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Research Article

Measurement and Assessment of Health Care Services' Quality Reported by Patients and their Relatives in King Khaled University Hospital

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Abstract

Introduction: The quality of service both technical and functional is a key ingredient in the success of service organizations. Numerous studies have shown that provision of high-quality services is directly related to quick recovery, early discharge from the hospital, and satisfaction and comfort of the patient as well as achievement of the clinical aims.

Quality in health care is currently at the forefront of professional, political and managerial attention, primarily because it is being seen as a means for achieving increased patronage, competitive advantage and long-term profitability.

Although it is widely acknowledged that there is a need for quality indicators of patient satisfaction with medical care, very little research in this area exists. We hope that this study help the administrations of the hospital to improve quality of health care services provided to the patient and help policymakers in health office to improve the status of healthcare services in the hospital.

Methods: Descriptive cross-sectional study, involves patients and the their companion relative admitted to King Khaled university hospital in Riyadh city, Saudi Arabia. The study was conducted between the 15th of December 2014 to the 10th of March 2015. The data were collected by interviewing the patients and their companion relatives. Analysis was done by using (SPSS v19)'s descriptive statistical tools.

Results: A total of 424 participants were involved in the study, 52.1% of them were relatives while 47.9% were patients. The age group of majority of respondents 47.9% was between 31-50 years. Regarding the educational level 28.8% of the interviewed graduated from primary school. The study showed that about 59.9% of the participants were satisfied regarding the tangible dimension, about 67.7% were satisfied regarding the reliability dimension, while satisfactions of other dimensions were as the following: responsiveness 66.9%, assurance 73.1%, and empathy 56.4%. Overall satisfaction of KKUH services was 65%.

Conclusion: Overall level of satisfaction regarding to services quality provided by KKUH appear to be low compared to other studies. The assurance dimension took the highest satisfaction, while empathy dimension took the lowest satisfaction. Educational level and gender were the most statically significant factors to affect the level of satisfaction.

Keywords: *Measurement; Servqual Health Care Services Quality; Saudi Arabia; Riyadh*

Abbreviations

KKUH: King Khaled University Hospital; WHO: World Health Organization; OPD: Out Patient Department; NR: NRI Hospital

Introduction

The quality of service both technical and functional is a key ingredient in the success of service organizations [1]. Several techniques for measuring technical quality have been proposed and are currently in use in health care organizations. Functional quality, in contrast, relates to the manner of delivery of health-care services. Numerous studies have shown that provision of high-quality services is directly related to early discharge from hospital and satisfaction of patient and increase in profits [2].

Quality in health care is currently at the forefront of professional, political and managerial attention, primarily because it is being seen as a means for achieving increased patronage, competitive advantage and long-term profitability [3].

On this study we used 'Servqual' instrument to measure patients and their relative's perception about quality of service delivered by hospital. Five service quality dimensions; tangibles, reliability, responsiveness, assurance and empathy used in order to measure satisfaction in king khaled university hospital.

It was recognized in earlier studies that 'Servqual' is a comprehensive scale to empirically estimate the level of quality services delivered to customers, and it is best suitable in the hospital environment [4].

The patient's expect during his stay in the hospital three basic things which is the comfort, care, and treatment. Hence, this study identified the possible factors affecting the level of patient's satisfaction in hospital [5].

To be satisfied, the patients expect high levels of treatment services. Thus for the stakeholders it is really important to increase patient's satisfaction. Most of research done in this area includes different aspects, such as environmental services, medical care, and nursing care [6]. Proper care would lead to quick recovery, early discharge from the hospital, and satisfaction and comfort of the patient as well as achievement of the clinical aims [6].

We hope that this study help the administrations of the hospital to improve quality of health care services provided to the patient and help policymakers in health office to improve the status of healthcare services in the hospital. The study may encourage them to follow quality management to improve their organizations.

Literature Review and Background

A popular definition of service quality; proposed Berry., *et al*. is "conformance to customer specifications" that is, it is the customer's definition of quality that matters, not that of management. Evans and Lindsay proposed the view that customer satisfaction results from the provision of goods and services that meet or exceed customer needs. Although it is widely acknowledged that there is a need for quality indicators of patient satisfaction with medical care, very little research in this area exists [7].

The World Health Organization (WHO) identify health quality as "being in agreement with the correct standards and direction in a safe and acceptable way in the community, with an affordable costs leading to changes in the percentage of morbidity, mortality, disability, and malnutrition [7].

