*International Journal of Community Research* http://www.arpjournals.com
**ISSN: 2315 – 6562** **E-ISSN: 2384 - 6828**

# DOCTORS' SERVICES IN URBAN AND RURAL HIV TREATMENT CENTRES IN ANAMBRA STATE, NIGERIA: ECHOES OF CLIENTS ASSESSMENT

**Azuike, E.C.[1*], Adinma, E.D.[2], Duru, C.B.[3], Onyemachi, P.E.[4], Agunwa, C.C.[5], Anemeje, O.A.[6], Igwebike, U.N.[2].**

[1]Foundation for Health and Development in Nigeria.[2]Department of Community Medicine, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria.[3]Department of Community Medicine, Imo State University Teaching Hospital, Orlu, Nigeria.[4]Department of Community Medicine, Abia State University Teaching Hospital, Aba, Nigeria.[5]Department of Community Medicine, University of Nigeria Teaching Hospital, Ituku/Ozalla, Nigeria.[6]Department of Family Medicine, Nnamdi Azikiwe University Teaching Hospital Nnewi, Nigeria.
Correspondence: *emmanazuike@yahoo.com

**ABSTRACT**

This cross-sectional comparative study was designed to determine and compare clients' satisfaction with doctors' services at the urban and rural HIV treatment centers in Anambra State, Nigeria.The study population comprised clients accessing HIV care services at the four HIV treatment centres in the State. Multi stage sampling technique was used to select 1,100 respondents who participated in the study. A pre-tested, semi-structured, interviewer administered questionnaire was used to interview the clients. The data collected were analysed with the International Business Machines-Statistical package for the Social Sciences (IBM-SPSS; Version 20.0). Results showed that a higher proportion of the respondents who were satisfied with the doctors' services were urban respondents 538(94.9%), compared to the rural respondents (29;5.1%) (p = 0.000). Urban respondents were also twice likely to be satisfied with doctors' services than the rural respondents [OR: 2.376 (95% CI: 1.625-2.223)]. These findings suggest that clients in the urban HIV treatment centres were more satisfied with the doctors' services than the clients in the rural HIV treatment centres. Thus, appropriate interventions should be instituted to increase the satisfaction of the clients with the doctors' services especially in the rural centres.

**KEYWORDS:** Satisfaction, Doctors' services, HIV treatment centres.

**Published: 31st October, 2016**

## INTRODUCTION

Patient satisfaction surveys are a means of determining patients' views on healthcare (Ajayi *et al.*, 2005, Andaleeb, 2001, and Campbell *et al.,* 2001). These surveys highlight those aspects of care that need improvement in a healthcare setting (Muhondwa *et al*., 2008 and Newman et al, 1998). They can help to educate medical staff about their achievements as well as their failures, hence improving their ability to meet patients' needs. One of the several dimensions of satisfaction that can be studied is the "services of the doctors". The business world offers a framework for increasing retention by focusing on customer satisfaction. Marketing studies clearly show that high satisfaction levels have a positive impact on customer loyalty, repeat patronage and more extensive and favourable referrals (Ofovwe *et al*., 2005). Analogous to the business model of customer satisfaction and retention, patient satisfaction has been proved to be associated with retention in HIV care and adherence to HAART (Dang *et al*., 2013).

A study done in urban Greece concluded that doctors' characteristics such as politeness exert high levels of influence on the patients' satisfaction (Ilia *et al.*, 2007). A study done in urban Pakistan reported that 61.5% of the respondents were satisfied with the services of the doctors (Javed, 2005). Similar findings were reported in public hospitals in both rural and urban Malaysia where the patients were satisfied with the clinical



***Endorsed By***: *Innovative Science Research Foundation* ***(ISREF)*** and *International Society of Science Researchers* ***(ISSCIR)***.
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

aspects of services especially the services of the doctors than the physical dimension of service (Manaf and Nooi, 2009). In the study, patient satisfaction was also found to be higher in the smaller district hospitals which are more in the rural areas, than in the larger state hospitals which are more in the urban areas (Manaf and Nooi, 2009).

