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Impact of Healthcare Service Quality on Patients Satisfaction in Selected Geopolitical Regions of Nigeria.

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A B S T R A C T

The study evaluates healthcare service qualities and their impact on patient satisfaction. Using a modified SERVQUAL questionnaire for data collection, a descriptive cross-sectional random sampling method was used to evaluate 388 inpatients who participated in the study. Data were evaluated using SPPS V.20 Mean scores for Tangibles (2.37±1.324 to 2.64±1.397). Reliability (2.74±1.264 to 2.35±1.306). Responsiveness (2.33±1.232 to 3.31±1.88). Asurance (2.62 ±1.181 to 2.71±1.305). Empathy (2.59±1.203 to 2.17±1.301). The mean below cut-off scores 3.00 suggest that healthcare service quality was poor, especially in critical areas such as X-Ray and Laboratory Investigations. Patients were also dissatisfied with facility hygiene, waiting time, drinking water, and drug access. There was a significant relationship between poor healthcare quality and inpatient satisfaction (p=0.000),df=5, X^2 674.549, p=0.000). The study provided in-depth knowledge of healthcare service quality and the dissatisfaction level of patients using the services in the four geopolitical zones.

Keywords: Patients satisfaction, Healthcare services quality, geopolitical zones, Nigeria.

Introduction

There have been concerns about the quality of healthcare services in the developing world, especially in Nigeria. The healthcare sector faces a series of challenges relating to deteriorating infrasture, low government allocations and emigration of skilled healthcare workers, making it difficult to provide quality healthcare services. Critical among the challenges is the disturbing shortages of professionals caused by spontaneous migration, which is known as "Brain drain", which hurts healthcare indices (Akinwumi, Solomon, and Ajayi et al. 2022; Akinwale and George 2023) with a negative impact on healthcare quality services. The deplorable condition has prompted Nigerian lawmakers to pass a bill that will prevent medical doctors from leaving the country on graduation until after five years of service. (Sharmila Devi, 2023, Dyer, 2023).

According to the world health organisation (WHO, 2023) health system performance ranking, Nigeria is currently ranked 187th; the low ranking is attention to deficiencies in the sector since ranking determines healthcare service quality. Healthcare quality services are defined by the Institute of Medicine USA as patient-centred, safe, effective, equitable, timely and efficient care. It plays a significant role in the determination of patient satisfaction. Studies show that patients who receive quality service are more likely to be satisfied with the outcome (Ferreira, Vieira, and Pedro et al., 2023; Akinwale and George, 2022).

Healthcare service quality is the degree to which healthcare quality meets the expectation of the patients and service is delivered with minimal risk, which also can be measured by healthcare outcomes, including the environment of care, professionalism of providers and technical equipment used for diagnosis and treatment. Healthcare service quality is also viewed from patients' perspective as care which exceeds expectations (Dzau, Mate & O'kane 2022; Akinwale and George 2023, Aljarrallah, Almuqbil, Alshehri et al. 2023).

General analysis shows that healthcare service quality encompasses social, emotional, spiritual and environmental, segmented into technical, interpersonal and facility quality (Al-Dossary, 2022; Fatima, Humayun and Iqubal et al., 2019). According to WHO (2020), healthcare service quality is the degree to which healthcare service to individuals and population increase desired outcome, which is consistent with evidence-based knowledge and represents service care that is effective, safe, people-centred, timely, equitable, integrated and efficient. In the views of Thornicroft & Semrau (2019), healthcare service quality represents care with the application of technology for the more significant benefit of the patient with minimal risk.

Donabedian (1980) has affirmed that healthcare service quality is" the application of medical science and technology in a manner that maximises its benefit to health without correspondingly increasing the risk". According to Schuster, McGlynn and Brook (1998), healthcare service quality represents service which is technically in line with set standards with good communication, participatory decision making and culturally sensitive. However, Mosadeghrad (2014 p. 74) define healthcare service quality as "consistently delighting the patient by providing efficacious, effective and efficient healthcare service according to latest clinical guidelines and standard, which meet the patient's need and satisfies providers".

How healthcare service quality is assessed has changed since patients have become more informed and can evaluate the technical quality of care. This has made the sector more competitive, and providers who must survive must meet patients' expectations expressed in their satisfaction. (Darzi, Islam and Khursheed, 2023) have observed that providers need to identify healthcare service dimensions rated most important by patients, which impact their satisfaction positively.