The definition of quality of health services varies depending on the view point of the persons in relation to quality, as follows:

1. Quality from the standpoint of patients (patient satisfaction) it means that whether the services provided to patients give them what they want.
2. Quality from the standpoint of health professionals (Professionally) means whether health services meet the needs of patients as identified and assessed by professionals themselves and if the medical and non-medical procedures that have been chosen have been done properly.
3. Quality from the standpoint of management means the efficient use of resources and means to maximize productivity and meet customer needs without waste and within the limits and guidance from senior management [7].

To sum up, because patients are often unable to assess the technical quality of medical services accurately, functional quality is usually the primary determinant of patients' perceptions of quality. There is growing evidence to suggest that this perceived quality is the single most important variable influencing consumers' perceptions of value, and that this, in turn, affects their intention to purchase products or services [8].

Servqual model: Due to intangible in nature, service quality is difficult to measure, and defining the parameter to evaluate the quality of services delivered to the customer was the major issue in the beginning. The first service quality model was presented by Parasuraman, Zeithaml and others explored that customer perception about the service quality is influenced by 5 'gaps' and it is also known as 'gap' model. Gap 1 shows the difference between customer expectations and management perception of customer expectations. Gap 2 is the difference between management perceptions about service quality and service quality specifications. Gap 3 is the difference between service quality specifications and service quality delivery. Gap 4 is the difference between service delivery and external communication to customers, and gap 5 is the difference between expected and perceived service quality [9].

Servqual model is based on gap 5 that was influenced by first four gaps. Earlier, service quality was measured by comparing customer expectations with customer perceptions on the basis often dimensions which includes; reliability, tangibility, communication, security, credibility, competence, understanding, access, understanding/knowing customers and responsiveness. Further this model was refined by Parasuraman and Berry. Service quality can be measured on the basis of five dimensions; reliability, tangible, responsiveness, assurance and empathy and these five dimensions were further assessed by 22 items [9].

Empathy is about the individual attention and care provided to the customers by the service provider and its human resource [9].

Tangible is about the physical facilities like infrastructure, labs, equipment and human resources involved in delivering the services [9].

Assurance is about knowledge, skills and expertise of the employees involved in delivering services and the ability to create trust and confidence among the customers [9].

Reliability is the ability to execute the promised services consistently and accurately [9].

Responsiveness is the degree of willingness to help and facilitate the customers by providing prompt services to the customers [9].

Figure 1 shows that the quality of the received service was the result of the consumer comparison between the expected service and the received service, the level of the expected received service is determine in the light Of the consumer past experience, needs and his contacts with others, using the specific dimensions of quality of service comparison is made between expectations and actual service, to determine the level of quality of received service [7].

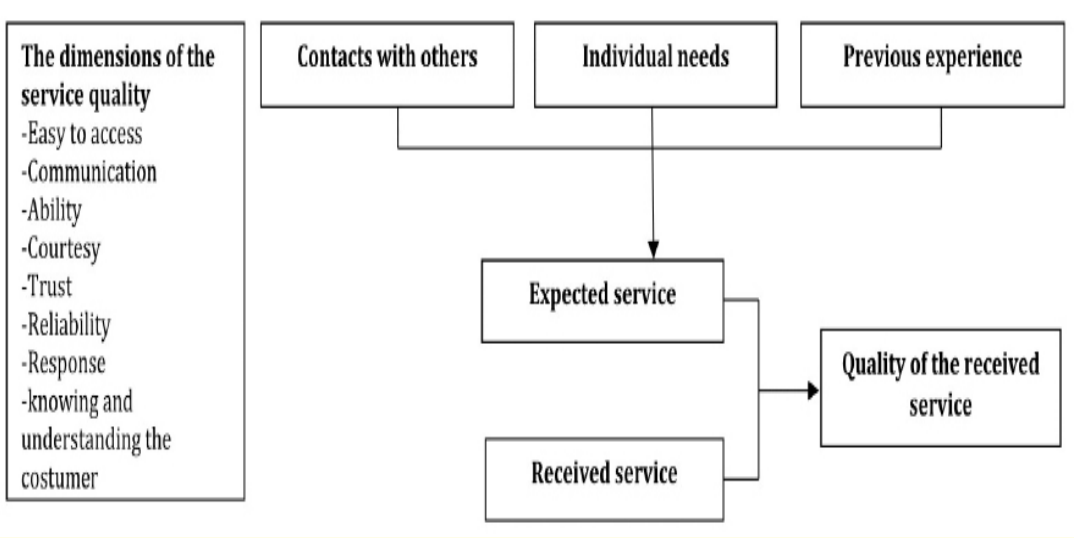

Figure 1: *Determinations of received service quality.*

Gap I: Between Patient expectation and management perception of these expectations. And this result from the difference between the patient's expectations for the level Of service and the hospital 's management to realize the patient's expectations, for the inability of the management to know about the expected needs and desires of the patients, or the hospital 's management may think that the patient wants to get the best food. But it may be in another meaning that the patients want to get better care from nurses [10].