In a study done in HIV clinics in urban Pretoria South Africa, it was reported that 98% of the patients were satisfied with the services of the doctors (Magoro *et al*, 2012). The patients were satisfied because the doctors were kind, polite, showed them respect and provided full attention during consultations (Magoro *et al*, 2012). A study done in an outpatient clinic in urban Abuja, Nigeria also reported that 94.8% of the patients were satisfied with the services of doctors (Ogunfowokan and Mora, 2012). A study done at HIV treatment centres in England also reported high level of satisfaction with the services of the doctors (Beck *et al*, 1999). The clients' major reason for satisfaction was the attitude and skills of the doctors. In an HIV treatment centre in the USA, clients were satisfied with the services of the doctors (Roberts, 2002). In the same study, it was found out that good quality physician-patient relationship promotes adherence while lesser quality physician-patient relationship impeded adherence among the clients (Roberts, 2002).

In an HIV treatment centre in Anambra State, Nigeria, a study reported that the clients expressed greatest satisfaction for good patient care by the doctors (Nwabueze *et al*., 2011). This is similar to the finding of a study done in an HIV treatment centre in Sokoto Nigeria, where there was high level of satisfaction with the services of the doctors (Wouters *et al*, 2008). The high level of satisfaction reported in these clinics may be because they are all tertiary centres which have more manpower, hence the doctors and nurses will give more attention to fewer clients. Also, the doctors and nurses were probably trained on patient-provider relationship because they are in tertiary centres. However, nobody has studied the difference in clients' satisfaction with doctors' services in HIV treatment centres between the urban and rural centres.

The aim of this study was to determine clients' satisfaction with the services of the doctors and to compare this satisfaction in the urban and rural HIV treatment centres in Anambra State.

## METHODOLOGY

**Study Area:** Anambra state is located in the South-east geopolitical zone of Nigeria. It has a population of 4,177,828 inhabitants according to the 2006 national census report (National Population Commission, 2006). The state has a landmass of 4,816.21 $km^2$ and a population density of 867.5/$km^2$ (National Population Commission, 2006). The urban areas make up 62% of the population of the state (Federal Ministry of Health, 2012). The major language of the people is Igbo. The major occupations of the people are farming, trading and public service. The state has 21 LGAs, 14 of which are rural, and 7 are urban. This study was conducted in 4 HIV treatment centres in Anambra state of Nigeria. Two of the centres are located in urban Local Government Areas (LGAs): Holy Rosary Hospital and Maternity Onitsha and Anambra State University Teaching Hospital Awka. The two other centres are located in rural Local Government Areas: St Joseph's Hospital and Maternity Adazi-Nnukwu, and Centre for Community Medicine and Primary Healthcare, Nnamdi Azikiwe University Teaching Hospital, Ukpo.

**Study Design:** This was a descriptive cross-sectional comparative study.

**Study Population:** This comprised of clients accessing HIV care services at the four HIV treatment centres.

**Inclusion Criteria:** Clients who have accessed services at the centres on at least three occasions, clients that are minimum of 18 years old and clients who gave informed consent.

**Exclusion Criteria: C**lients who met all the inclusion criteria but are too sick to respond to questionnaire.

**Sample Size Determination:** Using the formula for calculating minimum sample size for comparison of two groups (Araoye, 2003).

$$n = \frac{2z^2pq}{d^2}$$

Where:
n = minimum sample size
z = standard deviate (1.96)
p = proportion of patients who perceived the quality of care in a General Outpatient Department in a tertiary health facility to be good (Emelumadu and Ndulue, 2012) = 0.79
q = 1 - p = 1-0.79 = 0.21
d = level of precision = 0.05



***Endorsed By***: *Innovative Science Research Foundation* (***ISREF***) and *International Society of Science Researchers* (***ISSCIR***).
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

**Calculation**:

$$n = \frac{2 \times (1.96)^2 \times 0.79 \times 0.21}{0.05^2}$$

$$n = \frac{2 \times 3.84 \times 0.79 \times 0.21}{0.0025}$$

$$n = \frac{1.27}{0.0025}$$

$$n = 508$$

**Adjusting for non-response rate:** Adapting a response rate of 98% as reported in a study on patients' satisfaction with services in a tertiary health facility in Edo state, Nigeria (Ofovwe & Ofili, 2005). The non-response rate was 2%.