Patient satisfaction is a vital evaluation measure for healthcare quality assessment, accepted globally. The measurement includes, amongst others, patients' preferences, expectations and the service provided. It is a critical part of the healthcare quality system, which is influenced by many factors such as general cognitive response to patients' education level, waiting time, and respecting patients' opinions (Gavurova, Dvorsky and Popesko 2021; Farzianpour, Byravan, and Amirian et al. 2015).

Patient satisfaction is critical to the success of healthcare providers. A satisfied patient is more likely to return to the healthcare provider, recommend the facility to other patients and generally voice out positively, which influences providers retention in the long run (Davidson, Shaffer, and Ye et al. 2017).

According to Alibrandi, Gitto & Limosani et al. (2023), patient satisfaction represents the feeling in the patient's judgement that competent and professionally confirmed physicians are available. Xesfingi and Vozikis (2016) observed that patient satisfaction remains an acceptable measure that offers providers quality information on success in meeting patients' expectations. It correlates with most healthcare outcomes such as reduced medication, fewer treatment-related litigations and good prognosis (Huang, Lai, and Tsai et al. 2004). Patient satisfaction is at the centre of healthcare quality of service as it represents a critical component of the outcome of care which is an evaluation of the performance of the healthcare system.

When patients are satisfied with the care provided, it reflects on their positive perception of satisfaction,which is a good outcome of quality care indicators (Manzoor, Wei, and Hussain et al. 2017). Healthcare providers can only stay competitive, profitable and successful when patients are satisfied (Umoke, Umoke. Nwimo et al. 2020). This aligns with the expectancy-value theory (Mahmud, Rehman &Lima et al. 2021).

The Nigerian healthcare sector is faced with disturbing shortages of professionals, and there is an urgent need for improvement to meet international standards to forestall a continuous low ranking. There are fears that citizens need to be provided with quality healthcare services. One of the easy ways to evaluate the quality of healthcare services in any country is patients satisfaction (Babatola, Popoola, and Olatubi et al. 2022; Akunne, Okonta and Ukwe et al. 2019; Manzoor, Wei, and Hussain et al. 2019), which represents patients' views of the care provided and their general experience (Ferreira, Vieira, and Pedro et al. 2023).

Scholars have emphasised the need for healthcare service providers to be informed of factors which improve patient satisfaction (Adhikary, Rahman-Shawon, and Ali et al., 2018; Geberu, Biks, Gebremedhin et al., 2019). The information will assist providers in determining areas for organisational investment, which will, in turn, improve patient satisfaction. Recent reviews by (Batbaatar, Dorjdagva, and Luvsannyam et al. 2015; Fatima, Humayun and Iqbal et al. 2019) have identified factors which enhance patients' satisfaction with healthcare services. Following the review, (Hellen & Saak 2011) have reported shortages in research devoted to patient satisfaction with healthcare service quality in Nigeria's healthcare sector.

Literature research presents a considerable gap in empirical research reflecting the country's geopolitical zones.

Purpose of the study

This study aims to evaluate impact of healthcare service quality on patients satisfaction in four geopolitical zones of Nigeria using a modified SERVQUAL questionnaire for healthcare quality. The six components of service quality evaluated include Tangiblies, Reliability, Responsiveness, Assurance, Empathy, Trust and Emotional Comfort.This is to alieviate fears of poor quality healthcare services by citizens.

Research Question

The following research questions guided the study.

1. What healthcare services are offered to patients in Nigeria's south-south, southeast, southwest, and northcentral zones?

2. Dose quality healthcare service trust and emotional comfort improve patient satisfaction?

3. What are the main factors which impact positive patient satisfaction?

Research Hypothesis

1. Quality healthcare service is positively related to patients satisfaction (H1a-H1e)

2. Trust is positively related to patients satisfaction (H2)

3. Emotional comfort is positively related to patients satisfaction (H3)

Methodology

A descriptive cross-sectional study design was used to collect data on inpatients' satisfaction with healthcare services in four geopolitical zones of the country. The process took approximately five weeks. Efforts were made to prevent bias. To achieve this, a multistage sampling method was introduced. Multistage sampling is used when the population is scattered over a wide area (Guillaume, 2015). First, the geopolitical zones were selected by simple ballot, and then a healthcare facility was selected from each zone. Furthermore, the healthcare facility was segmented into wards. Patients for the survey were then selected by random sampling from the ward clusters.

