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ORIGINAL RESEARCH ARTICLE

EVALUATION OF PATIENTS' SATISFACTION USING THE SERVQUAL QUESTIONNAIRE MODEL

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ABSTRACT

Background: Radiology services are vital part of health care service and as a service provider one needs to understand the quality of service being delivered, from the patients' perspective. This study objectively evaluates the expectation and perception of patients towards the quality of service offered by the department using SERVQUAL questionnaire.

Methods: This was a descriptive cross-sectional study from September to November, 2018 with 219 patients subjected to different services of the department and participated in the self-administered SERVQUAL questionnaire survey in terms of the dimensions of tangibles, reliability, responsiveness, assurance and empathy. The mean gap score between perception and expectation for each of the dimension were determined, and the obtained overall scores were compared. Data MP Version 14 software was used for data processing and analysis.

Results: The overall average score was negative (-0.03). Particularly, the modern look of equipment, the displayed information at the department (tangibles) and promptness of the services provided were perceived to be less than expected (score -0.33). With regard to reliability (+0.27), responsiveness (-0.0004), assurance (+0.19) and empathy (-0.30), the positive behavior of the staff instilled confidence in the patients in undergoing the procedures and they kept the patients' best interest in mind during the services provided.

Conclusions: There exists a service quality gap in the patients' expectations and the actual perception of services in the department. The institute is now better able to recognize the gap, and hence can design and implement strategies that can improve the quality of services for increasing the patients' satisfaction and propensity.

INTRODUCTION

Patients' satisfaction is a very basic yet important requirement for healthcare.[1] It leads towards patients' loyalty with the healthcare facility as well as their retention playing a vital role in financial terms.[2]

The department of radiology with its high throughput and diverse mix of patients and disease conditions, plays a vital role in influencing patient satisfaction undergoing a varied range of procedures ranging from routine imaging, diagnostic and interventional management to emergency examinations and thus, pose unique challenges.[3]

Service quality is defined as the degree of discrepancy between customers' expectations and their perceptions of performance of a service organization.[4] SERVQUAL model has been used to access the functional quality over five service quality dimensions being tangibles, reliability, responsiveness, assurance and empathy.[5,6]

The study was aimed to evaluate the expectation and perceptions of patients towards the functional quality of service offered by the Department of Radiology using the SERVQUAL score.

METHODS

This was a cross–sectional study implemented from September to November, 2018 in the department of Radiology in a 1000 bedded tertiary government hospital, Bicol medical center, in Naga city, Philippines.

This study was pursued after it was reviewed and approved by the institutional review board and research committee of the center prior to conducting the study (BMC/IRC/2018/01347). Informed consent was obtained from the participating patients prior to the distribution of the questionnaire. Measures were taken to ensure confidentiality and anonymity.

Inclusion criteria:

- All the patients served at the department of Radiology with either of the modalities of radio-imaging available.
- Adult (aged 18 and above).

- Patients', who have consented and are able to comprehend, participate, assess and legibly answer the given questionnaire.

Exclusion criteria

- Emergency patients who were still potential patients but cannot voluntarily participate in this study.

Sample size calculation:

Sample size is calculated using the following formula:-

$n= z^2pq / d^2$

z= 1.96 p=0.72 q=0.28 d=0.05

$n= ([1.96]^2 \times 0.72 \times 0.28) / (0.07)^2$

Hence, n (sample size) = 159

Specifying a design effect of 1, expected prevalence of patients satisfied with the quality of care received equal to 72% (18) maximum tolerable error of 7% and alpha set at 0.05, the minimum sample size computed is 159.

Techniques for data collection

- Data was collected using a self-administered questionnaire, which were filled up by each participant, before and after the radiological procedure was done.
- The first part obtained information about the patient age, gender and highest educational attainment.
- The second part was composed of the 44 item SERVQUAL scale-22 items on expectation and 22 items on perception.