Therefore, applying the formula for adjustment for non-response rate (Araoye, 2003).

$$n_s = \frac{n}{1-f}$$

Where:
$n_s$ = adjusted minimum sample size
n = calculated minimum sample size
f = non-response rate

$$n_s = \frac{508}{1 - 0.02}$$

$$n = \frac{508}{0.98}$$

$$n = 518$$

To increase the power of the study this was rounded up to 1100

Therefore, a total of 1,100 respondents were sampled. Hence 550 respondents were sampled in the urban centres and 550 respondents were sampled in the rural centres.

**Sampling Technique:** Two stage sampling technique was used:

Stage 1: The HIV treatment centres in Anambra State were stratified into urban and rural based on their location. (Appendix 1) This comprised of 8 urban and 6 rural treatment centres. Then simple random sampling technique was used to select two centres from the urban centres and two centres from the rural centres. Holy Rosary Hospital and Maternity Onitsha and Anambra State University Teaching Hospital Awka were selected as the urban centres, while St Joseph's Hospital Adazi Nnukwu and Centre for Community Medicine and Primary Healthcare, Nnamdi Azikiwe University Teaching Hospital Ukpo, were selected as the rural centres.

Stage 2: Systematic random sampling technique was used to select clients using the clinic attendance registers of the HIV treatment centres.

Based on preliminary investigations, it was discovered that the average monthly attendance of clients who have attained a minimum of 3 visits at the clinics was 500 clients per centre per month.

Data collection was over a period of two months. Hence the number 1,000 was used as the sampling frame. The sample size was 275 per centre.

Hence the sampling interval "k" was calculated thus:

$$K = \frac{\text{Sampling frame}}{\text{Sample size}}$$

$$K = \frac{1{,}000}{275}$$

$$K = 3.6 \approx 4$$

Hence sampling interval = 4.

On every clinic day, simple random sampling by balloting was used to select the first client to be administered the questionnaire from the list clients in the clinic attendance register. After selecting the first client, every "4"client was selected. If any client did not meet the inclusion criteria, the next client was selected. This process was continued until the calculated minimum sample size was achieved.

**Study instrument:** A pre-tested, semi-structured, interviewer administered questionnaire was used to interview the clients. This questionnaire was originally designed by the United States Department of Health and Human Services, for patient satisfaction surveys. This questionnaire was adapted. Some modifications were made to this questionnaire.

**Data collection:** Eight research assistants were recruited to collect data. They were non-health workers. The reason was to avoid bias. The research assistants were university students (eight in number). They were trained for two days on the administration and filling of the questionnaire. They participated in



***Endorsed By***: *Innovative Science Research Foundation* (***ISREF***) and *International Society of Science Researchers* (***ISSCIR***).
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate*)

the pretesting in order to consolidate on the training. The questionnaires were administered by the research assistants to the respondents in the medical records office when they went for next appointment booking after they had finished consultation with the doctors. Each questionnaire took about 10 minutes to administer. Data collection took place over a space of two months. Collected data was cleaned by checking for any data collection or coding errors. Collected data was entered into International Business Machines-Statistical package for the Social Sciences (IBM-SPSS) Version 20.0. In order to ensure quality control, collected data was entered by two independent individuals into two different computers; also, data was saved in external hard drives separate from the computers.

**Pretesting:** Pretesting of all the instruments of data collection was conducted at St Charles Borromeo Hospital Onitsha, HIV treatment centre. One hundred and fifty clients were involved in the pretesting. The purpose of the pretesting was to determine how the respondents would respond to the research questions. Also, to determine the comprehensibility and appropriateness of the format and wording of the questionnaire, the ability of the trained research assistants to administer the questionnaire appropriately, the feasibility of the sampling procedures.