Sample Size

The inpatients were selected using simple random sampling techniques with the formula for cross sectional studies.

$$N = \frac{(Za)^2 \ Pq^8}{d2}$$

were Za is standard normal deviate =1.9

P is the proportion of inpatients assessing healthcare service which is put at 50%

d is precision for the study =5%

q=1-P(50%)

N=388 which is rounded up to 400 to account for possible non response rate of 5%.

Study Instrument

Data were collected using adapted questionnaires developed from various literature and adapted SERVQUAL, which had successful outcomes from other studies.(Mulugeta et al 2019; Sharew et al 2018; Uneke, Lyidobi & Afolabi et al 2022; Ofei-Dodoo,2019). The questionnaire had two variables, healthcare services quality and patient satisfaction. The questionnaire is structured and consists of ten dimensions.

The first section consisted of items to generate sociodemographic information example, age, sex, marital status, occupation and address. The second part consisted of questions to capture Tangibles, five items on a 5-point Likert scale. The third section consisted of questions to capture Reliability with five items scores on 5 point Likert scale. The fourth section consists of questions designed to capture Responsiveness, with four items of scores on 5 point Likert scale. The fifth section had questions to capture Assurance which had four items scored on 5 points Likert scale, while the sixth section had questions to capture Empathy which had four items; the seventh section consisted of questions to capture Trust, which had eight items scored on 5 point liker scale. The eighth section has Emotional comfort, with seven items scored on a Likert scale. Finally, the ninth section has overall satisfaction, with seven items scored on 5 points Likert scale.

Ethical Approval

The administration of each healthcare facility approved the administration of the questionnaire, and each participant granted verbal consent during the survey.The inclusion criterion included all patients on admission during the research period above 18 years.

Quality Criterial of instrument

Reliability. Internal reliability of the instrument was moderate since the time for the research was continuous, and no gap occurred during data collection. Cronbach Alpha was carried out using SPPS software based on standardized items. For items on the questionnaire to be accepted, the coefficient value should indicate above (0.7) degree of consistency. The high value of indicated stability (0.75-0.809) (Hair et al. 2006; Cronbach 1951).

Table 1: Computation of Reliability of Questionnaire Using Cronbach Alpha

Healthcare services qualities	Cronbach's alpha based on standardized items	Cronbach's alpha	No of items
Tangibles	0.807	0.759	40
Reliability	0.809	0.809	40
Responsiveness	0.866	0.866	40
Assurance	0.837	0.837	40
Empathy	0.808	0.810	40
Trust	0.867	0.869	40
Emotional comfort	0.802	0.803	40
More	0.790	0.802	40

Source: Authors creation.

External Validity. The target population was inpatients of selected healthcare facilities in four geopolitical zones to describe healthcare services quality and patient satisfaction. The respondent was guided while responding to the questionnaire, and the questions were straightforward to avoid complexity and ambiguity.

Internal validity. To ensure solid internal validity, we adopted appropriate statistical analytical tools. Data were analysed using frequency, mean scores, standard deviation, correlation, regression and chi-square to test the hypothesis.

Construct validity. To ensure validity was strong, the instrument had questions centred on the significant variables of research interest. The constructs were formulated to answer research questions.

Response rate

A total of 400 inpatients were sampled using multistage and random sampling techniques . 388 questionnaire were returned which put response rate at 97%

Table 2: Response rate among geopolitical zones

Zones	Response	%
South West	35	(9.0)%,
South Easte	178	(45.9)%,
South south	91	(23.5)%,
North Central	184	(21.6)%.
4	388	97%

Demographic statistics

Majority of the respondents were age range 36-45 years.(122, 31.2%) with preponserance of female gender(263, 67.875%). Large propotion of christianity religion 343, 88.4% was recorded because zones are Christians state.