Survey instrument

The SERQUAL, a valid and reliable scale was used for assessing the patients' expectations and perception of service quality which includes 44 statements, 22 for expectations and 22 for perceptions, representing the five dimensions:

- Tangibles: Refers to the physical facilities, equipment and appearance of personnel.
- Reliability: Refers to the ability to perform the promised service dependably and accurately.
- Responsiveness: Refers to the willingness of employees to help customers and provide prompt service.
- Assurance: Refers to the knowledge and courtesy of employees and their ability to inspire trust and confidence.
- Empathy: Refers to the care and individualized attention provided to the patients.

For each dimension, both the patients' expectation and perception was assessed. Patients were asked to rate their agreement to each of the 44 statements on a scale of 1 (strongly disagree) to 7 (strongly agree) with regard to the services they received. Gap scores for each statement were computed by obtaining the rating difference in perception and expectation. The average gap score was then obtained for each dimension. Both the unweighted and weighted SERVQUAL scores were calculated.

Statistical analysis

Data was encoded in MS Excel by the researcher. Data MP Version 14 software was used for data processing and analysis. Continuous variables were presented as mean/standard deviation (SD) or median/ interquartile range (IQR) depending on data distribution. Categorical variables were presented as frequency/ percentage. Comparison of median SERVQUAL scores by demographics was performed using Mann Whitney U test. All *P* values ≤ 0.05 were considered statistically significant.

RESULTS

A total of 219 patients were included in the study. They were adult patients between the ages of 18 to 83, with a mean age is 50.27 years. There was a slightly higher proportion of males (54 %). Almost half of the respondents (46 %) had attained high school level of education, the second highest group being that of Bachelor's degree (32 %) (Table 1).

Table 1: Demographic profile of respondents

Characteristics	n(%)
Age (in years), mean ±SD	50.27 ± 16.60
Gender	
Male	118 (54)
Female	101 (46)
Educational attainment	
Elementary	30 (14)
High school	101 (46)
Bachelor's degree	71 (32)
Master's degree	17 (8)

The unweighted SERVQUAL scores were mostly negative. There was an overall unweighted score in the negative, being -0.03. The dimensions of reliability and assurance were the only two of the five dimensions to have had positive average scores (0.27 and 0.19 respectively). The dimension of tangibles had the most negative score (mean: -0.33) (Table 2).

Table 2: Unweighted mean and median scores for each SERVQUAL dimension

Dimension	Mean score ± SD	Range
Overall	-0.03 ± 0.39	-1.33 – 1.61
Tangible	-0.33 ± 0.53	-1.75 – 1.50
Reliability	+0.27 ± 0.54	-1 – 1.6
Responsiveness	-0.0004 ± 0.67	-1.5 – 1.5
Assurance	+0.19 ± 0.51	-1.5 – 1.5
Empathy	-0.30 ± 0.42	-1.4 – 2.2

There was an overall weighted SERVQUAL score in the positive, being 2.55. The dimensions of reliability and assurance were the only two of the five dimensions to have had positive average scores (9.84 and 2.79 respectively). The dimension of tangibles had the most negative score (mean: -6.12) (Table 3).

Table 3: Weighted mean scores for each SERVQUAL dimension

Dimension	Mean score ± SD	Range
Overall score, total	2.55 ± 40.94	-123.25 – 156
Overall score, average	0.51 ± 8.19	-24.65 ± 31.20
Tangible	-6.12 ± 10.05	-37.50 - 30
Reliability	9.84 ± 20.30	-60 – 64
Responsiveness	-0.45 ± 12.67	-37.5 – 37.5
Assurance	2.79 ± 7.87	-20 – 25
Empathy	-3.51 ± 4.78	-16 – 22

There was no significant difference in median SERVQUAL scores by age. The median overall SERVQUAL scores obtained were significantly higher in the females as compared to the males (P = 0.0163) for tangibles, reliability and responsiveness (P = 0.0001, 0.0092 and 0.0037 respectively). There was significant difference in the median SERVQUAL scores by education in the dimensions of reliability, responsiveness and empathy. Overall median SERVQUAL scores were significantly higher for the patients with elementary /high school education as compared to those with Bachelor's / Master's degree.

