Research Article

iMedPub Journals
http://www.imedpub.com/

Critical Care Obstetrics and Gynecology
ISSN 2471-9803

2019
Vol.5 No.2:9

Assessment of the Level of Patient Satisfaction with Obstetric Sonography in Port Harcourt, Rivers State, Nigeria

Joshua Okpara-Ijeruh[1], Anthony Chukwuka Ugwu[2], Michael Promise Ogolodom[3*], Awajimijan Nathaniel Mbaba[4], Sokariye Okpara-Ijeruh[4] and Nengi Alazigha[3]

[1]Radiology Department of Image Diagnostic, Port Harcourt Rivers State, Nigeria

[2]Department of Radiography and Radiological Sciences, Nnamdi Azikiwe University, Akwa Anambra State

[3]Rivers State Hospitals Management Board, Port Harcourt, Rivers State, Nigeria

[4]Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

[*]**Corresponding author:** Michael Promise Ogolodom, Rivers State Hospitals Management Board, Port Harcourt, Rivers State, Nigeria, Tel: +2348039697393; E-mail: mpos2007@yahoo.com

Received date: March 22, 2019; **Accepted date:** April 17, 2019; **Published date:** April 25, 2019

Citation: Ijeruh JO, Ugwu AC, Ogolodom MP, Mbaba AN, Ijeruh SO, et al. (2019) Assessment of the Level of Patient Satisfaction with Obstetric Sonography in Port Harcourt, Rivers State, Nigeria. Crit Care Obst Gyne Vol.5 No.2:9.

Abstract

Background: The importance of quality of healthcare delivery has drawn global attention and as such, healthcare providers are continuously updating their knowledge to meet the ever-rising challenges of patient's management. In every setting, good patients care is the pivot on which healthcare policies revolve, therefore, patients care is the primary responsibility of every hospital making patient's satisfaction a topmost concern. Patient satisfaction is a strong indicator used for evaluation of the quality of health care delivery, and as such needs to be frequently studied for the smooth functioning of the health care system. This study was designed to assess the level of patient's satisfaction with obstetric ultrasound in Port Harcourt, Rivers State, Nigeria.

Materials and methods: The prospective cross-sectional study design was adopted for this study. A convenient sample size of 200 subjects referred for obstetric ultrasound scans was studied using structured questionnaires. The ethical approval and permission to conduct this study were obtained from the Research and Ethics committee of Image Diagnostic Center Port Harcourt, Rivers State, Nigeria. All procedure of this study was adequately explained to the subjects and their consents were properly sought. The information obtained from them were treated with a high level of confidentiality and used for the purpose of this study. This study was conducted in the radiology department of Image Diagnostic Center Port Harcourt, Rivers State between December 2017 and February 2018.

Results: Greater numbers of the respondents were within the age group 25 to 34 years of age 60.5% (n=121), followed by 35-44 years of age 34.5% (n=69) and the least were within the age group 16 to 24 years of age 5% (n=10). Out of 200 respondents, 99.5% (n=199) of the respondents were females and the remainder 0.5% (n=1) was male. Majority of the respondent had tertiary education 66.0% (n=130) and the least had primary education 2.5% (n=5). The correlation analysis for educational levels and level of satisfaction showed a statistically significant negative correlation (r=-0.353, P=0.000). With regard to the respondent's occupation, Civil servants were highest at 24% (n=48), and the least were students 1.5% (n=3). With regard to the instructions by sonographers and courtesy of medical staff, 55% (n=110) were satisfied with the instructions and 7.0% (n=15) were dissatisfied and accounted for the least respondent. There was a positive statistically significant correlation with this variable and the levels of respondent's satisfaction with (r=0.199, p=0.005).

Conclusion: There was a high level of patient satisfaction with obstetric ultrasound in the Radiology department of Image Diagnostic Center, Port Harcourt Nigeria. Christian's preponderance was noted and Civil servants constitute the highest number of the participants. Greater numbers of the determinants of satisfaction showed statistically significant correlation and relationship with age and education.

Keywords: Patient satisfaction; Obstetric ultrasound; Sonography

Introduction

The importance of quality of healthcare delivery has drawn global attention and as such, healthcare providers are continuously updating their knowledge to meet the ever-rising challenges of patient's management [1]. In every setting, good patients care is the pivot on which healthcare policies revolve, therefore, patients care is the primary responsibility of every hospital making patient's satisfaction a topmost concern [1].

Satisfaction is the process of fulfilling a need, desire, appetite, or the feeling gained from such fulfillment [2]. Patient satisfaction has also been defined as the extent of agreement

between a patient's expectations of ideal care and his /her perceptions of the real care he/she receives [3].