**Data Management:**

**Measurement of Variables:** The dependent variable was clients' satisfaction with the services of doctors. The independent variables were: Location of treatment centre (Urban and Rural) and Socio-demographic characteristics (age, sex, marital status, educational level and occupation).

**Statistical Analysis:** The data was cleaned by checking for any data collection or coding errors. Data entry and analysis was carried out with the aid of International Business Machines-Statistical Package for the Social Sciences (IBM-SPSS) Version 20.0. Frequency distributions of all relevant variables were developed. Relevant means and proportions were calculated. A client's satisfaction with doctors' services was determined by finding the average score for the individual items under doctors' services. An average score of ≥4 was interpreted as "satisfied", while an average score of <4 was interpreted as unsatisfied. Association between the independent variables (sociodemographic characteristics) and the dependent variable (satisfaction with doctors' services) was determined using logistic regression analysis. Chi square test was also applied in appropriate situations. A p-value of <0.05 was considered significant.

**Ethical Considerations:** Ethical approval for this study was sought and obtained from the Nnamdi Azikiwe University Teaching Hospital Ethical Committee (NAUTHEC). Written informed consent was obtained from the respondents after explaining the purpose of the study and the procedure. The clients name or any means of identification was not in the questionnaire to ensure confidentiality. The clients were informed that they were free to opt out at any stage without any penalty whatsoever. Permission to conduct the study was sought for and obtained from the management of the HIV treatment centres.

**RESULTS**

A total of 1100 respondents participated in this study. All the questionnaires administered to the respondents were retrieved, giving a response rate of 100%. Among the respondents interviewed, 550 (50%) were urban dwellers, and 550 (50%) were rural dwellers.

Table 1 shows the socio demographic characteristics of the respondents in urban & rural locations. There were more females than males in both the urban 363(66.0%) and rural centres 355(64. 5%).The commonest age group among the urban respondents was the age group 21-30 years, 170 (30.9%), the same age group was also the commonest among the rural respondents 240 (43.6%). The mean age of the urban respondents 37.09 (±10.00) was higher than the mean age of the rural respondents 34.99 (±10.71). A higher proportion of the urban respondents were married 422 (76.7%) compared with 196 (35.0%) among the rural respondents (p = 0.000).

A higher proportion 156(28.4%) of the urban respondents had tertiary education compared with the rural respondents 110 (20.0%) (p = 0.000).



***Endorsed By***: *Innovative Science Research Foundation* (***ISREF***) and *International Society of Science Researchers* (***ISSCIR***).
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

**Table 1: Socio-demographic characteristics of respondents by location**

| Variables | Urban N=550<br>n (%) | Rural N:550<br>n (%) | Total N=1100<br>n (%) |
|---|---|---|---|
| **Sex** | | | |
| Male | 187(34.0) | 195(35.5) | 382(34.7) |
| Female | 363 (66.0) | 355 (64.5) | 718 (65.3) |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) |
| **Age (years)** | | | |
| ≤ 20 | 0 (0.0) | 25 (4.5) | 25 (2.3) |
| 21-30 | 170 (30.9) | 240 (34.6) | 410 (37.3) |
| 31-40 | 194 (35.3) | 152 (27.6) | 346 (31.5) |
| 41-50 | 125 22.7 | 85 (15.5) | 210 (19.1) |
| 51-60 | 60 (10.9) | 48(8.7) | 108 (9.8) |
| >60 | 1 (0.2) | 0 (0.0) | 1 (0.1) |
| Total | 550(100.0) | 550 (100.0) | 1100(100.0) |
| Mean (SD) | 37.09 (10.00) | 34.99 (10.71) | 36.04 (10.41) |
| **Marital status** | | | |
| Single | 74 (13.5) | 240 (43.6) | 314 (28.5) |
| Married | 422 (76.7) | 196 (35.0) | 618 (56.2) |
| Separated | 0 (0.0) | 60 (10.9) | 60 (5.5) |
| Divorced | 0 (0.0) | 12 (2.2) | 12 (1.1) |
| Widowed | 54 (9.8) | 42 (7.6) | 96 (8.7) |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) |
| **Highest Educational** | **Level** | | |
| No formal education | 36 (6.5) | 97 (17.6) | 133(12.1) |
| Primary education | 72 (13.1) | 90 (16.4) | 162 (14.7) |
| Junior secondary | 48 (8.7) | 48 (8.7) | 96 (8.7) |
| Senior secondary | 238 (43.3) | 205 (37.3) | 443 (40.3) |
| Tertiary | 156 (28.4) | 110 (20.0) | 266 (24.2) |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) |
| **Occupation** | | | |
| Civil servant | 122 (22.2) | 120 (21.8) | 242 (22.0) |
| Business owner | 356 (64.7) | 146 (26.5) | 502 (45.6) |
| Artisan | 12 (2.2) | 73 (13.3) | 85 (7.7) |
| Unemployed | 48 (8.7) | 78 (14.2) | 126 (11.5) |
| Student | 12 (2.2) | 133 (24.2) | 145 (13.2) |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) |