Tangibles: The mean perception was lower in all the items except for the item ''employees are professional in appearance''. This item also showed a positive gap score (mean: 0.17). The most negative gap score was for "modern looking equipment" (mean gap: -0.85) and below average for appealing physical facilities and information being visually appealing''.

Reliability: All the items had a positive gap score, except for the item ''perform service at the time promised to do so'' (mean gap: -0.0005)

Responsiveness: All the items had a positive gap score except for the item ''gives prompt service to patients'' (mean: -0.62).

Assurance: All the items had a positive gap score except for the item ''employees have the knowledge to patients'' questions and concerns' (mean: -0.37).

Empathy: All the items had a negative gap score ranging from -0.83 to -0.04, except for the item 'have the patients' best interest at heart' (mean gap: 0.38) (Table 4).

Table 4: Perception, expectation and gaps for each item of the SERVQUAL

Items	Perception Mean ± SD	Expectation Mean ± SD	Service gap Mean ± SD
Tangibles			
Modern looking equipment	5.21 ± 0.67	6.06 ± 0.76	-0.85 ± 0.93
Visually appealing physical facilities	5.70 ± 0.73	5.94 ± 0.64	-0.24 ± 0.87
Employees are professional in appearance	6.37 ± 0.62	6.20 ± 0.71	0.17 ± 0.96
Pamphlets and information statements are visually appealing	5.71 ± 0.51	6.12 ± 0.60	-0.41 ± 0.80
Reliability			
When promised to do something at a certain time, it does so	5.59 ± 0.51	5.18 ± 0.68	0.42 ± 0.80
Shows sincere interest in solving a problem encountered by a customer	6.31 ± 0.56	5.90 ± 0.76	0.41 ± 1.00
Performs the service provided right the first time	6.38 ± 0.51	6.17 ± 0.73	0.21 ± 0.98
Performs service at the time promised to do so	5.43 ± 0.73	5.43 ± 0.77	-0.005 ± 1.01
Insists on error-free records	6.68 ± 0.47	6.35 ± 0.54	0.33 ± 0.69
Responsiveness			
Tells patients when services will be performed	6.00 ± 0.72	5.64 ± 0.89	0.36 ± 1.21
Gives prompt service to patients	5.75 ± 0.73	6.38 ± 0.60	-0.62 ± 1.02
Willing to help patients	6.00 ± 0.49	5.82 ± 0.86	0.18 ± 0.95
Never too busy to respond to patient's request	5.78 ± 0.87	5.69 ± 0.87	0.09 ± 1.18
Assurance			
Behavior of employees instill confidence in patients	5.91 ± 0.72	5.54 ± 0.59	0.37 ± 0.95
Patients feel safe in undergoing procedures they are subjected to	6.22 ± 0.59	5.62 ± 0.67	0.60 ± 0.90
Employees are consistently courteous with patients and attendees	6.16 ± 0.60	6.00 ± 0.89	0.17 ± 0.92
Employees have knowledge to patients' questions and concerns	6.02 ± 0.70	6.38 ± 0.59	-0.37 ± 0.87
Empathy			
Give patients' individual attention	5.60 ± 0.51	6.07 ± 0.52	-0.47 ± 0.73
Have operating hours convenient to all patients including emergencies	5.15 ± 0.72	5.98 ± 0.71	-0.83 ± 0.90
Employees give personal attention	5.70 ± 0.54	6.25 ± 0.63	-0.55 ± 0.82
Have the patients' best interest at heart	6.57 ± 0.51	6.19 ± 0.50	0.38 ± 0.67
Understand the specific needs of patients	6.39 ± 0.54	6.43 ± 0.53	-0.04 ± 0.82

DISCUSSION

The customer's perception is your reality. Meeting or exceeding the needs and expectations of the patient is what improves upon the service quality.[7] This study of a total of 219 patients' completed questionnaires showed that, with the evaluation of the perception of the services of the department when expressed in terms of SERVQUAL scoring, the overall average score was negative.