Table 3: Demographic variable of the participating patients

_____

Variables	Frequency	Percentage %
Sex		
Female	263	67.8
Male	125	32.2
Total	388	100
Religion		
Christianity	343	88.4
Islam	39	10.1
Others	6	1.5
Total	388	100
Address		
Rural	165	42.5
Urban	223	57.5
Total	388	100
Age		
16 – 26	51	13.1
25 – 35	73	18.8
36 – 45	122	31.4
46 – 56	99	25.5
60 – 70	27	6.9
70+	16	4.1
Total	388	100

Results and statistical analysis

Research question one

What are the healthcare services offered to patients in the four zones of the country?

Ho: Quality healthcare service is not positively related to patients satisfaction

He: Quality healthcare service is positively related to patients satisfaction

The purpose of the research was to describe healthcare services quality offered to citizens of the four geopolitical zones of south-south, southwest, southeast, and north-central using a modified SERVQUAL instrument with the following variables, tangibles, reliability, responsiveness, assurance, empathy, trust and emotional comfort.

Independent sample T-test was used to compare the mean response of patients to each of the assessed variables tangibles, reliability, responsiveness, assurance, empathy, trust, emotional comfort and overall satisfaction (more) with mean response to patients' satisfaction.

Table 4 below. The mean score response greater than the cut-off score of 3 was compared with the mean scores response less than 3. [table 4-5]showed that the mean difference between each of the variables and patients satisfaction was statistically significant (p=0.000) with negative t-test value and confidence intervals suggestive of negative response to patients satisfaction. The finding supports the rejection of (Ho) of not positively related and acceptance of the Alternative Hypothesis (Ha) that quality healthcare services are positively related to patient satisfaction.

The rejection of the Null Hypothesis was further supported by findings from the Pearson Moment product correlation test [Table 6]. The Chi-square test of association [Table 7]. The exact t-test values and corresponding 95% confidence intervals for each healthcare service dimension and patient satisfaction were reported in Tables [4 and 5] below.

Table 4: Quality of healthcare services offered to patients in the four geopolitical *zones*

Healthcare service quality	Mean	SD	T-test	P-value	95% CI
Tangibles: >=3(N=173)	3.05	1.261			
			-4.982	0.000	-0.718 to -0.346
< 3 (N=215)	3.62	1.002			
Reliability: >=3(N=168)	3.04	1.278	-4.920	0.000	-0.794 to -0.341
< 3 (N=220)	3.61	0.994			
Respon: >=3(N=138)	3.06	1.289			
sivness:			-3.928	0.000	-0.711 to -0.237
< 3 (N=250)	3.53	1.064			
Assurance: >=3(N=280)	3.23	1.196			
			-3.855	0.000	-0.751 to -0.244
< 3 (N=108)	3.72	0.975			

Source; Authors creation.

Table 5: Quality of healthcare services offered to patients in the four geopolitical zones

Medical services	Mean	SD	T-test	P-value	95% CI
Empathy: >=3(N=145)	3.11	1.339			
			-3.367	0.000	-0.640 to -0.168
< 3 (N=243)	3.51	0.010			
Trust: >=3(N=194)	3.19	1.221			
			-2.964	0.003	-0.574 to -0.116
< 3 (N=194)	3.54	1.068			
Emotional >=3(N=168)	3.24	1.306			
Comfort:			-5.555	0.000	-0.882 to -0.421
< 3 (N=220)	3.90	1.004			
More: >=3(N=138)	3.23	1.309			
			-4.835	0.000	-0833 to -0.351
< 3 (N=250)	3.82	1.061			

Source ; Authors creation.

Pearson correlation coefficient

This measures the strength of a linear association between two variables. The defining survey questions for each healthcare service dimension as independent variables are presented in [Table 6]. It shows zero values for the Pearson correlation coefficient r, between tangibles, reliability, responsiveness, assurance, trust, emotional comfort and more, and its impacts on patient satisfaction. A correlation value of less than zero indicates a negative response from patients' satisfaction with healthcare services in the zones. The negative response indicates that healthcare services need to meet patient satisfaction.