***Endorsed By***: *Innovative Science Research Foundation* ***(ISREF)*** and *International Society of Science Researchers* ***(ISSCIR)***.
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

**Table 2: Respondents' satisfaction with doctors' services by location**

| Variables | Urban N=550 n (%) | Rural N:55 n (%) | Total N=1100 n (%) | $X^2$ | p-value |
|---|---|---|---|---|---|
| **The doctor listens to you** | | | | | |
| Satisfied | 550(100.0) | 78(14.2) | 682(57.1) | | |
| Unsatisfied | 0(0.0) | 472(85.8) | 472(42.9) | 826.752 | 0.000* |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) | | |
| **The doctor takes enough time with you** | | | | | |
| Satisfied | 538(97.8) | 89(16.2) | 627(57.0) | | |
| Unsatisfied | 12(2.2) | 461(83.8) | 473(43.0) | 747.750 | 0.000* |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) | | |
| **The doctor explains what you want to know** | | | | | |
| Satisfied | 550(100.0) | 89(16.2) | 639(58.1) | | |
| Unsatisfied | 0(100.0) | 461(83.8) | 461(41.9) | 793.584 | 0.000* |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) | | |
| **The doctor gives you good advice** | | | | | |
| Satisfied | 538(100.0) | 89(100.0) | 627(57.0) | | |
| Unsatisfied | 12(2.2) | 461(83.8) | 473(43.0) | 747.750 | 0.000* |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) | | |
| **Average satisfaction with doctors' services** | | | | | |
| Satisfied | 538(97.8) | 29(5.8) | 567(51.5) | | |
| Unsatisfied | 12(2.2) | 521(94.7) | 533(48.5) | | |
| Total | 550(100.0) | 550(100.0) | 1100(100.0) | | |

*Statistically Significant

Table 2 shows respondents' satisfaction with doctors' services by location. All the urban respondents 550 (100.0%) were satisfied with how the doctor listens to them, compared with 14.2% of the rural respondents. (p=0.000).Among the urban respondents 538 (97.8%) were satisfied with the time the doctor takes with them, compared with 16.2% of the rural respondents. (p=0.000).All the urban respondents 550 (100.0%) were satisfied with how the doctor explains what they want to know, compared with 16.2% of the rural respondents. (p=0.000). Taking an average of the satisfaction with doctors' services, majority of the respondents were satisfied with the doctors' services 567 (51.5%). However a higher proportion of the urban respondents were satisfied 538 (97.8%) compared with the rural respondents 29 (5.3%). (p = 0.000).