The dimension of tangible; particularly the modern look of the equipment, visual appeals of the physical facilities and of the displayed information at the department were perceived to be less than expected. It may be suggested that the department and the institute needs to invest in the purchase and upgrading of the necessary equipment and improvement can be made upon to make the physical facilities to appear more visually appealing. The pamphlets and information statement can be improved upon to be easier to comprehend and again be visually appealing.

The patients' perceived notion of promptness of the services provided was also not according to their expectation. The number of patients catered being a large number, delay in the provision of services is occasionally encountered; as reflected upon the perception of the participating patients. A strong relationship can be developed with patients if quality service is provided at a given time. Recruitment of necessary manpower and utilization of the existing manpower and resources should be made to improve the reliability dimension of the department.

However, with regards to reliability, the perception of the patients was found to be favorable in that the staff showed sincere interest in solving a problem encountered by the patient. The staff was also perceived to have insisted in error free records. The dimension of responsiveness can be further improved by increasing the flow of information from the staff to the patients' and training the staff to be better able to address the different needs.

With regard to assurance, the perception of the patients also showed that the behavior of the staff instilled confidence in them and the patients felt safe in undergoing the procedures they were subjected to. However, the knowledge of the staff regarding the patients' concerns was not perceived as per the expectations. Employees of a tertiary level health care provided are expected to be knowledgeable to favorably encounter the challenges beyond their regular job description.

In terms of empathy, the staff was perceived to have kept the patients' best interest in mind during the services provided. However, again the perception of the giving of individual attention, understanding the specific needs of the patients and having convenient operational hours was not as per the expectations of the patients. Assurance and empathy perceived by the patients can further be improved upon by taking measures to ensure that individual attention is given to the patients and their concerns are handled better.

In the study by Almeida et al., the SERVPERF scale was used with the radiology departments from two different public hospitals, one of them being certified by ISO standards 9001. With 124 participants, females were in a slightly higher proportion and the largest number of people (42.7%) had education level corresponding to the 4th Grade. There was no significant difference in the levels of perception between the two hospitals. The highest mean score for both the hospitals was that for the dimension of reliability.[3]

In study adapting the SERQUAL scale to hospital services conducted by Brahmbatt et al. with comparison of public and private owned hospitals, 246 questionnaires were collected. Again, the mean expectation scores were high when compared to the perception scores; ranging from 3.34 to 0.08 for the public hospitals and from 3.80 to -1 for the private hospitals. Similar to other studies, the lowest public hospital expectation score was obtained for the dimension of tangible; particularly regarding physical facility provision of proper safety and comfort measures. The patients perceived that the hospital had operating hours convenient to all patients, including emergencies; in the setting of a private owned hospital. In stark contrast, the item of convenient operating hours obtained the lowest perception score for a public hospital. Unlike our study, the lowest private owned hospital perception score was obtained in case of assurance; from the item "Patients feel safe in getting treated by the doctors of this hospital". Again as opposed to our study, the highest private owned hospital perception score was obtained in empathy; from the item "Employees of this hospital have knowledge to answer patients' questions. Out of five dimensions public hospitals were perceived better than private owned hospitals only in one dimension, namely reliability.[7]

In another empirical study by Youssef et al. using the SERVQUAL instrument to measure the service quality using 137 completed questionnaires, the analysis revealed that patients perceived a rather satisfactory level of health care quality across all dimensions. However, a gap exists between the rating which patients assign to expectations and to perception statements. Similar to our study, although patients do perceive an overall satisfactory service, expectations exceed perceptions of the provided service quality, suggesting that there is room for quality improvement initiatives. With only slight contrast to our study, female respondents represented a little more than 50% of the survey population. The patients perception with the dimension of tangibles obtaining a lower score, particularly the item "Informative brochures about the provided service are available to patients" (mean score = 2.85).[8]

The study among 246 patients using the SERVQUAL model done by Ali et al. in the out-patient department showed that there exists a gap between patients' perception and expectation among the dimensions of tangibles, reliability and assurance and satisfaction among the dimension of responsiveness and empathy. Similar to our study, patients' perceptions were not as per their expectations for the visual appeal of the physical facilities and equipment. There also existed a gap with regards to the commitment of timing of the services at the hospital.

