

# **Assessment of Patients' Satisfaction Level with Radio-Diagnostic Services in a Nigerian Tertiary Hospital**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Patient satisfaction may be regarded as a subjective idea which helps patient assess and rate the quality of care they obtain from healthcare providers. This study was aimed to assessing patients' satisfaction level with radio-diagnostic services in National Orthopaedic Hospital, Igbobi Lagos (NOHIL), Nigeria. A cross-sectional study was conducted on 194 patients that visited the General Outpatient Department (GOPD) clinic twice or more from July 2019 to August 2019. Convenience sampling technique was used for sample collection. Ethical approval was obtained from the Human Research and Ethics Committee of NOHIL and participants' consent was also obtained. Data were collected by the use of questionnaires. Descriptive and inferential statistics were used for data analysis. Findings were significant at  $P < 0.05$ . The findings from the study showed that majority of the patients (92.3%) were satisfied with the quality of the x rays produced and the friendly nature of the radiographers (77.8%).The patients' satisfaction with radio diagnostic services in this center

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could be said to be very low as patients opined that they were dissatisfied with most of the services rendered. There is a need for the radiographers to be punctual to duty as this will help reduce the long waiting time experienced by the respondents.

*Keywords: Patients; satisfaction; assessment; radio-diagnosis services.*

## 1. INTRODUCTION

Patient satisfaction is defined as the extent to which the patients feel that their needs and expectations are being met by the service provider [1]. Ensuring excellence service quality is essential for the health care companies to achieve a competitive advantage and to differentiate themselves in the market [2]. Patient satisfaction is regarded as the most important indicator of the quality of health care and can be used to enhance programmes within the healthcare facilities [3]. It is a multidimensional concept affected by thoughts or with previous experience which makes its measurements and comprehension difficult as an isolated concept [4].

Patient satisfaction is an expression of the gap between expected and perceived characteristics of service [5]. In other words, it implies patients having value for their money and time. This is not unconnected with the quality of health care being provided to patients. Yeddula [6] posits that patients' perception of the health care is very critical to measuring performance improvement and clinical effectiveness.

Radiological services are services rendered to patients visiting the radiology department; which can be either routine services that are carried out on daily basis, or some special examinations, carried out on special cases that require the use of contrast agents [7]. Radiological services play a major role within the hospital system in influencing patient satisfaction. These services include different blend of patient populations and disease units, procedure-related discomfort including claustrophobia, and examination types ranging from routine imaging to emergency examinations that pose unique challenges [8]. Respect for patient's needs and wishes, is central to any humane healthcare system [9]. Patients do arrive the radiology department often with worry and apparently in aggressive attitude [10]. This may not be unconnected with quality service they fail to get. Radiological service is a resource intensive unit in a hospital and most developing countries' radiological service is

expected to be poor or may not be available at all [11].

The measurement of patient satisfaction through patient satisfaction surveys has helped organizational leaders to incorporate patient perspectives as a way to create a culture where service is deemed an important strategic goal for healthcare facilities [12]. Despite extensive research done on defining and measuring patient satisfaction in other health departments, it seems little attention is given to patient satisfaction with radiological services in Nigeria [13]. The orthopaedic hospital is a specialized one where the value of radiological services cannot be overemphasized. Most patients who come for radio diagnostic services are mainly those with certain degrees of injury. Already they are in great pains and would expect that the radiographers who would attend to them will understand their conditions. A deviation from this mindset may not go down well with the patients. The assessment on how patients who attend National orthopaedic hospital Igbobi, Lagos are satisfied with services rendered to them is very vital as this may help to improve the services rendered to the patients. There is actually a paucity of data on patients' satisfaction of radiological services received at orthopaedic hospitals in Nigeria. It is therefore the aim of this study to assess patients' satisfaction with services rendered in the radiology department of NOHIL.

## 2. MATERIALS AND METHODS

This prospective cross-sectional study was conducted in national orthopaedic hospital, Igbobi, Lagos (NOHIL) from July 2019 to August 2019. Convenience sampling technique was used for sample collection. Ethical approval was obtained from the Human Research and Ethics Committee of NOHIL and participants' consent was also obtained. Data were collected on 194 patients that visited the General Outpatient Department (GOPD) clinic twice or more using questionnaires as the instrument. The questionnaire was developed by the researchers based on previous studies [11,14]. The content

and face validity was conducted by three colleagues and two other researches. They were then pretested on 35 patients to know the suitability for the study. The researchers administered the questionnaires and gave a two day period before collecting the questionnaires. This is to allow for completion of the questionnaires and also for respondents not to forget completing them if given longer period of time. A total of two hundred and fifty (250) copies of questionnaires were administered but one hundred and ninety four (194) copies were completed and returned giving a return rate of 77.6%. The data were analyzed using SPSS version 20. Descriptive and inferential analysis was used and results were presented in frequency and percentage tables. Findings were significant at  $P \leq 0.05$ .