Different aspects of patient satisfaction have been studied and identified, ranging from admission to discharge services, as well as medical care and interpersonal communication. Well accepted criteria include responsiveness, communication, attitude, clinical skill, comforting skill, amenities, food services, etc. Interpersonal and technical skills of health care have been reported as two unique dimensions involved in the assessment of hospital care [4]. Patient satisfaction is a strong indicator used for evaluation of the quality of health care delivery, and as such needs to be frequently studied for the smooth functioning of the health care system [5].

Pregnant women are often in both physically and emotionally stressed, worrying about the state of the fetus and duration of labor. Dealing effectively with such clinical situations involves many abilities. Researchers studying patient satisfaction showed that the mode of medical care delivery appears to be more important to patients than the care itself [6].

Ultrasound examination of the fetus otherwise referred to as obstetric sonography became integrated into prenatal care soon after its introduction in the 1950s and has improved over the last four decades in its technology and utilities, thereby greatly improving patient management [7]. Globally, routine obstetric sonography has been identified as one of the procedures through which maternal mortality can be reduced [8].

Obstetric ultrasonography is the application of high frequency and low intensity sound waves on the abdomen and cervix of a pregnant woman to produce images of the fetus. According to Manning [9], it is a technology that has been in use for over 50 years during pregnancies in the United States and around the world. It is generally accepted to be the best and most accurate medical technique to access pregnancy. This is because it does not involve the use of ionizing radiation, and its unique ability to detect pregnancy of about five weeks Gestational Age (GA), as well as the ease at which it differentiates ectopic from intrauterine pregnancy. Based on the available evidence, routine ultrasound in early pregnancy appears to enable better evaluation of gestational age, early detection of multiple pregnancy and detection of clinically unsuspected fetal malformation at a point when early termination of pregnancy is still possible [10].

Larger numbers of the patients undergoing obstetric ultrasound scan are usually apparently healthy and in good state of mind to judge and evaluate services provided to them in imaging departments. In a similar study conducted by Ugwu et al. revealed that within the last few decades, awareness of information about obstetric ultrasound scan among pregnant women has tremendously increased [11]. They equally documented that women's satisfaction and their ability to cope with anxiety during pregnancy improved majorly with the amount of information giving to them before and during the scan. Kleanthi et al. and Marinho, also reported a great increase in the request for a prenatal ultrasound scan in Nigeria in the last three decades [12,13].

Although there are few research studies on the assessment of patient satisfaction in healthcare delivery in various parts of Nigeria, there is still knowledge gap existing between the findings of the previous studies and the intended aim of this study, as there is no research work that has evaluated the level of patient satisfaction with obstetric ultrasound in a private diagnostic center in Port Harcourt, Rivers State, Nigeria to the best of our knowledge. This study was designed to evaluate the level of patient's satisfaction with obstetric ultrasound in a single private diagnostic center in Port Harcourt, Rivers State, Nigeria.

Materials and Methods

A questionnaire prospective cross-sectional study design was adopted for this study. A convenient sample size of 200 subjects referred for obstetric ultrasound scans was selected using volunteer sampling technique. Only pregnant women that visited radiology department of Image Diagnostics for an obstetric ultrasound scan and consented to participate in the study were included in this study, whereas non-pregnant women and also pregnant women who declined interest in the study were excluded. The ethical approval and permission to conduct this study were obtained from the Research and Ethics committee of Image Diagnostic Center Port Harcourt, Rivers State, Nigeria. All procedure of this study was adequately explained to the subjects and their consents were properly sought. The information obtained from them were treated with a high level of confidentiality and used for the purpose of this study. The study was conducted in the radiology department of Image Diagnostic Center Port Harcourt, Rivers State between December 2017 and February 2018.

Procedures and method of data collection

A protocol including the explanation of the contents of the tested semi-structured questionnaire with 4 sections and 20 questions to the consented participants was adopted and replicated for subjects for similarity in the research by the student. Self-administration of the questionnaire method was adopted and this done before the scan proper at the patient's waiting area. The questionnaire contained both open and closed-ended questions. The closed-ended questions were in scale assessment pattern while their comments in the open-ended questions were classified into groups. The subjects were advised to fill the questionnaire without bias. The completed questionnaires were retrieved from the subjects before leaving the department. A proforma was also designed to capture all the data for analysis.

