

PATIENTS PERCEPTION AND THE LEVEL OF SATISFACTION WITH ULTRASOUND SERVICES PROVIDED AT THE BOWEN UNIVERSITY TEACHING HOSPITAL (BUTH), OGBOMOSO, OYO STATE, NIGERIA

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ABSTRACT: Background: The quality of an ultrasound service is not determined by technical performance alone but also involves the patients' judge of the services they received from sonographers, therefore, this study assessed patient perception and satisfaction with ultrasound services provided at the Bowen University Teaching Hospital, Ogbomoso, Oyo State, Nigeria.

Methods: A descriptive cross-sectional design was used among 200 patients selected through systematic random sampling. Data was collected using a structured questionnaire immediately after ultrasound service utilization and analyzed using frequencies, percentages, and Chi-square tests.

Results: Most respondents were aged 26–30 years (45%) and female (70%); 52% had secondary education. Hospital accessibility was high, with 83.5% reporting that the facility was easily reachable. Overall, 97% of respondents were satisfied with ultrasound services. Overall satisfaction was statistically significant ($\chi^2 = 176.72$, $p < 0.05$). However, satisfaction was not significantly associated with gender ($\chi^2 = 0.033$, $p > 0.05$) or educational level ($\chi^2 = 2.238$, $p > 0.05$). Key areas for improvement included reducing waiting time, recruiting qualified staff, providing modern diagnostic equipment, and improving staff–patient communication.

Conclusion: Ultrasound services were generally satisfactory, but continuous quality improvement is needed to sustain and enhance service delivery.

Keywords: *Diagnostic imaging, patient perception, patient satisfaction, ultrasound*

INTRODUCTION

Ultrasound is a widely used diagnostic imaging modality because it is non-invasive, does not use ionising radiation, and has applications in obstetrics, gynaecology, abdominal imaging, vascular assessment and other clinical areas. The quality of an ultrasound service, however, is not determined by technical performance alone. Patients also judge services by the way they are treated, the information they receive, the time they spend waiting, the accessibility of the facility, privacy, cost and the condition of the service environment. Patient satisfaction therefore provides useful information for assessing healthcare quality and identifying areas requiring improvement [1,2].

Evidence reviewed in the study source indicates that service delivery, timeliness, information, professionalism and staff attitude are important components of patients' assessment of care. In ultrasound practice, access, availability, convenience, cost, technical competence and interpersonal skills may influence the experience of patients [1,3]. Patient-centred communication is particularly important because patients may experience anxiety or uncertainty before and during an ultrasound examination, especially when the examination concerns pregnancy or a suspected disease.

In Nigeria and other low-resource settings, patient experiences may also be affected by equipment availability, high patient volume, staffing limitations and delays in service

delivery. Previous literature reviewed in the thesis identified waiting time, communication, privacy, staff attitude, cost and equipment quality as recurrent determinants of satisfaction. These factors are relevant to teaching hospitals where diagnostic demand may be high and where clinical, educational and service functions occur simultaneously [4,5].

Despite the importance of patient feedback, the study source identified limited documented evidence on patients' perception and satisfaction with ultrasound services in Oyo State. Understanding the patient perspective can help ultrasound providers and hospital administrators identify strengths and deficiencies and design patient-centred quality-improvement measures.

The aim of this study was to assess patients' perception and level of satisfaction with ultrasound services provided at the Bowen University Teaching Hospital, Ogbomoso. Specifically, the study examined perceptions of healthcare providers and service quality, determined factors associated with satisfaction or dissatisfaction, and identified areas requiring improvement.

2. MATERIALS AND METHODS

2.1: Study design and setting

A descriptive cross-sectional survey design was used. The study was conducted at Bowen University Teaching Hospital, Ogbomoso, Oyo State, Nigeria. The ultrasound unit provides diagnostic examinations including obstetric, abdominal, pelvic and small-parts imaging. The hospital serves a diverse population and functions as a referral and teaching institution.

2.2: Study population and sampling

The study population comprised patients who attended the ultrasound unit during the study period, including pregnant women attending antenatal ultrasound, patients referred for diagnostic imaging and first-time and repeat users. Eligible participants were patients who attended the unit, gave informed consent and were capable of responding to the questionnaire. Critically ill patients, people who declined participation and questionnaires with incomplete responses were excluded.

A sample size of 200 respondents was used. Probability systematic random sampling was employed, with every fifth eligible patient selected after determination of the sampling

interval. This approach was intended to provide a spread of participants and reduce selection bias.