Table 6: Correlation test analysis for the key patient's satisfaction questions as dependent variables and healthcare services: tangibles, reliability, responsiveness, assurance, empathy, trust, emotional comfort and more as independent variables

Medical Services	Pearson (Product Moment Correlation Coefficient)
Tangibles	-0.238(0.000*) -0.443(0.000* -0.413(0.000*) -0.296(0.000*)
Reliability	-0.281(0.000*) -0.387(0.000*) -0.414(0.000*) -0.329(0.000*)
Responsiveness	-0.190(0.000*) -0.367(0.000*) -0.414(0.000*) -0.232(0.000*)
Assurance	-0.238(0.000*) -0.331(0.000*) -0.285(0.000*) -0.198(0.000*)
Empathy	-0.172(0.001*) -0.337(0.000*) -0.351(0.000*) -0.166(0.001*)
Trust	-0.194(0.000*) -0.347(0.000*) -0.339(0.000*) -0.256(0.000*)
Emotional comfort	-0.237(0.000*) -0.444(0.000*) -0.413(0.000*) -0.296(0.000*)
More	-0.184(0.000*) -0.328(0.000*) -0.350(0.000*) -0.232(0.000*)

*Correlation significant at the 0.01 level (2-tailed)

Chi-Square Test

This was carried out to confirm the statistics of the above test and is presented below in {Table 7}

To conduct a chi-square test, the frequencies of the patient's satisfaction responses for each of the questions in each significant variable are grouped as a positive, neutral and negative responses. In the Likert scale, strongly agree and agree were grouped as positive responses, neither agree nor disagree as neutral responses and strongly disagree and disagree as negative responses. The report showed a statistically significant difference (p=0.000) between the healthcare service variables and patients' satisfaction rate. Thus rejecting the Null Hypothesis of healthcare service not positively related to patients satisfaction and supporting the Alternative Hypothesis that there is a positive relationship between healthcare services offered and patients satisfaction in the zones.

Table 7: Chi Square test on relationship between healthcare services and patients' satisfaction in the four geopolitical zones.

Medical services domains: n=388	Patient Satisfaction								
	+Ve	-Ve	Neutral	+Ve	-Ve	Neutral	χ^2	df	P
Tangibles:	127	215	46	304	55	29	700.392	5	0.000
Reliability:	115	205	68	304	55	29	674.549	5	0.000
Responsiveness:	94	250	44	304	55	29	802.477	5	0.000
Assurance:	213	108	67	304	55	29	666.201	5	0.000
Empathy:	101	243	44	304	55	29	778.284	5	0.000
Trust:	194	118	76	304	55	29	617.652	5	0.000
Emotional Comfort	104	220	64	304	55	29	686.961	5	0.000
More:	201	128	59	304	55	29	661.028	5	0.000

+Ve represents total positive responses; -Ve represent total negative responses

Research Question 2

The second research question was whether trust is related to patient satisfaction in the four zones.

Dose healthcare service trust and emotional comfort impact patient satisfaction in the four geopolitical zones?

Ho: Trust and emotional comfort is not positively related to patients satisfaction.

Hi: Trust and emotional comfort are positively related to patient satisfaction.

To test hypothesis two, data presented in [Table 8] showed the response of trust and emotional comfort present that most patients rated each healthcare service quality below the cut-off score of 3, with a higher rating for patient satisfaction with a statistically significant difference (p=0.000). This rating showed that trust and emotional comfort are positively related to patient satisfaction, thus supporting the rejection of the Hull Hypothesis and acceptance of the Alternative Hypothesis.

TABLE 8: Survey response by the patient regarding trust

Statements	M	SD	N
23. Doctors will do everything possible to get me care	3.36	1.159	388
24. Doctors are careful and thorough with my treatment	3.71	1.148	388
25. Doctors are honest	3.81	1.114	388

26. Doctors think of what is best for me	3.61	1.103	388
27. I have full trust on the doctors	3.91	1.182	388
28. I have no worries putting my life in doctors' hands	3.48	1.108	388

Source; Authors creation.

Research Question 3

What are the significant factors which impact positive patient satisfaction?

Ho: Emotional comfort is not related to patient satisfaction.

Hi: Emotional comfort is related to patient satisfaction.

This question explore identifying the factor which impacts positive patient satisfaction. The response of healthcare service quality shows patients' satisfaction rate presented in [Tables 9 & 10]. The healthcare service of each of the variables was scored below 3, while emotional comfort was scored above three by the majority of the patients. The mean difference in each rating was statistically significant (p=0.000) with negative t-test and below zero confidence interval values [Tables 9, 10 and 11] The finding similarly suggests a relationship between emotional comfort as healthcare service quality and patient satisfaction, thus rejecting the Null Hypothesis of no difference and accepting the Alternative Hypothesis.