### 3. RESULTS

The demographic characteristics of the patient is described in table 1. It revealed that majority of the respondents were above 50 years and constituted 87.1% (n= 169). Males (60.3%) were more in number than the females (39.7%). Majority (43.8%) of the respondents possessed either National Diploma (ND) or National Certificate in Education (NCE). With regard to occupation, those who work in the public sector

formed majority of the correspondents (70.1%).

In Table 2 most of the patients were for plain x-ray investigations contributing to 93.3% (n= 181) of the reasons for seeking for radiological service in the center. Majority of the respondents (58.2%) were visiting the hospital for the second time and patients obtained the information about the center mainly through health insurance policy.

Table 3 described the patients' response to satisfaction with radio diagnostic services. Only 0.5% (1) of the respondents was satisfied with the waiting time whilst 91.2% (177) were dissatisfied. With regard to the x ray film being acceptable by clinicians, 92.3% (179) were satisfied while none was highly satisfied. Majority (77.8%) were satisfied with radiographers' friendly attitude.

The causes of patients' dissatisfaction was presented in Table 4. The major cause of patients' dissatisfaction to services rendered in the diagnostic center was radiographers coming late to work and constituted about 96.9% (n= 188). The non- conducive nature and lack of recreational facilities in the waiting room also contributed to 96.9% of the causes of dissatisfaction.

**Table 1. Demographic characteristics of the respondents**

Demographic Variables of Respondents	Number of Respondents	Percentage (%) of Respondents
<b>Age group</b>		
• 18-30 years	9	4.6
• 31-40 years	2	1.0
• 41-50 years	14	7.2
• Over 50 years	169	87.1
<b>Total</b>	<b>194</b>	<b>100</b>
<b>Gender</b>		
• Female	77	39.7
• Male	117	60.3
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Academic Qualification</b>		
• SSCE	9	4.6
• ND/NCE	85	43.8
• HND/BSC	31	16.0
PGD+	69	35.6
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Occupation</b>		
• Student	9	4.6
• Private sector	49	25.3
• Public sector	136	70.1
<b>Total</b>	<b>194</b>	<b>100.0</b>

**Table 2. Radiology Procedure undertaken, number of visits and source of awareness**

<b>Radiology procedure</b>	<b>Number of Respondents</b>	<b>Percentage (%) of Respondents</b>
• Ultrasound	13	6.7
• Plain x-ray	181	93.3
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Number of Visits to NOHIL Radiology Unit</b>		
• 1st visit	2	1.0
• 2nd visit	113	58.2
• 3rd visit	71	36.6
• 4th visit	8	4.1
<b>Total</b>	<b>194</b>	<b>100.0</b>
<b>Source of awareness about NOHIL</b>		
• Advertisement	1	.5
• Friend or family	12	6.2
• Health Insurance plan	114	58.8
• Referred by your doctor	67	34.5
<b>Total</b>	<b>194</b>	<b>100.0</b>

**Table 3. Patients' Satisfaction with Radio-Diagnosis Service at NOHIL**

<b>S/N</b>	<b>Patients' Satisfaction</b>	<b>HS (5)</b>	<b>S (4)</b>	<b>U (3)</b>	<b>D (2)</b>	<b>HD (1)</b>	<b>Mean</b>	<b>Sd</b>	<b>Remark</b>
1.	Waiting time	1 0.5%	15 7.7%	1 0.5%	177 91.2%		2.18	0.58	D
2.	X-ray films quality acceptable by clinicians		179 92.3%	9 4.6%	6 3.1%		3.89	0.40	S
3.	Efficiency of X-ray films library services against appointment	9 4.6%	60 30.9%		124 63.9%	1 0.5%	2.45	1.05	D
4.	Waiting room well ventilated and conducive	1 0.5%	9 4.6%		182 93.8%	2 1.0%	2.10	0.48	D
5.	Department being easy to locate and access	1 0.5%	3 1.5%	- -	186 95.9%	4 2.1%	2.01	0.24	D

S/N	Patients' Satisfaction	HS (5)	S (4)	U (3)	D (2)	HD (1)	Mean	Sd	Remark
6.	Payment distance from x-ray services		8 4.1%	2 1.0%	73 37.6%	111 57.2%	1.52	0.72	D
7.	Toilet facilities easy to access and free	1 0.5%	2 1.0%	1 0.5%	79 40.7%	111 57.2%	1.47	0.62	HD
8.	Easiness of retrieval of old x-ray films		5 2.6%	6 3.1%	182 93.8%	1 0.5%	2.08	0.37	D
9.	Efficiency of registration process	10 5.2%	59 30.4%	70 36.1%	55 28.4%	-	3.12	0.88	U
10.	Radiographers friendly attitude	9 4.6%	151 77.8%	8 4.1%	25 12.9%	1 0.5%	3.73	0.76	S
	Grand Mean						2.48	0.61	D