Gap 2: Between management perceptions of patient's expectation, and service quality specifications and the management's perceptions of the patient's expectations, meaning that even if the anticipated needs of the patients and their wishes known to the administration, it will not be translated into a specific specification in the service provided due to restrictions related to the lack of financial resources and management ability to adopt a philosophy of quality. Perhaps the hospital's management correctly aware of the patient's wishes but does not specify clear performance standards [10].

Gap 3: Between Service Quality Specifications and Service delivery.

Appear due to the fact that the service provided specifications already do not match with what the administration aware of regarding these specifications. This may be due to the low level of skill based on the worker's performance on the service, which in turn returned to the weakness of the ability and willingness of these workers. May be the individuals based on serving the patients untrained properly, or are unable or unwilling to perform equivalent nonnative standards specified, as for example in the need to listen to the patient adequately and then the completion of the service quickly [10].

Gap 4: Between Service delivery and external communications to patient's delivery. And this result from the imbalance in the credibility of the service organization, meaning that the promises made by the organization about the level of service through contacting with the patients differ from the actual service provided and level of specifications. The difference and the contrast between the health services received by patients and what has been agreed upon in advance and through contacts that took place between management and hospital patients, as is happening in the agreement between the patient and the hospital administration in getting a clean and elegant rooms and comfortable beds in the contact between the two parties, but on their arrival to the hospital to find the contrary, with or without prior agreement between the parties [10].

Gap 5: Between patient expectations and perceived Service. Represent perceptions (actual) expectations, as the quality Of service is one of the factors that match or exceed the patient's expectations. Personal evaluation for the service quality as high or low depends on how the patient's perception on the actual performance of the service in the context of what was expected. This gap occurs when the patient does not get the expected quality health service as a doctor in an attempt to preserve the patients visit constantly as part of his duty, but the patient explains that there is something in their health. That the gap (5) is the only gap that touches the patient on the basis of the fact that other gaps occur within the hospital as part of the design and drafting quality of health services provided, but they all contribute to show gap 5 [10].

The servqual instrument has been extensively adopted in various industries, and its validity and reliability have been confirmed. Scardina and Arikan, for example, reported that servqual was superior in validity and reliability for evaluating patient satisfaction in medical care. However, caution should be exercised and adaptations must be within the stated guidelines to ensure that the integrity of the instrument is maintained [8].

Methodology

Study design: A cross-sectional analytical study carried out by group of medical students and interns of Different Universities, during the educational year 2014 - 2015. It aims to measure and assess health care services' quality in king Khaled university hospital (KKUH) - king Saud University in Riyadh city; in order to evaluate the patients and their relatives' satisfaction.

Study area: The study was carried out in king Khaled university hospital in Riyadh City, the capital city of Saudi Arabia during the period from 15th December 2014 to 10th March 2015.

Study population: The KKUH was selected as the study site. This hospital is one of the biggest hospital in Saudi Arabia. The study included 424 participant patient and their companion relatives who had admitted to three departments at the time of data collection from 15/12/2014 to 10/3/2015.

Type of sample (sampling): A comprehensive sampling method used to collect samples from KKUH departments in Riyadh city. There were 3 departments involved in the study medical, surgical and orthopedics as the other departments were having maintenance at the time of the study.

Sample size: Calculation of sample size is based on the following formulae [11]:

$$Sample\ size(N) = \frac{PQ(Z)^2}{(D)^2}$$

N = Sample size required.

Z = Certainly (for 95% z = 1,96).

P = Proportion of the characteristic in the population = 50%.

Q = 1-0.5=0.5

D = Error allowable (d = 5%)

$$N = \frac{1.96^2 \times (0.5 \times 0.5)}{0.05^2} = \frac{0.96}{0.0025} = 384\ patients$$

Sample Criteria and Variables

Inclusion Criteria

1. The patients or companion relatives whose age above 18 years old.
2. The patients or companion relatives who were willing to give consent.
3. The patients or companion relatives whose condition fit for interview.

Exclusion Criteria

1. Patients or companion relatives who had mental problems.
2. Patients or companion relatives who needed emergency attention.
3. Patients or companion relatives who had not finished the interview process.

Variables

Dependent variables

•**Patient satisfaction:** was defined as the patient's opinion about health care services provided in KKUH

Independent variables

- **Socio-demographic characteristics:** were defined as the social and demographical nature of the studied subject. they include age and gender of the subject, residence, education, ward and duration.
- **Age:** referred to the ages of the respondents from 18 years old by the time of the study.
- **Gender:** was defined as the state of being male or female of the respondents.
- **Residence**: referred to each respondent's region either from the middle region (including Riyadh city), the western and southern region, northern region or eastern region.
- **Education:** was defined as the respondent's academic qualification by the time of data collection.

