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ORIGINAL ARTICLE

Development of Functional Service Quality Scale for Surgical Care in Tertiary Care Hospitals: Insight from Patients

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ABSTRACT

Background: Surgical department is the economically viable and resource generation department of a hospital. Its services not only focus to build a long-term image of the hospital but also to generate a positive word of mouth in the community because the consumers have longer hospitalization

Objective: This study is aimed to design a scale for measuring functional service quality of surgical department based on service user's perspective.

Methods: This was a mix method research with a cross-sectional study design. Survey questionnaire was used to get primary data from the respondents (patients admitted to wards). Out of 835 self-administered questionnaires, 499 valid responses were received for further data analysis. Simple descriptive, Exploratory Factor Analysis, Confirmatory Factor Analysis were employed using SPSS version 21 and AMOS version 21.

Results: The scale identified five constructs that can be used as contributing factors to measure and evaluate surgical department functional service quality. These dimensions include skill, empathy, food, responsiveness and promptness. The model fit values include CFI (0.98), RMSEA (0.055), and GFI (0.96) which show goodness of fit.

Conclusion: Though the method of assessment and development of scale is not novel but according to our knowledge based on published literature this study is novel to identify the scale based on service quality dimension in surgical facilities in the developing countries.

Key Words: Surgical Functional Service Quality, Tertiary Care Hospitals, Patients' Perspective

Doi:10.53685/jshmdc.v4i2.177

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Received 20.08.2023, Revised 01.12.2023,
Accepted 20.12.2023

How to cite this article: Fatima I, Shafiq M, Humayun A, Chatha A A. Development of functional service quality scales for surgical care in tertiary care hospitals: Insight from patients. J Shalamar Med Dent Coll. 2023. 4(2): 117-124.doi:10.53685/jshmdc.v4i2.177

INTRODUCTION

Surgical procedures are performed globally by many service providers from governmental, non-governmental bodies, volunteer organizations, individual surgical teams and/or hospitals. It's very critical that lack of knowledge and awareness about surgical epidemiology and quality of surgical care has become one of the causative agents of increased surgical disease burden.

The untreated surgical diseases have led to not only disability but also increased premature morbidity and mortality. Surgical care is evaluated by patients who underwent surgical procedures, regarding patient safety and quality

of surgical care. Educated, health conscious and well-off patient's demand not only for quality services but also proper documentation to choose their surgeon and site for care.[1]

Developed countries have made laws for establishing quality control and public reporting because at times, they perceive a large discrepancy between care needed and provided.[2,3] The evidence has been reported in the 2nd edition of Disease Control Priorities in Developing Countries, that surgical approvals can cure 11% of the global disease burden. worldwide.

Two million surgeries are being performed. Amongst them poorest third of the diseased population underwent only 3.5%surgeries. It may be due to the lack of tangibles like equipment, furniture, anesthesia, critical care and/or skills within surgical service providers. The other reasons might include lack of awareness, cultural acceptability, family constraints, social status, financial issues, occupation etc. These all factors facilitated benchmarking within the health care system.[4]

Data regarding patient-centered care and cure has become pivotal for health care professionals and bringing a holistic approach towards quality improvement and evidence-based decision making, as health care systems despite the mobilization of massive man, money, machine and material related resources, are so far failed to meet patient's needs.[5] Health care policy makers are trying to find indicators that can be applied to medical practice, but they have found fewer studies in the literature.[1,2]

Ivanovic et al. highlighted the challenge of health care service delivery in low- and middle-income countries where the situation has worsened than high income countries.[6,14] Amongst them, one of the challenges belong to human resources which include employee absenteeism, poor working conditions, low salaries, unskilled and low-esteem staff.

Similarly, various studies have been conducted that have measured service quality by applying RATER model of Parasuraman.[7] This scale focuses only the way how services are delivered to the consumers in a hospital surgical facility.[8] The factors it discusses are unique in order to satisfy the consumer's perceptions and expectations. Such kind of scales have been already described in various cultures and contexts but they are not surgical department specific.[7] This mode of evaluating service quality can be termed as functional quality assessment of any surgical service by the service providers.

