RELATIONSHIP BETWEEN PATIENTS' ASSESSMENT OF CARE AND QUALITY OF RADIO-DIAGNOSTIC SERVICES IN TERTIARY HOSPITALS NORTHWESTERN, NIGERIA

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Abstract

Background: Improving patient wellness has become a central goal of healthcare managers worldwide.

Objective: To determine the relationship between patients' assessment of care and quality of radio-diagnostic services in selected Tertiary North western part of Nigeria.

Materials and methods: A survey study among patients referred to three major hospitals in Northwest Nigeria. Data was acquired using validated service quality scale questionnaire which is based on five key quality assessments. Two stages of sampling were used to select the participants and Statistical Package for social sciences (SPSS) version 23.0 Chicago was used to analyze the data. Kaiser –Mayer-Olkin (KMO) and Bartlett's test were used to measure the suitability of the sample for factor analysis attributes. Students t- test was used to determine the effect of patients satisfaction on healthcare quality at $P<0.05$.

Results: Three hundred and seventy-seven respondents participated in the study with age range between 20-70 years. Majority of respondents were within the ages of 31-39 years (28.4%) while the least respondents were 61-69 years (5.3%)The score of the respondents who agreed with the health quality services rendered was 3.47 which is marginally above the midpoint (3.0) of the five likert scales of PSQIII and SERVQUAL. Findings indicated that patients' assessment of healthcare quality has a strong and positive impact on their satisfaction. KMO measured sampling adequacy (0.866) and Barletts test was significant at $P=0.00$

Conclusion: Study showed that there is a significant relationship between the quality of care and patients' satisfaction. SERVQUAL model is a reliable rating model in assessing quality in radio-diagnostic.

Keywords: Healthcare, Relationship, Patients' Care, Quality service (SERVQUAL), Radio-diagnostic

Introduction

Quality healthcare has become an important aspect in the development of healthcare services [2]. The main aim of healthcare is to provide medical resources of high quality to all [2]. However, the complex nature of healthcare practices, the existence of many participants with different interests in the healthcare delivery and ethical considerations add to the difficulty of

defining quality [3]. Some factors that affect the provision of quality services in the Radio-diagnostic department includes workflow, effective communication, discipline, faulty equipment, inappropriate filling of request forms, lack of quality control and assurance, lack of efficient and effective personnel, waiting time and poor management of the department [7]. These factors can contribute to patients' medical outcomes and recovery. Providing excellent service can be difficult to achieve in practice given its intangible nature as well as the heterogeneity and unpredictability of the large number of patients, frontline staff, and environmental circumstances that define the patient experience; thus broad commitment and team effort amongst all members of a radiology practice are required [5].

A major component of quality of health care is patients' satisfaction which is a critical indicator of quality health care provision and function of a health facility [4]. Satisfaction tends to mirror the quality of healthcare services delivered. Good healthcare service has been defined as the ability of a department to consistently give the patient satisfactory care [6].

A good knowledge of the healthcare services and its quality in this locality will help to change patients' orientation and perception towards the providers of healthcare services.

Materials and Methods

This study was a prospective cross-sectional survey involving questionnaires among patients in the selected tertiary institutions in three North-west geopolitical zone: Federal Medical Centre,Gusua, Zamfara State, Usmanu Dan Fodio University Teaching Hospital, Sokoto, Sokoto State and Federal Medical BirniKebbi, Kebbi State. Ethical approval was obtained from the ethics committee of Usmanu Dan Fodio University Teaching Hospital, Sokoto

Instrument for Data Collection

Data was collected using validated service quality (SERVQUAL) scale which was created by Parasuraman, [15] but reviewed by Hoe [11].The SERVQUAL model is based on 5 key-quality dimensions of the services; tangibles, reliability, responsiveness, assurance and empathy are used to measure the service quality in terms of expectations and perception, The questionnaires were slightly modified to assess the patients' perception on care and service quality from related research work. The questionnaire was in three parts; social-demographic characteristics, SERVQUAL model questions and Patient satisfaction questionnaire (PSQ III).

Method of Sampling

Two stages sampling technique was used to select the participants. The first stage was cluster sampling technique where the imaging modalities in the radiology department were divided into cluster (Mammography, Computer Tomography, Ultrasound, Conversional), the essence is because there is different preparation for the examinations in the department and satisfaction can view from different angle. The second stage is the selection of respondents through simple random sample to select them from each cluster. This gives equal chance for eligible patients for different examination procedures to the respond to questionnaire. The sample size was three hundred and eight-seven which was calculated by Jaykaran formula.

Method of Data Collection

The questionnaires were distributed to all the participants after they gave their verbal consent. The questionnaire were administered and retrieved by research assistants, who are the indigenes .They are trained on data administration and collection. All completed questionnaires were coded appropriately after the collection.