**HS-** Highly satisfied, **S** = Satisfied, **U**-Undecided, **D**-Dissatisfied, **HD**- Highly dissatisfied

**Table 4. Causes of Patient's Dissatisfaction with Radiological Services in NOHIL**

S/N	Patients' Dissatisfaction	Yes		No	
		Freq	%	Freq	%
1	Waiting time was too long	179	92.3	15	7.7
2	Radiographers work with respect	188	96.9	6	3.1
3	Radiographers came late to work	190	97.9	4	2.1
4	Medical record staff register with respect	15	7.7	179	92.3
5	Department not easy to locate	69	35.6	125	64.4
6	Machines old/obstinate	180	92.8	14	7.2
7	Waiting room not conducive without recreational facilities	188	96.9	6	3.1
8	X-ray films not easy to retrieve	177	91.2	17	8.8
9	Changing room neat with enough gowns	21	10.8	173	89.2
10	Toilet facilities distance from department	158	81.4	36	18.6

**Table 5. Post hoc analysis of Patients' Satisfaction based on the Number of Visits**

(I) Visit	(J) Visit	Mean Difference (I-J)	Sig.
4th Visit	1st Visit	6.125	.188
	2nd Visit	5.116*	.002
	3rd Visit	5.322*	.001

Table 5 shows the post hoc analysis of patients' satisfaction based on the number of visits. It reveals that patients who came visiting for the second and third time were more satisfied with those visiting for the first or fourth time.

#### 4. DISCUSSION

Many authors defined patient satisfaction as a subjective concept aimed at relating with the grade at which healthcare responds to the expectations of the patient or community [14]. In the present study, majority of the respondents were over 50 years. Conditions such as hypertension which is one the reasons for performing chest x ray examination is common among adults above 50 years and may be the reason for the preponderance of this age group. The males formed majority of the respondents. This our finding is in line with the study conducted in Ethiopia by Mulisa et al. [15] who also noted that more males participated in their study than females. However, Kofi et al. [16] observed more females in their study. The preponderance of males in this study may be because males are more stressed than females, travel more than females and may be involved in one form of accident or misfortune that may require an x ray investigation.

Findings from this research has shown that the main reason for attending the diagnostic center was for plain x ray investigations meaning that x-ray was the main imaging modality patients were

referred to. This is in agreement with the study conducted by Wafaa and Shaima [17]. As a diagnostic center in an orthopaedic hospital it is expected that most of the patients will be referred for x ray investigations than for any other imaging procedure because it is a specialist center that deals mainly in orthopaedic cases. Most of the patients were visiting the center for the second time. This finding may be related with the fact the patients needed follow up radiographs to determine the current state of their conditions. Our finding is however not in tandem with that of Kofi et al, [16] who recorded that majority of their patients were visiting the hospital for the first time. The satisfaction level of the patients revealed that there were significant level of satisfaction during the second ( $P = 0.002$ ) and third visits ( $P = 0.001$ ). This could be attributed to the fact that as the patients kept visiting the hospital, they got used to how the systems operate and those things that were of concern to them before ceased to be.

This work revealed that only 15 (7.7%) of the respondents were satisfied with the services with regard to patient waiting time. The rate of dissatisfaction with patient waiting time was alarming and discouraging. According to Bielin and Demoulin [18], waiting time satisfaction is not only a service satisfaction determinant but also moderates the satisfaction loyalty relationship and that investment in improving services may be better spent on information and communication rather than on physical facilities. One hundred and seventy nine (92.3%) were

satisfied with the quality of x- ray films accepted by the clinicians. With regard to the location and accessibility of the center, 3 (1.5%) of the respondents were of the opinion that they were satisfied.

The major cause of patient dissatisfaction was radiographers coming to work late. Not being punctual to work may cause a ripple effect and will definitely affect patient waiting time.

In this study the friendly nature or courtesy of the radiographers towards the patients contributed to 77.8% (n= 188) of their satisfaction. The implication of this is that the radiographers are aware of the importance of the patients as they are the reason for the existence and working in the hospital. Even though the satisfaction level appeared high with regard to the friendly nature of the radiographers, finding from this study is lower than those of other previous studies [15,19].

With regard to the ventilation and conducive nature of the waiting room, 4.6% of the respondents were satisfied while 93.8% of the respondents were dissatisfied. The dissatisfaction level in our study is higher than that of a previous study in Ghana (Kofi et al, 2016).Attention should be given to the waiting room by providing facilities that would keep the patients busy while they are waiting especially as the waiting time is long. The accessibility and location of the department contributed to only 1.5% of the satisfaction level. Patients' satisfaction with the registration process revealed that 30.4% of the respondents were satisfied with this aspect. The public sector contributed to 70.1% of the patients that attended the diagnostic center. This may be linked to the health insurance plan where most of the respondents got their information. The insurance policy in the country is such that most of the beneficiaries are public servants who visit the hospitals and other health facilities without having to pay for the services on point. As a result of this they have more access to health facilities than those in the private sectors.

## 5. CONCLUSION

The patients' satisfaction with radio diagnostic services in this center could be said to be very low because most patients were dissatisfied with most of the indices used to check their satisfaction level. Respondents only showed high satisfaction in the area of quality of x ray films

accepted by the clinicians and radiographers' friendly nature. There is a need for workers at this center to be punctual to duties as this will help address issues like the waiting time.

## ETHICAL APPROVAL AND CONSENT

Ethical approval was obtained from the Human Research and Ethics Committee of NOHIL and as per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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