Therefore, considering the whole scenario, the researcher hypothesized in the current study to develop a measurement scale for evaluating functional surgical quality based on the perception and expectations of patients admitted in the surgical department. Though they lack the knowledge and awareness about what services are being rendered to them, yet they can observe and suggest how the services were delivered.[9] The researcher has identified the literature gap that surgical facilities based functional service quality dimensions has not been reported so far and there exists scarcity in the body of knowledge.

METHODS

In this exploratory study, the researcher focused on cross sectional design. Survey tool was designed by conducting a focus group and systematic literature review.[7] Initial pool of items was primarily obtained from SERVQUAL tool designed by Parasuraman[10,11,12,13] but later the tool designed can be named as modified SERVQUAL scale for surgical department. This tool is designed to measure the functional aspects of service quality within surgical facilities that is why it can also be named as surgical department functional service quality measurement scale.

Survey tool was used to get responses from the consumers or their attendants receiving services from public and private sector tertiary care teaching hospitals. Questionnaire was written both in English and Urdu. The consumer-based

perception and expectations was investigated using a Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Maximum score in one dimension of perception was subtracted from the respective score in expectation dimension to form one variable (P-E= PE) to identify the scale and further analysis. Ten (10) hospitals were randomly selected, having bed strength ≥ 50, accredited as a Healthcare Establishment under the Punjab Healthcare Commission (PHC) Act 2010 for data collection. The criteria for recruiting the respondents was the average number of patients admitted in surgery department on daily basis until the sample size was complete. Children ≤ 12 years were excluded as respondents.

The study was approved by ethical review board IRB-No.: 1387-1388 and informed consent from respondents was obtained and data confidentiality was maintained as per the principles given by the Declaration of Helsinki.

The minimum sample size of 471 was calculated using open Epi info version 7.2.5.0, with maximum error of 0.03 and 97% confidence level.

Expecting a 60% response rate (as this was to be self-administered) a total of 835 questionnaires were circulated using simple random sampling technique and received 499 valid questionnaires from respondents amongst total 500 received, where one questionnaire was invalid due to incompleteness.

Statistical Analysis

Data after collection was entered in SPSS Statistics (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp) and analyzed using descriptive analysis followed by EFA and CFA.

RESULTS

Sample profile of respondents is described in Table 1. Demographic characteristics with their respective attributes are stated in the form of percentages and number of respondents.

Table 1: Respondent's demography

Variables	Attributes	Percentage	Respondents(n)
Age	<17	7.2	36
	17-25	19.4	97
	26-35	20.4	102
	36-45	20.2	101
	>45	32.7	163
Gender	Male	61.5	307
	Female	38.5	192
Education	< High school	17.8	89
	High School	22.6	113
	Higher Secondary School	16.4	82
	Graduate	25.3	126
	Post graduate	17.8	89
Occupation	Business/ Self	15.0	75
	Employed/ Entrepreneur	4.2	21
	Civil Servant	19.6	98
	Employee	42.5	212
	Housewife		
	Others	18.6	93
Length of Stay	1-3 hrs.	0.4	2
	5-7 hrs.	3.6	18
	Whole Day	12.8	64
	2-5 days	43.5	217
	> 5 days	39.7	198

The following steps have been followed to determine the factors for hospital surgical quality:

1. Assessing Sampling Adequacy

Assurance of sampling adequacy was obtained by testing the data for Kaiser-Meyer-Olkin Sampling Adequacy and Bartlett's Test of Sphericity was measured. The values for these tests were found to be significant (KMO: 0.954; P-Value: 0.000) and valid.[15]

2. Factor reduction and extraction using Exploratory Factor Analysis

Using 52 items (P-E=PE) extracted from a pool of items, exploratory factor analysis was

performed. The relationship between each item and its associated factors was explored and found five valid factors using Principal Component Analysis and Promax with Kaiser Normalization. Rotation was converged in 7 iterations. The values of factor loadings of each item vary from (0.520-0.965) and items were reduced to 30 as shown in Table 2.