Method of data analysis

The statistical analysis was done using statistical package for social science (SPSS) version 22.0 (SPSS INC, Chicago, Illinois, USA). Both descriptive and inferential statistics were performed and p-value of <0.05 was set as the level of statistical significance. Frequency distribution and cross tabulation were computed for categorical variables. The dependent variable was the patient's satisfaction, while some of the independent

variables would be waiting for time, age, sex, educational and employment status, etc. of the participants. The rating of patient's satisfaction using the Likerts' scale was as follows: (1=Very satisfied, 2=Satisfied, 3=Neutral, 4=Dissatisfied, 5=Very dissatisfied). Ratings of one and two were considered satisfied, three was considered as neutral while, four and five were considered dissatisfied.

Results

Greater numbers of the respondents were within the age group 25-34 years of age 60.5% (n=121), followed by 35-44 years of age 34.5% (n=69) and the least were within the age group 16 to 24 years of age 5% (n=10) **(Table 1)**. Out of 200 respondents, 99.5% (n=199) of the respondents were females and the remainder 0.5% (n=1) was male **(Table 1)**.

Table 1: Frequency distribution of demographics of respondents and correlation analysis.

Demographics	Classification	Frequency (%)	Correlation	p-value	Remark
Age (Years)	16-24	10 (5.0%)			
	25-34	121 (60.5%)			
	35-44	69 (34.5 %)			
Gender	Male	1 (0.5%)			
	Female	199 (99.5%)			
Religion	Christianity	138 (69%)	-0.111	0.118	N/S
	Islam	53 (26.5%)			
	Others	9 (4.5%)			
Tribe	Igbo	121 (60.5%)	0.29	0	Sig
	Ikwerre	49 (24.5%)			
	Others	30 (15.0%)			
Residence place	Urban	128 (64.0%)	-0.269	0	Sig
	Rural	72 (36.0%)			
Education	Primary	5 (2.5%)	-0.353	0	Sig
	Secondary	65 (32.0%)			
	Tertiary	130 (66.0%)			
Occupation	Student	3 (1.5%)	0.085	0.23	N/S
	Farmer	6 (2.5%)			
	Trader	22 (11.0%)			
	Artisan	15 (7.5%)			
	Civil Servant	48 (24.0%)			
	Business	46 (23.0%)			
	Company worker	31 (15.5%)			
	Contractor	8 (4%)			
	Pensioner	4 (2%)			
	House wife	11 (5.5%)			
	Others	7 (3.5%)			

With regard to respondents religions, Christianity was highest 69% (n=138), followed by Islam 26.5% (n=53) and the least was others 4.5% (n=9) **(Table 1).** Majority of the respondent had tertiary education 66.0% (n=130) and the least had primary education 2.5% (n=5). The correlation analysis for educational levels and level of satisfaction showed a statistically significant negative correlation (r=-0.353, p=0.000) **(Table 1).**

With regard to the respondent's occupation, Civil servants were highest at 24% (n=48), and the least were students 1.5% (n=3). The correlation analysis for the occupation of the respondents and their level of satisfaction with obstetric sonography showed no statistically significant correlation (r=0.085 p=0.230) **(Table 1)**.

With regard to the duration before card and folder collection, those that spent 30 min to 1 hr were highest 47.5% (n=95) followed <30 min 38.5% (n=77) and the least spent 2 hrs and above 3.0% (n=6). There was no statistically significant correlation between this variable and level of satisfaction with (r=0.032, p=0.652) **(Table 2)**.

Table 2: Frequency and correlation of time (waiting and receiving care)-determinants of satisfaction.

Determinants of satisfaction	Classification	Frequency (%)	Correlation	p-value	Remark
Time duration before card/folder collection	<30 min.	77 (38.5%)	0.032	0.652	N/S
	30 min to1 hr	95 (47.5%)			
	1 hr to 2 hrs	22 (11.0%)			
	2 hrs>	6 (3.0%)			
Waiting time before registration	Very satisfied	43 (21.5%)	0.24	0.001	Sig
	Satisfied	48 (24.0%)			
	Neutral	56 (28.0%)			
	Dissatisfied	29 (14.5%)			
	Very Dissatisfied	24 (12.0%)			
Perception on Waiting time (spent before receiving clinical services) Long wait?	Yes	98 (49.0%)	0.016	0.818	N/S
	No	102 (51.0%)			
Time with sonographer	-----		0.095	0.18	N/S
Waiting time before seeing doctor	<30 mins	79 (39.5%)	-0.308	0	Sig
	30 min to 1 hr.	84 (42.0%)			
	1 hr to 2 hrs	30 (15.0%)			
	2 hrs>	7 (3.0%)			
Reason for waiting	No/few record clerk(s) on desk	19 (9.5%)	0.156	0.028	Sig
	Patients were too many	122 (61.0%)			
	No/few doctors	23 (11.5%)			
	Shunting by other patients	3 (1.5%)			
	Others	33 (16.5%)			