- **Ward:** was defined as the ward patient admitted to at the time of interview.
- **Duration:** was defined as time (by days) patient spent in hospital at time of interview.

Data collection and tools

The data was collected by face-to-face interviews, in which the questionnaire was used to guide the researcher. Every interview was carried out by one of the researchers to standardize interviews and reduce interview biases. Each interview session took about 10 to 15 minutes, and the data collection process was conducted from 15/12/2014 to 10/3/2015.

For the collection of data a questionnaire was used, the structure of the questionnaire was based on the core of the Servqual tool. Questionnaire was explained firstly, by the researcher to the subjects and then the subjects asked to answer the questionnaire freely without interference.

Questionnaire Validation

In order to increase the validity of the questionnaire, two steps were carried out.

First: A review of the relevant literatures.

Second: A pilot survey of 20 subjects from the target population in KKUH was conducted before the beginning of data collection.

For securing a good data collection a team of four; two males and two females personnel were selected to do a pre-test. 30 patients and relatives were selected randomly from the patients admitted to KKUH, either in male or female departments, in order to check the level, language, response and other characteristics of the questionnaire, and to test the relevancy of the questionnaire in relation to the aim of the work and determine if the questions asked were understood by the respondents.

Some questions were modified according to this pilot survey and quality of questionnaire improved.

The questionnaire included the following sections:

1. Socio-demographic characteristics of respondents.
2. Patient satisfaction towards dimensions of quality of health care services, (five dimensions included).

Part 1: Socio-demographic characteristics of respondents admitted to KKUH. This first part comprises respondent's general information regarding gender, age groups, residence, educational level, the ward respondent was admitted in in the hospital, and time of interview.

Age Groups: Three different age groups were constructed. Within each group, there is a 15-year interval. Age groups coded as below:

1 = 18 - 30; 2 = 31 - 50; 3= ≥ 51

Gender: This part was divided into two groups, male and
female and coded as below:
1 =Ma1e; 2 = Female

Residence: The research have divided residence into four different governments and coded as below:
1 = Middle region; 2 = Northern region; 3 = Eastern region; 4 = Western and Southern region

Education: Five different educational levels were chosen and coded as below:
1 = Illiterate; 2 = Read and write; 3= Primary school; 4 = Secondary school; 5 = University

Ward: This part was categorized into three groups and coded as below:
1 = Surgery; 2 = Medicine; 3 = Orthopedics

Time of interview: This part was categorized into three groups and coded as below:
1 = Morning; 2 = Afternoon; 3 = Night

Part 2: Patient satisfaction towards quality dimensions in ISGH

Patient satisfaction statements were divided into 5 sub-main parts including the five dimension of quality in servqual. These parts comprise 22 multiple-choice questions. Each question was characterized by five point Likert scales and labeled as strongly agree, agree, undetermined, disagree and strongly disagree In order to find the characteristics of satisfactory levels, and coded as below:
0 = Strongly disagree; 1 = Disagree; 2 = Undetermined; 3 = Agree; 4 = Strongly agree

The level of patient's satisfaction was obtained by:

• Calculation of each statement mean (maximum mean = 4, and minimum mean = 0).

• Calculation of each statement percent by: $\frac{Mean\ of\ the\ statement}{Maximum\ mean} \times 100$

• Calculation of each category mean by: $\frac{\sum (mean\ of\ each\ statement\ in\ the\ dimension)}{No.of\ statement\ in\ this\ dimension}$

E.g.: Mean satisfaction of X category = $\frac{1.55 + 2.25 + 2.57 + 2.32 + 2.60}{5} = 2.258$

• Calculation of satisfaction percent for each category by: $\frac{Mean\ of\ the\ category}{Maximum\ mean} \times 100$

E.g.: Satisfaction percent about registration department: $\frac{2.258}{4} \times 100 = 56.4\%$

• Calculation of overall satisfaction mean by: $\frac{\sum (mean\ of\ each\ category)}{No.of\ categories}$

E.g.: overall satisfaction mean = $\frac{2.3800 + 2.7090 + 2.6781 + 2.9264 + 2.2575}{5} = 2.5902$

• Calculation of overall satisfaction percent by: $\frac{Mean\ of\ general\ satisfaction}{Mean\ of\ general\ satisfaction} \times 100$

E.g.: overall satisfaction percent = $\frac{2.5902}{4} \times 100 = 64.7\%$

In overall satisfaction mean, 4 indicate complete satisfaction, and 0 indicate complete dissatisfaction.