Table 9: Trust and emotional comfort enhance patients' satisfaction in four geopolitical zones

Medical services	Mean	SD	T-test	P-value	95% CI
Tangibles: >=3(N=173)	3.34	1.259			
			-9.482	0.000	-1.246 to -0.818
< 3 (N=215)	4.37	0.881			
Reliability: >=3(N=168)	3.38	1.256	-8.311	0.000	-1.148 to -0.709
< 3 (N=220)	4.31	0.944			
Responsive >=3(N=138)	3.31	1.278			
ness:			-7.945	0.000	-01.153 to -0.696
< 3 (N=250)	4.24	0.984			
Assurance: >=3(N=280)	3.70	1.222			
			-5.681	0.000	-0.985 to -0.478
< 3 (N=108)	4.44	0.878			

Source : Authors creation.

Table 10: Trust and emotional comfort enhance patients' satisfaction in the four geopolitical zones

Medical services	Mean	SD	T-test	P-value	95% CI
Empathy: >=3(N=145)	3.34	1.287			
			-7.887	0.000	-1.136 to -0.682
< 3 (N=243)	4.25	0.969			
Trust: >=3(N=194)	3.51	1.244			
			-7.117	0.000	-1.026 to -0.582
< 3 (N=194)	4.31	0.964			
Emotional:>=3(N=173)	3.26	1.279			
			-5.447	0.000	-0.868 to -0.407
< 3 (N=215)	3.90	1.027			
More: >=3(N=280)	3.48	1.206			
			-3.758	0.000	-0.757 to -0.237
< 3 (:N=108)	3.97	1.063			

Source : Authors creation

Table 11: Emotional comfort impact positive on patient satisfaction in the four geopolitical zones

Medical services	Mean	SD	T-test	P-value	95% CI
Tangibles: >=3(N=173)	3.49	1.246			
			-9.181	0.000	-1.165 to -0.754
< 3 (N=215)	4.45	0.801			
Reliability:>=3(N=168)	3.51	1.189			
			-8.484	0.000	-1.111 to -0.693
< 3 (N=220)	4.41	0.905			

			T-test	P-value	95% CI
Responsiv >=3(N=138) ness:	3.42	1.243	-8.510	0.000	-1.152 to -0.720
< 3 (N=250)	4.36	0.904			
Assurance:>=3(N=280)	3.86	1.157	-4.689	0.000	-0.828 to -0.339
< 3 (N=108)	4.44	0.931			

Source; Authors creation.

Table 12: Emotional comfort impact positive on patient satisfaction in the four geopolitical zones

Healthcare quality services	Mean	SD	T-test	P-value	95% CI
Empathy: >=3(N=145)	3.47	1.191	-8.068	0.000	-1.101 to -0.669
< 3 (N=243)	4.35	0.948			
Trust: >=3(N=194)	3.69	1.186	-6.066	0.003	-0.880 to -0.449
< 3 (N=194)	4.36	0.962			
Emotional:>=3(N=145)	3.41	1.341	-2.666	0.008	-0.573 to -0.087
< 3 (N=243)	4.74	1.070			
More: >=3(N=194)	3.39	1.247	-3.737	0.000	-0.677 to -0.210
< 3 (N=194)	3.84	1.084			

Source : Authors creation.

Multiple Regression Analysis Test

The relationship between healthcare service quality and patient satisfaction was further analysed with multiple regression.

The first regressional analysis was run with quality variables tangibles, reliability, responsiveness, assurance, empathy, trust, emotional comfort and more. The demographic variables are sex, religion, address, age, marital status, academic qualification and occupation. The adjusted R^2 for this model was .581, meaning 58.1% of the variable variance can be explained by the listed healthcare services offered in the zones. To check how much of the variables are due to the influence of the controlled variables, the regressional analysis was conducted again with only the demographic factors as control variables and healthcare services as independent variables. For the second analysis model, R^2 decreased to .001, showing that demographic factors can explain 0.1% of the IVs (independent variables).