2.3: Data collection instrument

Data was collected using a structured questionnaire developed in line with the study objectives and relevant literature. The instrument collected socio-demographic information, perceptions of healthcare services, service-delivery experiences, and satisfaction. Items included questions on cleanliness, professionalism, staff respect, explanation of procedures, waiting time, accessibility, cost, facility adequacy and willingness to recommend the ultrasound unit.

The study source reports that face and content validity were established through expert review. A pilot study involving 20 respondents outside the main study population was conducted. Cronbach's alpha coefficients reported for the major domains ranged from 0.76 to 0.82, with an overall reliability coefficient of 0.79, indicating acceptable internal consistency.

2.4: Data collection and analysis

Questionnaires were administered directly to selected respondents after explanation of the study. Confidentiality and anonymity were maintained. Data were analysed using Epi-Info 6. Descriptive statistics were presented as frequencies and percentages. Chi-square tests were used to examine relationships between selected variables and patient satisfaction, with statistical significance set at $p < 0.05$.

2.5: Ethical considerations

Participation was voluntary and informed consent was obtained. Respondents were informed about the purpose and procedures of the study and assured that information would be used for academic purposes. No identifying information was collected, and confidentiality and anonymity were maintained. Ethical approval was obtained from the Bowen University Teaching Hospital Research Ethics Committee, Ogbomoso, with approval number **BUTH/REC-27260** dated 19 January 2026; the study source also reports **NHREC/12/04/2012** as the registration number.

RESULTS

A total of 200 respondents were included in the analysis. Females constituted 140 (70%) respondents, while males constituted 60 (30%). The largest age group was 26–35 years, representing 90 (45%) respondents. The 16–25-year group accounted for 35 (17.5%), 36–45 years for 25 (12.5%), 46–55 years for 27 (13.5%), and 56–65 years for 23 (11.5%).

Obstetric ultrasound was the predominant examination, involving 120 (60%) respondents. Pelvic ultrasound accounted for 50 (25%), abdominal-pelvic ultrasound 12 (6%), abdominal ultrasound 6 (3%), small-parts ultrasound 5 (2.5%), and gynaecological ultrasound 3 (1.5%). These findings show a strong representation of obstetric and pelvic ultrasound among the examinations recorded.

Most respondents had previous experience with the facility: 119 (59.5%) were previous users and 81 (40.5%) were first-time users. In terms of frequency of use, 99 (49.5%) used the facility occasionally, 57 (28.5%) often, 22 (11.5%) very often and 21 (10.5%) rarely.

Access to the hospital was generally favourable. A total of 167 (83.5%) respondents reported that the hospital was easy to access, compared with 10 (5%) who reported that it was not easy and 13 (6.5%) who did not know. Most respondents reached the hospital within a relatively short time: 91 (45.5%) reported less than 15 minutes, 50 (25%) 15–29 minutes, 31 (15.5%) 30–44 minutes, 18 (9%) 45 minutes–1 hour and 10 (5%) more than one hour.

Regarding cost, 121 (60.5%) respondents considered ultrasound services cheap, while 52 (26%) considered them expensive and 27 (13.5%) considered them very expensive. Concerning staff attitude, 172 (86%) described healthcare providers as respectful and 28 (14%) as disrespectful. Among respondents who identified personnel perceived as disrespectful, nurses were the most frequently identified group (58.5%).

The ultrasound unit was considered adequate by 113 (56.5%) respondents, while 19 (9.5%) considered it inadequate, 59 (29.5%) were uncertain and 9 (4.5%) gave no response. Regarding waiting time, 116 (58%) respondents reported waiting less than one hour, 48 (24%) waited 1–2 hours and 30 (15%) waited more than two hours (Table 1).

Most respondents reported satisfaction with the condition of the service environment. Satisfaction was reported with the condition of instruments by 70%, equipment by 71%, cleanliness and comfort of the health facility by 82.5%, and cleanliness and comfort of the consulting room by 80% (Table 1). Overall, 194 (97%) respondents reported that they were satisfied with services rendered, while 6 (3%) were not satisfied. When satisfaction was graded specifically for the ultrasound unit, 49 (24.5%) had high satisfaction, 127 (63.5%) moderate satisfaction and 24 (12%) low satisfaction. In addition, 142 (71%) respondents indicated that they would recommend the ultrasound unit, 11 (5.5%) would not recommend it, 43 (21.5%) were uncertain and 4 (2%) did not respond Table 1).

The major reported reasons for dissatisfaction were long waiting time, concerns relating to the scanning process, and an unconducive environment, each reported as 29% in the study data. No improvement in health condition and short consulting time was each reported by 6.5% (Table 1).