Data analysis

After the data was collected, data was checked for completeness, coded then entered into computer using Statistical Package for Social Sciences program (Portable IBM SPSS Statistics V19), each participant had a unique serial number to identify her/his study documents.

The Data then analyzed by statistical methods including: frequency, percentage, mean, and standard deviation. Descriptive statistics illustrated by using frequency and proportion for numerical variables, and mean and standard deviation (SD) for continuous variables. Independent T test and One Way ANOVA tests were used to compare means. The association between dependent and independent variables was assessed using Pearson's Chi square test, then presented in tables and by using computer application (excel and word).

Ethical consideration

Study was conducted after full permission and arrangement with (KKUH)'s administration with informed consents obtained in writing. Simple and clear explanation of research aims were provided to the administration and to the staff who helped us in the study.

Verbal consents were obtained from all subjects who participated in the interviews. Simple brief explanations about the study aims, why and how subjects has been chosen are explained to participants before starting the interview.

Participant's privacy was respected and confidentially was assured, neither subjects' name nor beds' number were included in the questionnaire or any sign that may identify the identity of respondent.

Limitations

We just measured patient perception of health services in KKUH, and there still another part which is patient expectation, furthermore this gap depends on the nature of the other gaps related to the service design, marketing and presentation [10].

The main axis in measuring the quality of service with (Parasuraman, Zeithaml, Berry) is the gap between the customer's perception of the level of actual service performance and their expectations about the quality of the service [10].

Results

Table 1 shows that 50.2% of interviewed subjects were male and the majority of subjects aged between 31 - 50 years (47.9%). Regarding type of respondents either patient or relative, result showed 52.1% of them were relatives.

Variable	Option	Frequency	Percent
Gender	Male	213	50.2
	Female	211	49.8
Age	≥ 30	192	45.3
	31 - 50	203	47.9
	> 50	29	6.8
Type	Patient	203	47.9
	Relative	221	52.1
Residence	Middle region	330	77.8
	Northern region	20	4.7
	Eastern region	58	13.7
	Western and Southern regions	18	3.8
Educational level	Illiterate	111	26.2
	Read and write	58	13.7
	Primary	122	28.8
	Secondary	83	19.6
	University	50	11.8
Ward	Surgery	185	38.9
	Medicine	212	50.0
	Orthopedic	47	11.1
Time of interview	Morning	159	37.5
	Afternoon	153	36.1
	Evening	112	26.4
Duration of admission (days)	1 - 3	253	59.7
	4 - 6	107	25.2
	7 - 9	32	7.5
	≥ 10	32	7.5
Total population		424	100

Table 1: *The socio-demographic characters of study population.*

From the 424 respondents 77.80% of them were residents in middle region (including Riyadh city), 13.7% of them were residents in the eastern region, 4.7% of them were residents in the northern region, and 3.8% of them were residents in the western and southern regions. Regarding the educational level only 11.8% of the subjects were with university education while most of the subjects graduated only from primary school 28.8%, the illiterates were almost as common as the primary school graduated subjects with a percent of 26.2, the remaining were either can read and write or secondary school graduates. Regarding admitted department, 50% of subjects were in medical ward, 38.9% in surgical ward, and 11.1% in orthopedic ward. Regarding the time of interview, 37.5% of subjects interviewed in the morning, 36.1% in the afternoon, and the rest in the evening. Regarding duration of admission, 59.7% of interviewed subjects spent 1 - 3 days in the hospital prior to interview, 25.2% of subjects spent from 4 to 6 days, and the rest stayed 7 - 9 days and ≥ 10 days each with 7.5%.

Table 2 shows, the overall mean of satisfaction was 2.6 with overall satisfaction percent 64.8%. The highest satisfaction rate was of assurance dimension 73.1%, the lowest was of empathy dimension 56.4%, while reliability and responsiveness dimensions were with 67.7% and 66.9% respectively, And the tangible dimension was with satisfaction rate of 59.5%.

Dimensions	Mean (SD) of Satisfaction	Percent of satisfaction	Overall mean (SD) of satisfaction	Overall percent of satisfaction
Tangible	2.4 (0.7)	59.5%	2.6 (0.7)	64.8%
Reliability	2.7 (0.8)	67.7%		
Responsiveness	2.7 (0.9)	66.9%		
Assurance	2.9 (0.8)	73.1%		
Empathy	2.3 (0.99)	56.4%		

Table 2: *The mean score and percent of satisfaction according to each dimension and overall satisfaction. (maximum mean = 4, minimum mean = 0)*

Table 3 shows, the highest satisfaction percents within the tangible dimension were regarding the uniform of the hospital's staff, cleaning departments and the sterilization services 78%, 72% and 66% respectively, and the lowest percents were regarding relaxation places, suitable place for the watchers and suitable waiting halls for the patients 28.2%, 43.7% and 53.7% respectively. The other results within the tangible dimension can be seen bellow in table 3.