Data Analysis

The statistical package for social sciences SPSS (version 23.0) was used for data analysis and statistical methods was in stages for detailed analysis. The descriptive method was used to present the socio-demographic data as frequency tables and factor analysis described the patient satisfaction, quality of care and their relationship. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test the suitability of the sample for factor analysis confirmed data reliability and validity of the data used. T-test was used to test effect of socio-demographic variables on patients' perceived satisfaction and to determine the relationship between patient satisfaction and quality of care (SERVQUAL) at statistical level of significant with p-value at 0.05.

Result

Table 1: In view of this a total of 377 respondents participated in the study with their age ranging from 20 to above 70 years. Majority of the respondents (28.4%) were between the ages 31and39 years. The majority of the respondents were females (51.5%) and the participants who are civil servant constituted the largest proportion (26%), followed by business people (24%) as shown on Table 1

Table 2 shows the descriptive and factor analysis of the respondents' opinion on their satisfaction on care through a five-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (5).The overall mean scores of patient perceived satisfaction of care quality is 3.6 and marginally above the mid-point (1—5), which mean that patients are averagely satisfied with care in the Radiology departments.

As depicted in table 3, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.866 and the Bartlett's test was significant at p, 0:000 indicating the suitability of the sample for factor analysis attributes as well as Cronbach alpha of 0.971, thus confirming the patient satisfaction scale's one-dimensionality hypothesis.

Table 4 shows the relationship between patient satisfactions on level quality of the services they received. There is a statistical association between them since the calculated **t** is lower than the significant value and this means the healthcare quality services will have an effect on the patients' satisfaction level.The table also showed the five dimensions of service quality (SERVQUAL) overall means; Tangibility (3.77), Reliability (3.43), Responsibility (3.41), Assurance (3.69), Empathy (3.45) and Overall (3.31)

Table 1: Socio-demographic characteristics of the respondents

Age Group (years)	Frequency (n)	Percentage (%)
20-30	103	27.9
31-39	107	28.4
40-49	70	18.6
50-59	51	13.5
60-69	20	5.3
> 70	24	6.4
Gender		
Male	183	48.5
Female	193	51.5
Occupation		
Business	94	24.9
Civil servant	101	26.8
Farmer	60	15.9
Others	41	10.9
Student	81	21.5

Table 2: The factor analysis and descriptive statistics of patients' satisfaction ratings

Patient Satisfaction Ratings	Mean	Standard deviation	Component extracted
The registration process at the front desk is efficient	3.38	1.12	0.75
The Process of scheduling appointment is appropriate	3.71	0.96	0.68
Explanation of preparation for your specific test/exam is good	3.67	1.06	0.65
Radiographers carry out their work with respect	3.86	1.05	0.68
It is difficult to get appropriate care at short notice	3.51	1.06	0.68
The radiographers are too businesslike and impersonal towards you	3.17	1.21	0.62
The personnel and other staff in the department seem too much in a hurry to attend to you	3.33	1.18	0.69
Radiographers have genuine interest in you as a person	3.41	1.09	0.54
The radiographers need to pay more attention to your privacy	3.63	1.12	0.65
The personnel and others staff in the department keep you from worry	3.48	1.18	0.65
I get appropriate care in the department	3.49	1.16	0.59
The radiographers and other staff are competent and well trained in their job	4.08	0.99	0.68
You are satisfied with the length of time you have waited for this appointment	3.19	1.27	0.65
There is need for more improvement on care you received in the department	3.72	1.25	0.63

Table 3: Kaiser-Meyer-Olkin measure and Bartlett's Test of patient satisfaction and quality of care

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	
Bartlett's test of sphericity approx. Chi-Square	0.866
Degree of freedom	1431
Significant	.000

Table 4: T-test on effect of patient satisfaction on healthcare quality

Qualityof care ratings	Overall Mean	Standard deviation	DF	t	F	Significant
Tangibility	3.77	1.03	16	-0.323	1.138	0.757
Reliability	3.43	1.12	17	0.321	1.039	0.753
Responsiveness	3.41	1.12	18	0.374	1.039	0.713
Assurance	3.69	1.08	16	0.543	1.035	0.872
Empathy	3.45	1.13	16	0.268	1.051	0.794
Overall Quality	3.31	1.18	17	0.53	1.15	0.606