Waiting time before registration result revealed that those that were neutral about their level of satisfaction were highest 28% (n=56), followed by those that were satisfied 24% (n=48) and the least were those that were very dissatisfied 12% (n=24). There was a statistically significant correlation of this variable with the level of satisfaction of respondent with (r=0.240, p=0.001) **(Table 2)**. With regard to reasons for waiting before the obstetric scans, 61% (n=122) of the respondents which was highest, said there were too many patients and shunting by other patients was the least 1.5% (n=1). There was a statistically significant correlation of this variable with the level of satisfaction of respondents with (r=0.156, p=0.028) **(Table 2).**

Professionalism, technical experts and service delivery in the facility and staff as a determinant of satisfaction were evaluated in **Table 2** and the results are 33% (n=66) of the respondents as highest were satisfied with the registration and 8.5% (n=17) were very dissatisfied. There was a positive statistically significant correlation of this variable with the respondent's satisfaction levels **(Table 3).**

With regard to the instructions by sonographers and courtesy of medical staff, 55% (n=110) were satisfied with the instructions and 7.0% (n=15) were dissatisfied and accounted for the least respondents. There was a positive statistically significant correlation with this variable and the levels of respondent's satisfaction with (r=0.199, p=0.005) **(Table 3).**

Table 3: Professionalism/technical expertise/service delivery of the facility and staff as a determinant of satisfaction.

Determinants of Satisfaction	Classification	Frequency (%)	Correlation	p-value	Remark
Registration process	Very satisfied	25 (12.5%)	0.259	0	Sig
	Satisfied	66 (33.0%)			
	Neutral	54 (27.0%)			
	Dissatisfied	38 (19.0%)			
	Very dissatisfied	17 (8.5%)			
Explanation of procedure	Very satisfied	36 (18.0%)	-0.032	0.652	N/S
	Satisfied	68 (34.0%)			
	Neutral	73 (36.5%)			
	Dissatisfied	20 (10.0%)			
	Very dissatisfied	3 (1.5%)			
Instructions by the sonographer/	Very satisfied	40 (20%)	0.199	0.005	Sig
Courtesy of medical staff	Satisfied	110 (55%)			
	Neutral	24 (12%)			
	Dissatisfied	15 (7.0%)			
	Very dissatisfied	11 (5.5%)			
Technical skills of attending doctor	Very satisfied	34 (17.0%)	-0.115	0.104	N/S
	Satisfied	69 (34.5%)			
	Neutral	70 (35.0%)			
	Dissatisfied	19 (9.5%)			
	Very dissatisfied	8 (4.0%)			
Opinion/Recommendation					
Recommendation of services to other potential clinic users	Yes	168 (84.0%)	-0.158	0.025	Sig
	No	32 (16.0%)			
Suggestions of respondents on improvement	More equipment/ infrastructure	49 (24.5%)	0.213	0.003	Sig
	Employ more doctors	85 (42.5%)			
	Employ more nurses	25 (12.5%)			
	Employ more record staff	24 (12.0%)			
	Improve courtesy of medical staff	9 (4.5%)			
	Missing response	8 (4%)			

The technical skills of the attending doctor were also evaluated with respect to the level of satisfaction by the respondents, and the results showed that 35% (n=70) of the respondents were neutral and 4% (n=8) were very dissatisfied with the technical skills of the attending doctor.

Table 4: Frequency and correlation of work environment as determinants of satisfaction.

Determinants of Satisfaction	Classification	Frequency (%)	Correlation	p-value	Remark
Cleanliness of waiting area	Very satisfied	19 (9.5%)	0.355	0	Sig
	Satisfied	106 (53.0%)			
	Neutral	50 (25.0%)			
	Dissatisfied	19 (9.5%)			
	Very dissatisfied	6 (3.0%)			
Condition of consulting room (comfort, privacy etc)	Very satisfied	41 (20.5%)	0.026	0.712	N/S
	Satisfied	74 (37.0%)			
	Neutral	51 (25.5%)			
	Dissatisfied	12 (6.0%)			
	Very dissatisfied	22 (11%)			

There was no statistically significant correlation of this variable with the respondent's level of satisfaction with (r=-0.115, p=0.104) **(Table 3)**. Majority of the respondents 42.5% (n=85) suggested the employment of more doctors in the facility and the least 4% (n=8) does not response to this section of the question.