Table 2: Factor loading

	Component				
	1	2	3	4	5
q1				0.97	
q2				0.74	
q3				0.64	
q4				0.64	
q7			0.80		
q8			0.70		
q9			0.84		
q10			0.86		
q11			0.81		
q31		0.84			
q32		0.79			
q33		0.77			
q34		0.84			
q35		0.71			
q36		0.80			
q37		0.82			
q38					0.88
q39					0.93
q40					0.82
q41	0.79				
q42	0.77				
q43	0.62				
q44	0.72				
q45	0.52				
q48	0.80				
q49	0.73				
q50	0.92				
q51	0.93				
q52	0.81				
q46	0.67				

3. Confirmatory Factor Analysis

Further, Factor confirmation was carried out using confirmatory factor analysis as recommended in different studies.[16] Three runs of CFA resulted in five constructs with thirteen items remaining. Factor loadings were between 0.71-0.90. These factor loadings with their respective items are given in Fig. 1, named Empathy (Emp.), Responsiveness (Res), Skill, Food and Promptness (Promp).

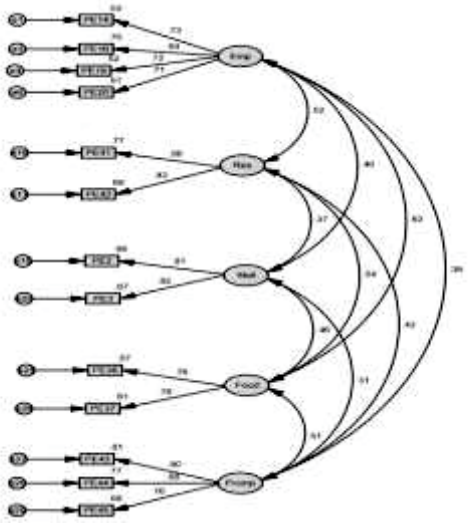

Figure 1: Theoretical framework for perceived service quality among patients.

Table: 3 Component correlation matrix

Component	1	2	3	4	5
1	1.00				
2	.681	1.00			
3	.620	.632	1.000		
4	.485	.540	.628	1.00	
5	.630	.447	.472	.35	1.00

Extraction Method: Principal Component Analysis, Rotation Method: Promax with Kaiser Normalization.

4. Scale reliability and validity

Items used in service quality measurement of surgical department were analyzed for reliability analysis by Cronbach alpha and found more than 0.80 for all the items under study. For Uni-dimensionality, convergent and criterion-related validity the fit indices are given in Table 3. Assurance of convergent validity was found by observing all the factor loading that possess values above 0.50. It is in line with the study of Bagozzi and Yi.[17]

For criterion related validity the correlation between the items exists 0.300-0.685 having

corresponding value of 0.000 that clearly shows the valid instrument.

5. Unidimensionality Analysis

Unidimensionality of service quality constructs was checked. The cutoff value of the comparative fit index (CFI) reported in studies was 0.95 for strong fit.[10] Table 4 contains a CFI value of 0.98 and RMSEA value 0.055 and other respective measures. Both values show the value of goodness of fit for a model.

Table 4: Summary of goodness of fit statistics for measurement model

Measurement Model	X2	d.f	X2/ d.f	p-Value	CFI	GFI	TLI	RMSEA	SRMR
	125.91	55	2.29	0.000	0.98	0.96	0.97	0.055	0.04

DISCUSSION

In order to achieve high standards, increase the productivity, develop good word of mouth, build good consumer relationships, and develop consumer loyalty, surgical service quality is considered an important key aspect.[18] Therefore, in such a competitive environment, surgical leaders are trying hard to find out ways to get competitive advantage and bring some exciting services for their service consumers. The surgical consumers are unique because they are totally dependent on the surgeon even after post-operative recovery, have high Length of Stay (LOS), and have analyzed services after their stay in the hospital facility.[19]

Skill is among the contributing factors that consumers have identified in assessing hospital surgical service quality. The consumers feel that surgical department needs to be comprised of skilled doctors, nurses and support staff in surgical specialties. This has already been emphasized in the study,[20] that technical quality of any facility focuses on the skills rendered to the consumers. Though it could not be directly assessed by consumers because of their lack of awareness about surgical specialties but they can sense from how the services were delivered to them skillfully.