Questions (Tangible)	Mean (SD)	%
QI) Hospital has modern technological and medical equipment	2.5 (1.1)	62.2%
Q2) Hospital staff takes uniforms and the dressing seriously	3.1 (1.0)	78%
Q3a) Clean departments	2.9 (1.2)	72%
Q3b) Good sterilization services	2.7 (1.2)	66%
Q3c) Clean toilets	2.4 (1.4)	59.5%
Q3d) Suitable rooms	2.5 (1.4)	63%
Q3e) Quite rooms	2.5 (1.4)	61.5%
Q3f-I) Suitable waiting halls for patients	2.20.2)	53.7%
Q3f-2) Suitable for the watchers	1.8 (1.3)	43.7%
Q3-g) Relaxation places	1.10.2)	28.2%
Q3-h) Independent clinics	2.3 (1.0)	58.2%
Q3-i) Good reception	2.4 (1.0)	61%
Q3-j) Enough guiding signs	2.6 (1.1)	65.5%
Q3-k) Good Customer services	2.6 (1.1)	64.2%
Q4) Hospital provides required material within its own budget	2.2 (1.2)	55.2%

Table 3: *The mean score and percent of each point about tangible dimension.*

Table 4 shows, the registration of patient's information and medical conditions accurately took the highest satisfaction percent within reliability dimension (75.5%) followed by the satisfaction rates of "services provided on time" and "I have no doubt the hospital is capable of treating me effectively", (72.5) and (68.5%) respectively, and the lowest rate was regarding hospital's sympathy with patient's complaints (60.2%).

Questions (Reliability)	Mean (SD)	%
Q5) The hospital provides the expected level of medical services	2.5 (1.3)	61.7%
Q6) The hospital sympathize with patients complaints	2.4 (1.2)	60.2%
Q7) The services are provided on time	2.9 (1.2)	72.5%
Q8) I have no doubt the hospital is capable of treating me effectively	2.7 (1.2)	68.5%
Q9) Accurate registrations of patient information and medical conditions	3.0 (1.0)	75.5%

Table 4: *The mean score and percent of satisfaction about each point of reliability dimension.*

Table 5 shows, the highest satisfaction rates within the responsiveness dimension were about "prompt services received from staff" and "being informed about the date of medical procedure". 68.7% and 67.7% respectively, and the lowest was about "staff response, even if they are busy" 64.5%, while "hospital staff serves the patient around the clock" took a percent of 66.7%.

Questions (Responsiveness)	Mean (SD)	%
Q10) The staff informs the patients about date of medical procedure	2.7 (1.2)	67.7%
Q11) The patients receive prompt services from the staff	2.8 (1.2)	68.7%
Q12) The hospital staff serves the patient around the clock	2.7 (1.3)	66.7%
Q13) Despite they are busy, the staff respond to patient immediately	2.6 (1.2)	64.5%

Table 5: *The mean score and percent of satisfaction about each point of responsiveness dimension.*

Table 6 shows, the two highest satisfaction rates within assurance dimension (79.2%) and (77.2%) were about "proper interaction and treatment of staff" and "honesty, trustworthy and manners of staff", respectively, "the credentials and skills of the medical staff and workers" and "hospital's reputation in the society" took the lowest satisfaction percents 69%, and 69.5%, respectively.

Questions (Assurance)	Mean (SD)	%
Q14) The hospital has good reputation in the society	2.78 (1.210)	69.5%
Q15a) The credentials and skills of the medical staff and workers	2.76 (1.093)	69%
Q15b) The honesty, trustworthy and manners of the staff	3.09 (0.968)	77.2%
Q16) The staff is interactive with the patient and treats them properly	3.17 (0.962)	79.2%
Q17) The staff has required knowledge and courtesy to answer my inquiries	2.83 (1.095)	70.7%

Table 6: *The mean value and percent of satisfaction about each point of assurance dimension.*

Table 7 shows, the two highest satisfaction percents within empathy dimension were about "flexible working hours" 65% and "staff understand my needs and desires" 64.2%, and the lowest two were "hospital provide services to each patient individually" 38.7%, "hospital and its staff takes special care of me" 56.2%.