Greater numbers of the respondents 53% (n=106) were satisfied with the cleanliness of the waiting area and the least 3% (n=6) were very dissatisfied with the cleanliness of the waiting area. There was a statistically significant correlation of cleanliness of the waiting area with the level of satisfactions of the respondents with (r=0.355, p=0.00) **(Table 4)**.

From **Table 5**, there were statistically significant associations between courtesy (F=5.962, p=0.000), technical skills (11.588, p=0.00) and the age of the respondents.

Table 5: ANOVA distribution of determinants of satisfaction with age of respondents (significant=p<0.05, non-significant=p>0.05).

		Sum of squares	df	Mean square	F	p-value
Time	Between groups	2.301	2	1.15	2.034	0.134
	Within groups	110.835	196	0.565		
Courtesy	Between groups	13.46	2	6.73	5.962	0.003
	Within groups	221.224	196	1.129		
Registration	Between groups	44.443	2	22.222	15.209	0
	Within groups	281.98	193	1.461		
Processes	Between groups	32.857	2	16.428	14.036	0
	Within groups	229.415	196	1.17		
Cleanliness	Between groups	22.272	2	11.136	15.737	0
	Within groups	138.693	196	0.708		
Time Before Doctor	Between groups	12.833	2	6.417	10.657	0
	Within groups	118.011	196	0.602		
Technical Skills	Between groups	21.776	2	10.888	11.858	0
	Within groups	179.973	196	0.918		
Explanations	Between groups	5.676	2	2.838	3.215	0.042
	Within groups	173.018	196	0.883		
Consulting Room	Between groups	2.907	2	1.453	1	0.37

	Within groups	284.842	196	1.453		
Perception	Between groups	0.705	2	0.353	1.41	0.247
	Within groups	49.013	196	0.25		
Reasons	Between groups	10.868	2	5.434	3.82	0.024
	Within groups	270.292	190	1.423		
Recommendation	Between groups	0.819	2	0.41	3.085	0.048
	Within groups	26.035	196	0.133		
Suggestion	Between groups	34.581	2	17.291	12.493	0
	Within groups	260.193	188	1.384		

Table 6: Descriptive statistics of determinants of satisfaction with age of respondents.

Determinant variables	Age grp (yrs)	N	Mean	Std. dev	Std. error	95% Confidence interval for mean		Minimum	Maximum
						Lower	Upper		
Time	16-24	10	2.1	0.876	0.277	1.47	2.73	1	3
	25-34	121	1.71	0.625	0.057	1.6	1.82	1	3
	34-44	68	1.88	0.923	0.112	1.66	2.11	1	4
Courtesy	16-24	10	2.4	0.966	0.306	1.71	3.09	1	3
	25-34	121	2.11	0.947	0.086	1.94	2.28	1	5
	34-44	68	2.66	1.253	0.152	2.36	2.97	1	5
Registration	16-24	10	3.3	0.483	0.153	2.95	3.65	3	4
	25-34	118	2.32	1.313	0.121	2.08	2.56	1	5
	34-44	68	3.29	1.08	0.131	3.03	3.56	1	5
Processes	16-24	10	3.1	0.876	0.277	2.47	3.73	2	4
	25-34	121	2.45	1.049	0.095	2.27	2.64	1	5
	34-44	68	3.31	1.162	0.141	3.03	3.59	1	5
Cleanliness	16-24	10	2	0	0	2	2	2	2
	25-34	121	2.21	0.733	0.067	2.08	2.35	1	4
	34-44	68	2.9	1.053	0.128	2.64	3.15	1	5
Time before doctor	16-24	10	2.3	0.483	0.153	1.95	2.65	2	3
	25-34	121	1.98	0.841	0.076	1.82	2.13	1	4
	34-44	68	1.49	0.68	0.082	1.32	1.65	1	3
Technical skills	16-24	10	1.6	0.516	0.163	1.23	1.97	1	2
	25-34	121	2.74	0.89	0.081	2.58	2.9	1	5
	34-44	68	2.19	1.11	0.135	1.92	2.46	1	5
Explanations	16-24	10	1.9	0.876	0.277	1.27	2.53	1	3
	25-34	121	2.55	0.856	0.078	2.39	2.7	1	5
	34-44	68	2.29	1.08	0.131	2.03	2.56	1	4
Consulting room	16-24	10	2	0.816	0.258	1.42	2.58	1	3
	25-34	121	2.55	1.231	0.112	2.33	2.78	1	5