In the next step, the Null hypothesis of H1o-I & H2o-i was tested employing the first regression analysis model, which included all IVs and control variables. The Null hypothesis posits no significant relationship between healthcare services and patient satisfaction; results are presented in [Table 13] which shows that all relationship between IVs and patient satisfaction is significant and confirms the previous correlation results.

Concerning H3o-i, the relationship between emotional comfort and patient satisfaction shows an unstandardised coefficient of β=.31(p<.01). This means an improved positive emotional comfort predicts positive satisfaction among patients in the four geopolitical zones of the country. Consequently, the Null hypothesis is rejected, and H3i is confirmed.

Table 13: Results of the multiple regression analysis test

n=388	Sig	Unstandardised coefficient(β)
Independent variables		
Tangibles	.045	-.08*
Reliability	.000	.19**
Responsiveness	.001	.13*
Assurance	.000	.28**
Empathy	.000	.25**
Trust	.011	.12*
Emotional comfort	.000	.31**
More	.040	-.07*
Control variables		
Sex	.320	.05
Religion	.486	.00
Address	.258	.19
Age	.789	.00
Marital status	.606	-10

Academic qualification	.207	.08
Occupation	.594	-.04

* Relationship is significant at the .05 level.   **Source: Authors creation from SPSS results**

** Relationship is **significant** at the .01 level.

Discussion of findings

The result of the study, which is presented in hypothesis one, shows that healthcare services in the four geopolitical zones of the country are represented in the dimensions of tangibility, reliability, responsiveness, assurance empathy, trust and emotional comfort. The study confirms that quality healthcare services are positively related to patient satisfaction. This is consistent with (Umoke, Ifeanachor et al. 2022), who reported that patients satisfied with quality medical services were more satisfied with empathy and less satisfied with tangibles.

Data from correlational analysis, which established the association level between healthcare service and patient satisfaction, suggest a negative patient response. The negative response of the correlation result suggests that patients in the four geopolitical zones are dissatisfied with the quality of healthcare services in the zones. The dissatisfaction is consistent with confirmation theory; negative confirmation ensures when products or services fall short of expectations. This also aligns with (Mahmoud, Ekwere et al. 2019), who reported dissatisfaction with tangibles. Similarly, (Oknofua, Ogu et al. 2017) reported patients' dissatisfaction with the lack of medical equipment, poor electricity, long waiting times and an inadequate number of doctors.

In contrast to the above findings, (Manzoor, Hussain & Alisha, 2019) reported patients' satisfaction with laboratory and diagnostic equipment in Pakistan. Similarly, (Ofei-Dodoo, 2019) in Ghana observed that patients were satisfied with quality healthcare services, especially cleanliness and privacy.

The second hypothesis is finding out if trust is related to patient satisfaction and if patient satisfaction is enhanced by trust in the geopolitical zones. Data from mean score ranges, which is higher (3.36-3.81) than the mean cut-off score, indicate a positive rating by patients. A positive rating suggests trust is positively related to patient satisfaction and is enhanced by trust. This means patients believe in the doctors and or nurses. It also reflects that doctors are careful, thorough, and honest with the treatment given to patients. Patients do not worry about putting their lives into the hands of doctors. The finding is consistent with (Puryanti, Setianto and Adriansyah. 2023), who reported overall service quality satisfaction and 81% trust.

The third hypothesis identifies if emotional comfort is a factor in patient satisfaction. Data and results suggest that emotional comfort is positively related to patient satisfaction. The finding confirms (Miao, 2022), who reported that emotional comfort alleviates patients' pains after pancreatectomy and enhances satisfaction.

Conclusion

The study aimed to evaluate patients' satisfaction with healthcare services quality in the four geopolitical zones of Nigeria using modified SERVQUAL as an assessment instrument. The study showed that patients are dissatisfied with the healthcare services quality provided to the citizens of the four zones and this has negative impact on their levels of satisfaction. The dissatisfaction was expressed in the areas of medical equipment, laboratory and X-ray investigations, cleanliness, waiting time and availability of drugs. However, despite the above perception, patients still trust the professionalism of Nigerian Doctors and Nurses and believe positive emotional comfort intervention predicts overall patient satisfaction. The result demonstrates that quality healthcare services are attainable if issues of cleanliness, water, laboratory, X-ray investigation, and drugs are made available in healthcare facilities in the zones.

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