The reported inferential analyses showed significant relationships between awareness and satisfaction ($\chi^2=22.84$, $df=4$), service delivery and satisfaction ($\chi^2=48.60$, $df=8$), academic role and satisfaction ($\chi^2=41.25$, $df=8$), and institutional development and satisfaction ($\chi^2=36.90$, $df=8$). In each analysis, the reported calculated chi-square value exceeded the corresponding critical value at the 0.05 level, and the null hypothesis was rejected (Table 2). The results show that the calculated χ^2 values exceeded the corresponding critical value of 9.488 at the 0.05 level and therefore, the null hypotheses were rejected, and statistically significant differences/relationships were identified (Table 2).

Table 1. Selected findings on patient perception and satisfaction

Indicator	Frequency	Percentage
Female respondents	140	70.0
Obstetric ultrasound	120	60.0
Previous facility users	119	59.5
Hospital easy to access	167	83.5
Providers perceived as respectful	172	86.0
Unit perceived as adequate	113	56.5

Waiting time under 1 hour	116	58.0
Overall satisfied with services	194	97.0
High satisfaction with ultrasound unit	49	24.5
Moderate satisfaction with ultrasound unit	127	63.5
Would recommend the unit	142	71.0

Table 2. Inferential Findings Reported in the Project

Variable	χ^2 calculated	Df	χ^2 critical (0.05)	Decision
Awareness of BUTH history	32.5	4	9.488	Reject H_0
Healthcare service delivery	37.9	4	9.488	Reject H_0
Academic role	32.0	4	9.488	Reject H_0
Institutional development	26.9	4	9.488	Reject H_0
Patient satisfaction	50.0	4	9.488	Reject H_0

DISCUSSION

The study demonstrates generally favourable patient perceptions and a high overall level of satisfaction with ultrasound services at BUTH. The 97% overall satisfaction reported by respondents indicates that the service met the expectations of most participants. However, the graded satisfaction result, in which 63.5% reported moderate satisfaction and 12% low satisfaction, suggests that overall satisfaction should not be interpreted as absence of service deficiencies.

The predominance of female respondents and obstetric examinations is consistent with the important role of ultrasound in maternal and reproductive healthcare. The finding that 59.5% of respondents had previously used the facility may indicate continued utilisation and familiarity with the service. Most respondents also reported easy access to the hospital, which may support attendance and service uptake.

Interpersonal interaction was an important positive feature. Eighty-six percent of respondents considered healthcare providers respectful, while the study discussion reported that professionalism, competence and positive staff–patient interaction contributed to patient comfort and confidence. This is consistent with the literature reviewed in the source material, which identifies communication, responsiveness and provider attitude as important determinants of patient satisfaction [4,5].

Waiting time remained an important weakness. Although 58% waited less than one hour, 39% reported waiting one hour or longer when the reported categories are considered together, and long waiting time was identified among the major reasons for dissatisfaction. Timing is particularly important in ultrasound services because patients may interpret delays as evidence of inefficiency, even when technical care is satisfactory. Improvements in appointment scheduling, patient flow and communication during unavoidable delays may therefore produce meaningful gains in satisfaction.

Equipment and environmental conditions also deserve attention. Although 56.5% considered the ultrasound unit adequate and more than 70% were satisfied with instrument and equipment condition, substantial proportions were uncertain or dissatisfied. The literature reviewed in the thesis emphasises that equipment reliability, preventive maintenance and quality assurance influence diagnostic confidence, workflow and patient perception. Maintaining functional equipment and ensuring timely repairs are therefore important components of patient-centred imaging care.

Cost was perceived as affordable by 60.5% of respondents, but 39.5% still regarded the service as expensive or very expensive. This finding suggests that affordability is not uniform across patients. Flexible payment approaches, transparent pricing and periodic review of charges may help reduce financial barriers where feasible.

The reported chi-square findings further support the importance of service-related factors. Awareness, service delivery, academic role and institutional development were each significantly associated with patient satisfaction at the 0.05 level. Service delivery had the largest reported chi-square value, suggesting that the way services are organised and delivered may be particularly important to patient experience.

This study has practical implications for BUTH and similar teaching hospitals. Quality improvement should not focus exclusively on image production and technical competence. It should also address staffing, waiting time, communication, privacy, equipment maintenance, environmental comfort, affordability and systematic collection of patient feedback.

CONCLUSION

Patients attending the ultrasound unit at Bowen University Teaching Hospital generally reported positive perceptions and moderate to high satisfaction. Respectful provider interactions, accessibility, acceptable facility conditions and perceived service quality were important positive features. Nevertheless, waiting time, environmental conditions, equipment-related concerns, scanning-process concerns and cost remained areas for improvement. The reported significant relationships between service-related variables and satisfaction indicate that patient experience is closely linked to the quality and organisation of ultrasound service delivery.

Conflict of interest: None declared among the authors

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