	34-44	68	2.47	1.203	0.146	2.18	2.76	1	5
Perception	16-24	10	1.7	0.483	0.153	1.35	2.05	1	2
	25-34	121	1.47	0.501	0.046	1.38	1.56	1	2
	34-44	68	1.56	0.5	0.061	1.44	1.68	1	2
Reasons	16-24	10	2	0	0	2	2	2	2
	25-34	121	2.46	1.096	0.1	2.27	2.66	1	5
	34-44	62	2.89	1.438	0.183	2.52	3.25	1	5
Recommendation	16-24	10	1.4	0.516	0.163	1.03	1.77	1	2
	25-34	121	1.17	0.38	0.035	1.11	1.24	1	2
	34-44	68	1.1	0.306	0.037	1.03	1.18	1	2
Suggestion	16-24	10	2.9	2.183	0.69	1.34	4.46	1	6
	25-34	113	1.96	0.88	0.083	1.79	2.12	1	4
	34-44	68	2.81	1.396	0.169	2.47	3.15	1	6

The descriptive statistics of determinants of satisfaction with age of the respondents were evaluated in and the results showed that the mean and standard deviation of time, courtesy, registration and cleanliness within age group 25-34 years of age were 1.71 ± 0.625, 2.11 ± 0.947, 2.32 ± 1.313 and 2.21 ± 0.733) respectively **(Table 6).**

Table 7: Multiplecomparisons on education and age with respect to satisfaction.

Variable	Education (I)	Education (J)	Mean difference (I-J)	p-value
Age	Primary	Secondary	0.49231	0.108
		Tertiary	0.83846*	0.002
Sex	Primary	Secondary	0.01538	0.886
		Tertiary	0	1
Religion	Primary	Secondary	-0.0615	0.97
		Tertiary	0.10	0.92
Tribe	Primary	Secondary	0.27692	0.693
		Tertiary	0.56154	0.212
Place of residence	Primary	Secondary	-0.3539	0.517
		Tertiary	-0.4692	0.302
Occupation	Primary	Secondary	0.53846	0.842
		Tertiary	-0.5692	0.819
Time	Primary	Secondary	0.36923	0.541
		Tertiary	0.14615	0.905
Courtesy of medical staff	Primary	Secondary	1.50769*	0.008
		Tertiary	1.52308*	0.006
Pre-registration waiting time	Primary	Secondary	0.67692	0.496
		Tertiary	0.72031	0.439
Registration processes	Primary	Secondary	0.83077	0.262
		Tertiary	0.53846	0.556
Cleanliness Of record area	Primary	Secondary	0.16923	0.914

		Tertiary	0.16923	0.911
Time with doctor	Primary	Secondary	0	1
		Tertiary	-0.3462	0.608
Technical skills	Primary	Secondary	1.49231*	0.004
		Tertiary	1.26923*	0.015
Explanations on investigation	Primary	Secondary	0.21538	0.877
		Tertiary	0.15385	0.933
Time with sonographer	Primary	Secondary	-0.3539	0.741
		Tertiary	-0.1846	0.919
Condition of consulting room	Primary	Secondary	-0.1846	0.94
		Tertiary	0.24615	0.893
Perception on time spent	Primary	Secondary	-0.0462	0.978
		Tertiary	0.16154	0.753
Possible reasons	Primary	Secondary	-0.8308	0.296
		Tertiary	-0.4231	0.719
Recommendations	Primary	Secondary	0.36923	0.069
		Tertiary	0.18462	0.494
Suggestion	Primary	Secondary	0.75385	0.389
		Tertiary	0.99508	0.184

There was a statistically significant relationship between the highest level of education of the respondent with sex (MD=0.8346, p=0.002), and there was no statistically significant between pre-registration waiting time and tertiary and secondary levels of education of the respondents (MD=0.72031, p=0.439) and (MD=0.67692, p=0.496) **(Table 7).**