Table 5: T-test on impact of Age and Gender on Patients' Perceived Satisfaction

Patients' Satisfaction Ratings	Age Mean	t	Sig.(p)	Gender Mean	t	Sig. (p)
Registration process	4.01	-2.079	0.038	4.11	-0.311	0.756
Process of scheduling	3.60	-2.496	0.013	3.73	-0.285	0.776
Explanation of preparation	3.71	0.205	0.838	3.70	0.068	0.946
Work with respect	3.85	-0.509	0.611	3.88	-0.197	0.844
Difficult in getting appropriate care	3.51	0.061	0.951	3.61	1.765	0.078
Too businesslike	3.10	-0.852	0.395	3.13	-0.615	0.539
Too much in hurry	3.25	-1.228	0.220	3.38	0.536	0.592
Have Genuine interest	3.50	0.895	0.371	3.35	-1.845	0.066
Pay attention to privacy	3.70	0.734	0.463	3.61	-0.874	0.383
Keep you from worry	3.47	-0.581	0.562	3.65	2.485	0.013
Appropriate care at short notice	3.35	-2.370	0.018	3.62	1.623	0.106
Competent and well trained	4.12	0.294	0.769	4.06	-0.759	0.449
Satisfied with length of time	3.16	-0.987	0.324	3.32	1.373	0.171
Improvement on care	3.70	-0.624	0.533	3.72	-0.475	0.635

Key Sig= significance

Discussion

Three hundred and seventy-seven (377) out of the three hundred and eighty-three (383) questionnaires were completed and returned in time (98% response rate). The result of this study has shown that the majority of the respondents were within the age group of 31 and 39 years with female constituting the greatest proportion (51.5%). The result of this study is in agreement with another study in Maiduguri with findings of 64.3% female respondents in their study [10]. Similar studies in Enugu and Ghana reported 69% and 62% female respondents in their separate studies [11,9]. The high response rate could be attributed to the interest of the respondents about the topic and the relatively small sample population used in the study compared to the total number of patients who visited the hospital during the period of the study.

In this study, the measurements appear to be a consistent and reliable scale to measure service quality with the Kaiser – Mayer-Olkin and Bartlett's test for adequacy of 0.866 and Cronbach alpha of 0.971 which are statistically significant.

The findings on SERQUAL (Tangibility, reliability, responsiveness, empathy and assurance) from the study show that patients are satisfied with the service quality of care in the three tertiary hospitals.The result of the present study is in agreement with that ofAndaleeb (2001) who stated that the Patients' service quality perceptions are believed to positively influence the patient satisfaction level when a patient chooses a specific healthcare provider [9]. This study was also in agreement with another study

who reported that the tangibles, technical quality, interaction, professionalism, efficiency and accessibility are significant and important dimensions to measure care service quality [12]. In addition, all five models are good showed a positive correlation between the healthcare quality and patient satisfaction. The study also indicated that patient's perception of healthcare quality has a direct effect on patient satisfaction and this implies that the healthcare service quality plays an important role in patient care and their satisfaction. Another study on integrative patient evaluation model showed that caring, empathy reliability, responsiveness, access, communication and outcome dimensions predict satisfaction [13]. Also, Hoe (2007) in his study confirmed that all the service quality models have a positive relationship with patients' satisfaction level. The SERQUAL models (Tangibility, Reliability, Responsiveness, Assurance and Empathy) are necessary for determining patients-perceived satisfaction of quality service in healthcare delivery [12].

Averagely (3.60), the respondents were satisfied with the quality of care rendered in the radiology department. Although some dissatisfaction levels were recorded with certain aspects of care and a few of the respondents agreed with the length of time spent in the department. This finding is similar to another work who reported that the patients are averagely satisfied with the quality of care rendered in the radiology department [14]. A similar finding has been reported by Kofi *et al* (2016) in Ghana that the majority (97%) of the patients were satisfied with the care in radiology department both in private and government hospitals [9].

In this study, the female patients had higher levels score of healthcare quality as well as high score on satisfaction. The finding of this study is in agreement with some studies that presented female patients to have a high level of satisfaction than their male counterpart patients [10,11]. Another study showed no statistically significant relationship between the socio-demographic and patient satisfaction [14]. Socio-demographic characteristics were strong predictors of patient satisfaction in this study. Consistent with previous studies, patient age was found to be the most frequent predictor of satisfaction of all the socio-demographic factors considered. The care and quality of services in the radiology department are important in determining patient's satisfaction.

Conclusion
This present study showed that there is a significant relationship between the quality of care and patients' satisfaction. The SERVQUAL models can be as an assessment of quality of care in radio-diagnostic department.

Recommendations
i) The five service dimensions were significantly associated with the satisfaction variable; the radiology department can base their service enhancement strategies on the parameters of the model for improvements in their healthcare delivery.
ii) The department should improve on the method of communication with the patient for the purpose of effective diagnoses and service delivery.
iii) The management of these tertiary hospitals should improve on various aspects of care, especially patient waiting period, training and retraining of Radiographer/staff for efficient delivery of quality services in radio-diagnostic department.
iv). The health facility, the efficiency and effectiveness of personnel form the basis of patients' satisfaction which encourages the patients to revisit as

well as the recommendation of the health facility to other patients. Therefore, the management of the hospital should improve and encourage the maintenance culture in the department as well as ensuring optimal performance of the equipment.

Acknowledgement

Conflict Of Interest
Nil

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