Questions (Empathy)	Mean (SD)	%
Q18) The hospital provides services to each patient individually	1.6 (1.5)	38.7%
Q19) I feel that the hospital and its staff takes special care of me	2.3 (1.3)	56.2%
Q20) I feel that the staff understand my needs and desires	2.6 (1.2)	64.2%
Q21) I feel that receive the best health care in this hospital	2.3 (1.4)	58%
Q22) Flexible working hours in hospital, and I can return to check anytime	2.6 (1.3)	65%

Table 7: *The mean value and percent of satisfaction about each point of empathy dimension.*

As seen in table 8, the difference between the patients' and the relatives' satisfactions is not statically significant, 64.3%, and 65%, respectively, P = 0.9.

Type	Mean (SD) of satisfaction	Percent of satisfaction	P- value*
Patient	2.57 (0.73)	64.3%	0.9
Relative	2.60 (0.75)	65%	

Table 8: *Comparison between satisfactions according to the type of subjects.*

*N.B: *Independent T test (P < 0.05 is considered statistical significance).*

As seen in table 9, the difference between male's and female's satisfactions is statically significant, 60% and 69%, respectively, P = 0.00.

Gender	Mean (SD) of satisfaction	Percent of satisfaction	P- value*
Male	2.40 (0.6)	60%	0.00
Female	2.78 (0.6)	69%	

Table 9: *Comparison between satisfactions according to the gender of subjects.*

*N.B: *Independent T test (P < 0.05 is considered statistical significance).*

As seen in table 10, the difference between different age groups' satisfactions is not statically significant, P = 0.42.

Age	Mean (SD) of satisfaction	Percent of satisfaction	P- value*
≤ 30	2.48 (0.7)	62%	0.42
31 - 50	2.68 (0.7)	67%	
> 50	2.70 (0.7)	67.5%	

Table 10: *Comparison between satisfactions according to age groups.*

*N.B: *One way Anova test (P < 0.05 is considered statistical significance).*

As see in table 11, the residence of the respondents does not affect their rate of satisfaction significantly (P = 0.17).

Residence	Mean of satisfaction	Percent of satisfaction	P- value*
Middle region	2.56 (0.8)	64%	0.17
Northern region	2.63 (0.5)	65.8%	
Eastern region	2.73 (0.7)	68.3%	
Western and Southern regions	2.83 (0.8)	70.8%	

Table 11: *Comparison between satisfactions and the residence of the respondents*

*N B: * One way Anova test (P < 0.05 is considered statistical significance).*

As seen in table 12, there is significant relationship between satisfaction and the educational level of the respondents, as the educational level gets higher the satisfaction get lower, highest satisfaction was among illiterates while lowest was among university graduates (P = 0.00).

Educational level	Mean of satisfaction	Percent of satisfaction	P- value*
Illiterate	3.1 (0.6)	77.5%	0.00
Read and write	2.7 (0.7)	67.5%	
Primary	2.3 (0.7)	57.5%	
Secondary	2.3 (0.7)	57.5%	
University	2.0 (0.6)	50%	

Table 12: *Comparison between satisfactions and educational level of respondents*

N.B: One way Anova test (P < 0.05 is considered statistical significance).*

As seen in table 13, the number of admitted days does not affect the respondents' rate of satisfaction significantly (P = 0.13).

Duration (days)	Mean (SD) of satisfaction	Percent of satisfaction	P-value*
1 - 3	2.6 (0.8)	65%	0.13
4 - 6	2.6 (0.7)	65%	
7 - 9	2.5 (0.8)	62.5%	
10	2.7 (0.7)	67.5%	

Table 13: *Comparison between satisfactions and the number of admitted days.*

N.B: One way Anova test (P < 0.05 is considered statistical significance).*

As seen in table 14, there is no statically significant relationship between the respondents' admitted ward (department) and their rate of satisfaction (P = 0.46).

Ward	Mean (SD) of satisfaction	Percent of satisfaction	P- value*
Surgery	2.6 (0.7)	65%	0.46
Medicine	2.6 (0.8)	65%	
Orthopedics	2.7 (0.6)	67.5%	

Table 14: *Comparison between satisfactions and the respondents ward (department).*

N.B: One way Anova test (P < 0.05 is considered statistical significance).*

As seen in table 15, there is no statically significant relationship between the time of interview and the rate of satisfaction (P = 0.05).

Time	Mean (SD) of satisfaction	Percent of satisfaction	P- value*
Morning	2.5 (0.7)	62.5%	0.05
Afternoon	2.7 (0.7)	67.5%	
Evening	2.7 (0.8)	67.5%	

Table 15: *Comparison between satisfactions and the time of interview.*

N.B: One way Anova test (P < 0.05 is considered statistical significance).*

Discussion

Patient satisfaction surveys are essential in obtaining a comprehensive understanding of the patients need so attention can be focused on the preconditions and causes of satisfaction.