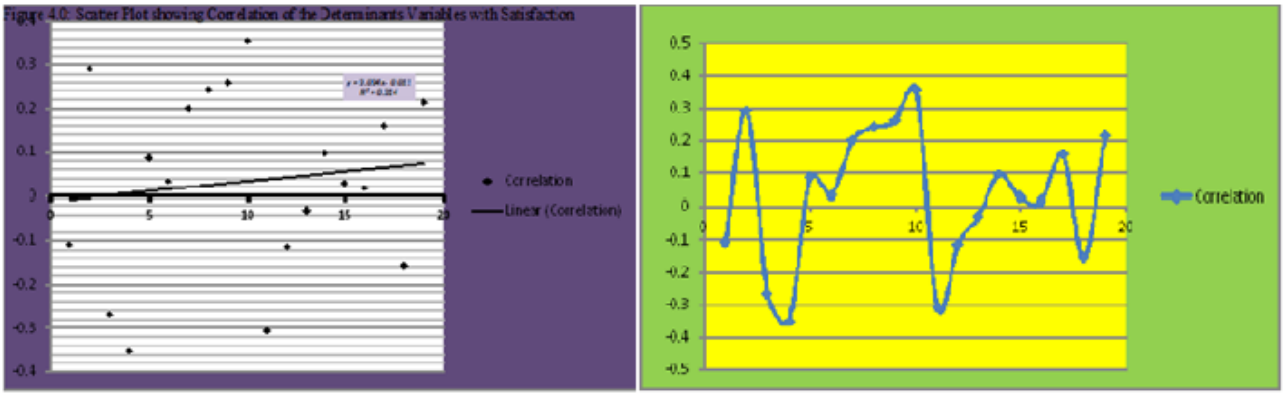

Figure 1: Scatter plot showing correlation of the determinants variables with satisfaction.

The overall correlations of all the indices of patient's satisfaction were illustrated by scatter plots diagrams **(Figure 1).**

Discussion

The importance of quality of healthcare delivery has drawn global attention and as such, healthcare providers are continuously updating their knowledge to meet the ever-rising challenges of patient's management [1]. In every setting, good patients care is the pivot on which healthcare policies revolve, therefore, patients care is the primary responsibility of every hospital making patient's satisfaction a topmost concern [1].

This study provides information on the level of patient's satisfaction with obstetric sonography in Port Harcourt, Rivers State Nigeria. The relationships between age, educational status of the respondents and their levels of satisfaction were also evaluated in this study.

In this study, majority of the respondents were Christians. This is not in agreement with a similar study conducted by Ugwu et

al. which assessed the views and expectations of pregnant women concerning prenatal sonogram as well as their level of awareness of its purpose, limitations, and safety in a predominately Moslem society [11]. In their study, greater numbers of the participants were Moslems. This discrepancy could be attributed to the geographic variations of our studies.

Different determinants of satisfaction were investigated in this study and the result showed that the overall level of patient satisfaction with obstetric scan in this study was very high above 60%. Although some of the respondents remained neutral to some of the questions on the level of their satisfaction. This high level of patient's satisfaction recorded in this study was basically due to the high level of professionalism, technical expertise, and service delivery in the facility. This finding is in keeping with related studies conducted by Ugwu et al. [6], Udoh et al. [14], and Zira [15]. Ugwu et al. in their study reported average satisfaction ratings above 50% for all the determinants of satisfaction with exception of perceptions of the time between arrival and departure [6]. In their study, they also recommended that good staff-patient interaction and proper organizational behavior would improve satisfaction rating. In Udoh et al. study conducted to compare the quality of services between government and missionary hospital in Southeastern Nigeria among 700 pregnant mothers who had obstetric sonography at least twice in both missionary and government hospitals reported moderately satisfaction with the services rendered in Missionary hospital but moderately dissatisfaction with the services in the government hospital [14].

The differences in some aspect of Udoh et al. finding could be attributed to the differences in the scope of our studies and the sample sizes studied [14]. Moderately dissatisfaction of services rendered in Government hospital could be ascribed to the high level of the nonchalant attitude of staff in government hospitals when compared to private diagnostic centers/hospitals like the case of this study. In Zira study which evaluated pregnant women's perception of care and satisfaction during and after obstetrics ultrasound in Bauchi State Nigeria, reported a high level of patients satisfaction of 97.2% (n=68) [15].

Although evidence also finds that the use of ultrasound technology is related with mothers feeling or security and satisfaction with care; healthcare organizations are callous to promote these feelings of patient satisfaction especially when clinical risk is considered low. Contrary to the finding of this study and some reviewed literature, Rici et al. evaluated the impact of ultrasound use on satisfaction during pregnancy among women in Northeast Nigeria and their findings suggested that ultrasound scan use is not an important driver of satisfaction with pregnancy-related care [16]. They attributed this to the fact that efforts to improve patient satisfaction during pregnancy using ultrasound may increase resource use and cost, but do little to improve patients overall experience [16].

The age group of respondents was between 16 to 44 years with a mean and standard deviation of 32.50 ± 3.90 years. The age parameters documented in this study were similar to that of other related previous studies conducted by Ugwu et al. in a study they evaluated the awareness of information, expectations, and experiences of pregnant women coming for obstetric sonography in Anambra State of Nigeria [17]. They recruited, 110 pregnant women with a mean age of 30.5 ± 145 years and Zira who reported age group of respondents in his study to be between 15 to 44 years [15]. In this study, the majority of the indices used as determinants of satisfaction were statistically significantly correlated with a socio-demographic variable such as age. This is inconsistent with the finding of a similar study conducted by Zira in Bauchi State Nigeria [15]. He reported that there was no statistically significant relationship between the patients socio-demographic and their level of satisfaction. The discrepancies in our results could be attributed to the geographical variations and the sample size studied.

