.2	6.937	P>0.055
	3rd	Environmental health, amenities in hospital	28.3	Environmental health, amenities in hospital	27.7	14.327	P=0.006

**Table 4.** Comparison of quality criteria in “Information, Communications, and Education” dimension from views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Information, Communications, and Education	1st	Existence of HIS (Health Information System) – Using computer in providing services in hospital	50.8	Making information and hospital reception possible via Internet or telephone	34.2	83.564	<0.001
	2nd	Making information and hospital reception possible via Internet or telephone	31.4	Providing information about treatment methods and making it possible to choose the treatment method	27	5.258	>0.055
	3rd	Providing patients, information about equipment, specialties, and hospital services via Internet or IVR	26.1	Participation of patient and his/her family in service providing decisions	31.5	18.258	P=0.001

The views of providers and recipients on the 2nd priority were similar.

The results in “Access to Service and Care” dimension (Table 5) show that the 1st priority for both groups (providers and recipients) was “Fair and justly services” with a frequency of 38 and 39.9 percent, respectively. The 2nd priority for providers was “Waiting time (Elapsed time for entrance, reception, and dismissal)” with a frequency of 22.9 percent and for recipients it was “Right to choose

the physician” with a frequency of 31.6 percent.

The 3rd priority for both groups was “Organization's ability to provide right services in at the first visit” with a frequency of 18.9 and 23.8 percent, respectively. Results showed that there was no accordance between the two groups' views on their priorities (P>0.001).

In “Respecting Values and Emotional Support” dimension, the 1st priority of both providers and recipients groups was “Patient's privacy in hospital” with a frequency of

21.3 percent and 28.3 percent respectively, the 2nd priority was “Respecting patient’s needs and expectations” with a frequency of 21.1 and 28.6 percent respectively, and their 3rd priority was “Receiving safe services from hospital” with a frequency of 25.8 and 19.5 percent, respectively. Results showed that these two groups had no similarity in their opinions ( $P>0.001$ ) (Table 6).

In “Management and Coordination of Care System” dimension, the results revealed that (Table 7), the 1st priority in the providers and recipients’ view was “Having strong administrative team and appropriate supervision system in hospital” with a frequency of 51.4 percent and 40.7 percent, respectively. The 2nd priority in providers’ view was “Existence of multi-discipline specialist teams for patient care” with a frequency of 19.7 percent and in the recipients’ view it was “Physician’s consultation with his colleagues during the patient care procedure” with a frequency of 20.6 percent.

Also, “Responsiveness to patient” with a frequency of 26.4 and 33.3 percent was considered as the 3rd priority for both provider and recipient groups, respectively. Results showed that the frequency of accordance between opinions in both groups in all three dimensions had no meaning, which means the two groups did not have similar priorities ( $P>0.001$ ).

According to results of this research, most percentage of accordance in six dimensions between the two groups was in “Human Resources” dimension and in the 1st priority (“Knowledge and specialty and skills of physicians and nurses and other people involved in patient care” criterion) with a frequency of 76.3 and 73.1 percent.

Also using Chi-square statistical test, we found that the recipients’ educational level and their choices were checked and no significant differences were found ( $P>0.055$ ). Also, the results showed that the use of supplementary insurance had no significant effect on choosing a priority for the criteria ( $p>0.055$ ).

**Table 5.** Comparison of quality criteria in “Access to Service and Care” dimension from views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Access to Service and Care	1st	Fair and justly services	38	Fair and justly services	39.9	67.570	$P<0.001$
	2nd	Waiting time (Elapsed time for entrance, reception, and dismissal)	22.9	Right to choose the physician	31.6	40.491	$P<0.001$
	3rd	Organization’s ability to provide right services in at first visit	18.9	Organization’s ability to provide right services in at first visit	23.8	31.558	$P<0.001$