The level of satisfaction on the current study with the five dimensions of quality we evaluated in King Khaled university hospital was 65%, this is lower than another study in Thailand showed that the level of satisfaction among 225 Medicine OPD patients was 86.67% [10] in the study conducted in an internal medicine outpatient department Of Khmer-Soviet Friendship Autonomous hospital in Cambodia 93.5% [13] of the respondents were satisfied with the services provided in the hospital. A study done in Syria showed that 75% [14] of patients were satisfied.

Assurance trend: The level of satisfaction regarding assurance dimension in current study was 73.1%. Approximately similar to studies conducted in Jordan 76% [15] Palestine 76% [16] and private hospital in Pakistan 74% [17]. On the other hand the result of the current study was higher than study conducted in governmental Pakistani hospital 62% [17].

In the current study; the level of satisfaction about "staff knowledge, courtesy and interaction with the patient" was approximately similar to the level of satisfaction in the Jordanian and Palestinian studies. However, the level of satisfaction of "the credentials of the medical staff" in the current study was lower than the Jordanian and Palestinian studies.

Regarding satisfaction rate of "honesty, trust and ethics of hospital workers" in our study, 77.2% of the respondents were pleased, while 55% of patients in NRI get on with it [18].

Reliability trend: The rate of satisfaction regarding Reliability dimension in this study was 67.7% which is more than the Pakistani study conducted in Governmental hospital 52% [17] but less than the Jordanian 80% [15] Palestinian 78% [16], and the Pakistani study conducted in Private hospital 76% [17]. The statement "I have no doubt that the hospital is capable of treating me effectively" took 68.5% which is lower than what it took in the Jordanian study 81% [15]. "The services are provided on time" took 72.5% which is also lower than what it took in the Jordanian and Palestinian [16] studies, 90% and 78%, respectively.

Responsiveness trend: The rate of the satisfaction regarding responsiveness dimension was 66.9%, less than the rate reported by the Pakistani study conducted in Private hospital 86% and the Palestinian study 72%, and more than the Pakistani study conducted in Governmental hospital 46% and the Jordanian study 50% [15]. Regarding the "The patients receive prompt services from the staff" 68.7% of subjects of the current study were satisfied which is lower than Palestine study 77.8% [16].

Tangibility trend: The rate of satisfaction regarding tangibility dimension was 59.5%, less than the rates reported by the Jordanian, Palestinian and private Pakistani studies, 76% [15], 74% [16] and 74%, respectively, and more than the Governmental Pakistani study 40% [17]. In current study the rates of satisfaction regarding "modern technology and medical equipments" and "staff dressings and relaxation places" were lower than the similar items in the Jordanian and Palestinian studies.

Empathy trend: The rate of satisfaction regarding empathy dimension was 56.4%, less than the rates reported by the Palestinian, Jordanian and the Private Pakistani studies 74% [16], 58% [15] and 72%, respectively, and more than the rate reported by the Governmental Pakistani study 50% [17].

In the current study, 56.2% of the subjects feel that "the hospital and its staff takes special care of them" which is higher than the rate reported by the Jordanian study 52% [15] and much lower than Palestinian study 80%.

Regarding participant's gender, there was a statistically significant association between gender and rate of satisfaction, which is not similar to the results of the Palestinian [16] and the Jordanian [15] studies.

There was a statistically significant relationship between level of education and satisfaction similar to Palestinian study [16], but not as the Jordanian study [15] which showed no significant relationship between satisfaction and level of education.

In the current study there was no statically significant relationship between rate of satisfaction and type of subjects, age groups, residence of subjects, duration of admission, admitted wards, and time of interview.

Conclusion

By the end of this study we conclude that:

Recommendations

- Commitment of the hospital's administration to provide medical services to the patient's in the specific time, without prejudice to these appointments.
- The hospital's administration and the Ministry of Health should coordinate with the financial community to provide financial allocations for the purchase of advanced medical devices and equipment, and the development of training programs for human cadres to work on those devices.
- Providing waiting places for patients and their relatives and that this will be suitable in terms of space, furniture and other services that could be needed by the patient during the waiting period, in addition to provide clean and healthy water cycles.
- Using of the guiding signs more, that would make it easier for the patients to know the various units and sections of the hospital.
- Creating desire among workers to help the patients permanently through training the staff and improve their education in the provision of health services.
- Increasing the staffs response with immediate requests for patients, despite their concern through training and development of provide services methods.
- Increase the interaction between the medical staff, workers and the patients by improving mutual understanding between the two parties.
- Further studies about the quality of services in hospitals are recommended.
- We recommend the hospital's management to take care of the quality standards and its measurement and to work with it periodically.

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