Unlike in our study, the patients were also dissatisfied with the handling of their records.[9]

A study among 98 patients with correlation analysis of customer satisfaction and loyalty among patients was conducted by Mendoza et al. This study evaluated the level of satisfaction of patients to hospital services in different hospital areas such as the front liners, ward/ICU, support businesses and business office. Results showed that the patients were very satisfied to the quality medical services they received. Similar to our study, the dimension of tangibles, in particular the physical facility of the hospital garnered the lowest rate; nevertheless, still being satisfactory.[10]

The small sample size may have affected the degree of results generalization in a department that on average caters to over 5000 patients in a month. The financial status of the patients; that is, patients in the charity wards compared to patients in the private wards, could have also affected the results with private ward patients potentially expecting higher levels of service. Patients subjected to more time consuming procedures such as MR scans and interventional procedures may have a less favorable perception as compared to those having simple X-ray or ultrasound procedures. The findings of this study are limited to the sampled participants at the Department of Radiology. It may not be feasible to generalize it to other areas. Larger studies aiming at comparative analysis between hospitals can be performed to identify service quality gaps and the subsequent information may be applied at a larger scale.

CONCLUSION

There exists a service quality gap in the patients' expectations and the actual perception of services in the department. The institute and the department of Radiology are now better able to recognize the patients' perceptions of health service quality and the level of their satisfaction. The department and the hospital can design and implement strategies that can improve the quality of services for increasing the patients' satisfaction and propensity.

CONFLICT OF INTEREST: None

FINANCIAL DISCLOSURE: None

REFERENCES:

1. Woodside AG, Frey LL, Daly RT. Linking service quality, customer satisfaction, and behavioral intention. J Health Care Mark. 1989; 9:5-17. [PMID]
2. Calnan, M. Towards a conceptual framework of lay evaluation of health care. Social Science & Medicine 1988; 27:927-33. [DOI]
3. Madeira, Luis. Perceived Quality and Patient's Satisfaction with Radiology Departments from Public Hospitals. European Congress of Radiology, 2012. [DOI]
4. Parasuraman A, Zeithaml VA, Berry LL. Reassessment of expectation as a comparison standard in measuring service quality: Implications for future research. J Mark. 1994; 111-24. [DOI]
5. Parasuraman A, Valarie AZ, Berry LL. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing 1988; 64:12-40. [LINK]
6. Parasuraman A, Zeithaml VA, Berry LL. A Conceptual model of service quality and its implications for future research. Journal of Marketing. 1985; 49:41-50. [DOI]
7. Brahambhatt M, Baser N, Joshi N. Adapting The Servqual Scale To Hospital Services: An Empirical Investigation Of Patients' Perceptions Of Service Quality. International Journal of Multidisciplinary Research 2011; 1:27-42. [LINK]
8. Youssef FN, Nel D, Bovaird T. Health care quality in NHS hospitals. Int J Health Care Qual Assur. 1996; 9:15-28. [DOI]
9. Muhammad Ali. How patients perceive healthcare services: A case of Ayub Teaching Hospital, Abbottabad - Pakistan. SERV Service QUAL Quality. International Journal of Healthcare Management. 2018; 11:52-59. [DOI]
10. Mendoza A M. Correlation analysis of customer satisfaction and loyalty in Carlito Peña Reyes hospital. Asia Pacific Journal of Multidisciplinary Research. 2014; 2:39-45. [LINK]