Similarly, it has been reported that certain critical skills of patient safety like "patient handoff" which is altogether dependent on communication skills of service provider.[21] About 21–65% of surgical errors during surgical procedures are reported because of poor communication during handover. Chen et al. has emphasized that if hospitals want to get favorable service consumer's comments then they have to train their employees for not only technical aspects of services but also for interpersonal and professional skills.[6]

The other concrete dimension is Empathy that is already reported by various researchers in assessing hospital service quality.[22] As the patient has to stay long in surgical department therefore this construct becomes much critical and of high importance for consumers. Patients expect confidentiality of treatment from hospital employees. They expect and perceive that doctors, nurses and support staff have best interests of the patients in their heart. Patients feel safe in interactions with hospital's employees. Empathy is the way of convincing consumers that organization recognize them thus building their morale and catching their attention towards the facility.[18]

It is the powerful communication tool that understanding one's concerns and views on certain issues and then expressing that concerns in the form of voice to the needed place for quality improvement. Studies have shown that health care facilities usually have the limited skills to deliver empathetic care.[23]

Empathy possesses both cognitive and emotional domains, therefore through trainings, the service quality of any facility can be enhanced.[24] In lieu of such studies,[25] the current study also endorses the surgical facilities being more empathetic to satisfy their customers.

During the stay for a day or more, patients and their attendants need Food. Another dimension identified is Food. Consumers need hygienic and tasty food that should be as per nutritious needs of the patients. Food and Agriculture Organization of the United Nations[26] reported that food waste is a common practice in various healthcare facilities, for example, plate trash, kitchen trimmings space & unfinished cooked food. This has direct effect on the consumer's happiness within surgical facilities and the amount of food consumption.

Most hospitals have nursing teams that ensure patients are fed appropriately; otherwise, patients due to inadequate self-feeding develop malnutrition.[27]

Two other dimensions that are already reported in different sectors and hospitals are responsiveness and promptness. The consumers of surgical department perceive and expect that the services provided to them should also be responsive and prompt as those reported in the current study.[22]

Responsiveness and promptness were considered a combine factor, but in this study, they are represented as a separate dimension. Responsiveness is considered as ability expected by consumers with non-medical aspects of health care that is to be provided.

The ways and environment where consumers are served in a health system are answerable under set norms, laws and standards to consumers. It not only generates positive word of mouth by respecting the individuals by providing them comfort through consumer-oriented approach of service delivery. Promptness includes paying high attention to patients, when they need in their ailments. Prompt services results in reduce morbidities in acute emergencies and save patient cost and facilitate healthcare providers to treat their patients with reduced complications.

CONCLUSION

In order to improve surgical functional service quality, these identified factors seem to be instrumental and vital. The surgical leaders and managers need to arrange training programs for their employees to address the said issues. It can help employees to treat their patient as guests and/or as key stakeholders.

Patients will be at ease and can be made aware easily about the issues existing in hospitals due to the pressures associated with shortage of staff, resources and handling various patients.

As patients are the consumers that need to be treated with respect and dignity and ailment lowers patient's autonomy, if they do not get the services they want, thus creating disaffection. Increase Length of Stay (LOS) and dependency on surgical staff increases responsibilities of service providers, managers and leaders.

Thus, factors like Skill, Empathy, Food, Responsiveness and promptness seems to be a key player for improvement in surgical functional service quality of hospitals.

Study Limitation and Future Perspectives:

The study was limited to admitted surgical ward patients only, other patients that used to visit surgical emergency department or OPD can also be considered in future research.

The current study only focused on consumer's perspective and lacked healthcare provider's perspective.

The study was conceptualized in developing country and can be replicated in other Asian and/or other developing countries in order to enrich body of knowledge and validate the scale and its generalizability.

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CONTRIBUTORS:

IF: Study conception, Manuscript writing, Interpretation

AH & MS: Proofreading and critical review

All the authors equally contributed to drafting the work or reviewing it critically and Final approval of the version to be published.

CONFLICT OF INTEREST:

Authors declare no conflict of interest.

GRANT SUPPORT AND FINANCIAL DISCLOSURE:

The study was funded by Higher Education Commission.

ACKNOWLEDGEMENTS:

Authors are thankful to funders and volunteer participants and reviewers for their support.

DATA SHARING STATEMENT:

The data are available from the corresponding author upon reasonable request.