**Table 6.** Comparison of quality criteria in “Respecting Values and Emotional Support” dimension from views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Respecting Values and Emotional Support	1st	Patient’s privacy in hospital	21.3	Patient’s privacy in hospital	28.3	16.695	$P=0.019$
	2nd	Respecting patient’s needs and expectations	21.1	Respecting patient’s needs and expectations	28.6	42.972	$P<0.001$
	3rd	Receiving safe services from hospital	25.8	Receiving safe services from hospital	19.5	54.316	$P<0.001$

**Table 7.** Comparison of quality criteria in “Management and Coordination of Care System” dimension from views of providers and recipients of hospital services

Dimension	Priority Number	Service Providers		Service Recipients		Accordance	
		Criteria	Frequency	Criteria	Frequency	$\chi^2$	P
Management and Coordination of Care System	1st	Having strong administrative team and appropriate supervision system in hospital	51.4	Having strong administrative team and appropriate supervision system in hospital	40.7	27.985	$P<0.001$
	2nd	Existence of multi-discipline specialist teams for patient care	19.7	Physician’s consultation with his colleagues during the patient care procedure	20.6	30.873	$P<0.001$
	3rd	Responsiveness to patient	26.4	Responsiveness to patient	33.3	25.552	$P<0.001$

## Discussion

In this study, selection of criteria was one part of the results; these criteria matched those of Picker institute's study on the following dimensions: "Respecting the patient's values and beliefs and their expressed needs and emotional support", "Access to services and care", "Information, communications, and education", and "Physical comfort" (15). Also, it matched those of Tomes and Chee's study (16) in dimensions "Mental needs", "Understanding Patient", and "Respectful Bilateral Relations" which represents "Respecting Values and Emotional Support" and in "Physical Environment" which represents "Equipment and Physical Space". On the other hand, it matches Camille RI and Callaghan's study in indices like "Hospital Environment" and "Technical and Special Quality" which represents "Equipment and Physical Space" dimension and also "Care and Services Accessibility" index and "Services Personnel" index which represent this study's "Human Resources" dimension (17).

Results of this study showed that "Patient's privacy in hospital" was one of the most important selected priorities in "Respecting Values and Emotional Support" dimension which matches the study conducted by Javadi et al. in the year 2011; in nurses' views, the highest score was obtained by "Privacy" (18). Leventhal et al. believe that, based on the results of Picker institute, service providers have requirements and expectations similar to those of the patients. For example, both service providers and service recipients emphasized the "Patient's Privacy" and "Amenities for Attendants" as the environment's advantages (15).

In studying dimensions and quality criteria, the results of this study on "Human Resources" dimension showed that top three priorities in both providers and recipients of services were "Knowledge and specialty and skills of physicians and nurses and other people involved in patient care", "Commitment and good behavior of hospital employees", and "Appropriate and adorned appearance of hospital's physicians, nurses, and staff". Results of this study in "Human Resources" dimension are in the same line with those of the research conducted by Azarbajani et al. about the most important component in patient and nurse's views (19).

In "Equipment and Physical Space" dimension, the results showed that top three priorities in both providers and recipients of services views were "Modern and advanced equipment in wards (e.g. Operating Room, CCU, and ICU) and diagnostic units", "Safety of hospital's environment", and "Environmental health amenities in hospital". Results of the study in the 2nd dimension are consistent with a study's results, showing a strong and positive correlation between "Hospital Environment" index and "Patient Satisfaction" index (20). Two key components of patient's perception of quality are their perception of physical environment and their interaction with staff and employees (21). We can improve the patients' satisfaction by planning so as to improve the hospital's condition. Therefore, hospital authorities must act in order to resolve the existing dissatisfactions and improve the quality of services delivered in hospitals.