With regard to the assessment of the relationship between the educational levels of the respondents and their level of satisfaction with obstetric scans in Port Harcourt, majority of the determinants of satisfaction showed statistically significant correlation with the respondent's educational level. This is also in keeping with the findings of a related study conducted by Ugwu et al [11]. In Ugwu et al. study, they reported the small percentage of the respondent with no formal form of Western or Islamic educational background (24.7%), which according to them, the educational background of the respondents could have a great influence on their perceptions of satisfaction during obstetric scans [11].

The major limitation encountered in this study was the neutrality of some of the respondents to some questions on their levels of satisfaction.

Conclusion

There was a high level of patient satisfaction with obstetric ultrasound in the Radiology department of Image Diagnostic Center, Port Harcourt Nigeria. Christian's preponderance was noted and Civil servants constitute the highest number of the participants.

Greater numbers of the determinants of satisfaction showed statistically significant correlation and relationship with age and educational levels of the respondents respectively.

References

1. Thi PL, Briançon S, Empereur F, Guillemin F (2002) Factors determining inpatient satisfaction with care. Soc Sci Med 54: 493-504.
2. Al-Emadi N, Falamarzi S, Al-Kuwari MG, Al-Ansari A (2009) Patients Satisfaction with primary health care services in Qatar. Middle East J Family Med 7: 4-9.
3. Aragon SJ, Gesell SB (2003) A patient satisfaction theory and its robustness across gender in emergency departments. Am J of Medical Quality 18: 229-240.
4. Cheng SH, Yang MC, Chiang TL (2003) Patient satisfaction with and recommendation of a hospital: Effects of interpersonal and technical aspects of hospital care. Int J Qual Health Care 15: 345-355.
5. Almujali AA, Alshehy AH, Ahmed A, Ismail MFS (2009) Assessment of enablement effect of consultation on patients attending primary health centers in Qatar. Middle East J Family Med 7: 3-6.

6. Ugwu AC, Ahamefule K, Egwu AO, Otu E, Okonkwo CA, et al. (2007) Patient Satisfaction with obstetric ultrasonography. Radiol Technol 79: 113-118.

7. Geeta S, Stephen TC, Frank AC (2011) Donald school textbook of ultrasound in obstetrics and gynecology, (3rd Edn), p. 36.

8. Gonzaga MA, Kiguli-Malwadde E, Francis B, Rosemary B (2009) Current knowledge, attitudes and practices of expectant women toward routine sonography in pregnancy at Naguru health centre, Uganda. Pan Afr Med J 3: 18.

9. Manning S, Shah S, O'Brien P (2007) Ultrasound scanning in pregnancy. Br J Midwifery 15: 406-410.

10. Bashour H, Hafez R, Abdulsalam A (2005) Syrian women's perceptions and experiences of ultrasound screening in pregnancy: Implications for antenatal policy. Reprod Health Matters 13: 147-154.

11. Ugwu AC, Osungbade EO, Erondu FO (2008) Maternal perspectives of prenatal sonogram in a north-eastern population in Nigeria. Libyan Journal of Medicine 4: 140-142.

12. Kleanthi G, Katsina L, Georgios D, Stavros G, Sandell J, et al. (2008) Women's perception of information and experiences of Nuchal translucency screening in Greece. Fetal Diagn Ther 24: 86-91.

13. Marinho AO, Osinusi BO (2008) The variation of foetal bi-parietal diameter with gestational age in Ibadan, Nigeria. Trop J Obstet Gynecol 8: 19-21.

14. Udoh BE, Eze JC, Okeji MC (2011) Comparative assessment of patient satisfaction with obstetric sonography between missionary and government hospitals in southeastern Nigeria. J Diagn Med Sonogr 27: 220-224.

15. Zira J D (2017) Patient's satisfaction and perception of care during obstetrics ultrasound scan. PJR 27: 195-199.

16. Ricci P, McGrath RJ, Stransky M (2014) Patient satisfaction and ultrasound use during pregnancy. J Community Med Health Educ 4: 276.

17. Ugwu AC, Udo BE, Eze JC, Eze PC (2011). Awareness of information, expectations and experiences among women for obstetric sonography in a southeast Nigeria population. East Afr J Public Health 4: 140-142.