In "Information, Communications, and Education" dimension, the results showed that "Existence of HIS (Health Information System) – Using computer in providing services in hospital" was the 1st priority in service in providers' view and "Making information and hospital reception possible via Internet or telephone" was the 1st priority in service recipients' view. Also, the 2nd priority in service providers' view "Providing information about treatment methods and making it possible to choose the treatment method" was the 2nd in service recipients' view. "Providing patients, information about equipment, specialties, and hospital services via Internet or IVR" was the service providers' 3rd priority and "Participation of patient and his/her family in service providing decisions" was the service recipients' 3rd priority. Reviewing accreditation system of Iranian hospitals, service providers' 1st priority and service recipients' 2nd and 3rd priorities can be observed among some of the evaluated criteria, while the recipients' 1st priority, "Making information and hospital reception possible via Internet or telephone", wasn't mentioned in accreditation (22). This can show that accrediting system notices quality criteria from the system's view rather than the customer's.

In "Access to Service and Care" dimension, the 1st priority for both groups was "Fair and justly services". The 2nd priority for providers was "Waiting time" and for recipients it was "Right to choose the physician" and the 3rd priority for both groups was "Organization's ability to provide right services in at first visit". The results as to the 3rd priority match those of Mohammadi. In his opinion, "Service Reliability" (The ability to provide the service, right and on time) is the most important issue and believes that, in recipient's view, satisfying the "Service Reliability" dimension depends on factors like "Providing right health services in first visit", "Accurate and precise keeping of documents and files", and "Providing services in specified time" (23).

Also, results of this study as to "Respecting Values and Emotional Support" show that top 3 priorities in both groups are "Patient's privacy in hospital", "Respecting patient's needs and expectations", and "Receiving safe services from hospital". These results confirm those of Azarbajani et al.'s research about the most important component in patient and nurse's view which was "Respecting patient's needs and expectations" (19). Also, it matches a study conducted in order to evaluate the responsiveness in hospitals of Turkey in viewpoint of senior administrators and nurses in which "Privacy" was the highest score between the dimensions of responsiveness (24). Also, the 3rd priority in this dimension which points to receiving safe services in hospital, matches those of Pasargadi based on definition of quality in nurses' view which points to two aspects of "Safe and favorable Services" and "Patient's Satisfaction" (25). On the other hand, in order to supply quality of service, executing medical ethics' guidelines and respecting the patient's rights are inevitable (26).

In "Management and Coordination of Care System" dimension, the 1st priority for both groups was "Having strong administrative team and appropriate supervision

system in hospital". The 2nd priority for providers was "Existence of multi-discipline specialist teams for patient care" and for recipients it was "Physician's consultation with his colleagues during the patient care procedure"; also, the 3rd priority for both groups was "Responsiveness to patient". Results of the current study in this dimension, in the first two priorities are in the same line with those of Williams, stating that concentration on quality is not providing high quality nursing care by a single person but by a team which is assigned to take care of a specific patient, and in this circumstance the physicians and nurses cooperate closely (27).

From one perspective, quality of service is the rate of conformity between provided services and customer's expectation (28). It is important to determine the criteria and priorities according to views of service providers and service recipients in different nations and their social, economic, and cultural circumstances and it's better to be considered according to this issue. The current study, with the purpose of prioritizing quality criteria based on views of providers and recipients of service in 4 provinces could determine these priorities.

Evaluation of quality management can be an important source of information for recognizing problems and desirable plans in terms of providing treatment services (6). Service quality management is vital for health and treatment organizations, and enough information in terms of the contents of the customer's perception of service quality can assist organizations in recognizing issues and dimensions which influence the organization's competitive advantage and prevent wasting resources (29). In this regard, it is necessary to recognize views of different beneficiary groups including patients, service providers, fee payers, and the general public, with respect to the results of this research and Huycke's study, and design quality of services assurance and improvement plans with more accurate recognition of their views (30).

### Conclusion

In this research, there was an attempt to study the quality from the viewpoints of the customer and service provider simultaneously. Based on the results of this study, in some dimensions there was agreement between the two groups and in some dimensions there wasn't. Probably misjudgment about the people's criteria of quality will cause the hospital systems to lose their customers. Thus, an opportunity is provided to apply the intended criteria in quality improvement plans and hospital evaluation system and plan to fill the gaps by getting closer to what is the sign of quality in patients and customers' views .

### Competing Interest

None declared.

### Limitations

There were no limitations in collecting the data.

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