***Endorsed By***: *Innovative Science Research Foundation* ***(ISREF)*** and *International Society of Science Researchers* ***(ISSCIR)***.
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

**Table 3: Association between respondents' socio-demographic characteristics & their satisfaction with doctors' services**

| Variables | Satisfaction with Doctors' services | | | X2 | p-value |
|---|---|---|---|---|---|
| | Frequency (%) | | | | |
| **Location** | **Satisfied** | **Unsatisfied** | **Total** | | |
| Urban | 538(94.9) | 12(2.3) | 550(50.0) | | |
| Rural | 29(5.1) | 521(97.7) | 550(50.0) | 943.014 | 0.000* |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |
| **Sex** | | | | | |
| Male | 180(31.7) | 202(37.9) | 382(34.7) | 4.588 | 0.032* |
| Female | 387(68.3) | 331(62.1) | 718(65.3) | | |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |
| **Age (years)** | | | | | |
| ≤30 | 170(30.0) | 265(49.7) | 435(39.5) | | |
| 31-40 | 206(36.3) | 140(26.3) | 346(31.5) | | |
| 41-50 | 137(24.2) | 73(13.7) | 210(19.1) | 51.849 | 0.000* |
| ≥51 | 54(9.5) | 55(10.3) | 109(9.9) | | |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |
| **Marital status** | | | | | |
| Single | 74(13.1) | 240(45.0) | 314(28.5) | 184.721 | 0.000* |
| Married | 427(75.3) | 191(35.8) | 618(56.2) | | |
| Others | 66(11.6) | 102(19.1) | 168(15.3) | | |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |
| **Highest Education Level** | | | | | |
| No formal education | 36(6.3) | 97(18.2) | 133(12.1) | | |
| Primary | 72(12.7) | 90(16.9) | 162(14.7) | | |
| J.Sec | 48(8.5) | 48(9.0) | 96(8.7) | 51.571 | 0.000* |
| S.Sec | 243(42.9) | 200(37.5) | 443(40.3) | | |
| Tertiary | 168(29.6) | 98(18.4) | 266(24.2) | | |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |
| **Occupation** | | | | | |
| Civil servant | 122(21.5) | 120(22.5) | 242(22.0) | | |
| Business owner | 361(63.7) | 141(26.5) | 502(45.6) | | |
| Artisan | 12(2.1) | 73(13.7) | 85(7.7) | 211.391 | 0.000* |
| Unemployed | 48(8.5) | 78(14.6) | 126(11.5) | | |
| Student | 24(4.2) | 121(22.7) | 145(13.2) | | |
| Total | 567(100.0) | 533(100.0) | 1100(100.0) | | |

*Statistically significant

Table 3 shows the association between the sociodemographic characteristics of the respondents and their satisfaction with doctors' services. A higher proportion of the respondents who were satisfied with



***Endorsed By***: *Innovative Science Research Foundation* ***(ISREF)*** and *International Society of Science Researchers* ***(ISSCIR)***.
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

the doctors' services were urban respondents 538(94.9%), compared with the rural respondents 29 (5.1%) (p = 0.000).A higher proportion of the respondents who were satisfied with the doctors' services were females 387(68.3%), compared with the males 180 (31.7%) (p = 0.032).A higher proportion of the respondents who were satisfied were within the ages of 31-40 years 206 (36.3%) compared with those who were greater than 50 years 54 (9.5%) (p = 0.000).A higher proportion of the respondents who were satisfied with the doctors services were married 427 (75.3%), compared with those who were single 74 (13.1%) (p = 0.000).A higher proportion of the respondents who were satisfied with doctors' services had senior secondary education 243 (42.9%), compared with those who had no formal education 36 (27.1%) (p = 0.000).A higher proportion of the respondents who were satisfied with the doctors' services were business owners 361(63.7%), compared with the artisans 12 (2.1%) (p = 0.000).

**Table 4: Adjusted odds ratio for predictors of satisfaction with doctors' services.**
**Satisfaction with doctors' services**

| Variables | Odds Ratio | 95% Confidence Interval | P-Value |
|---|---|---|---|
| **Location** | | | |
| Urban | 2.376 | 1.625 – 2.223 | 0.000* |
| Rural | 1.000 | | |
| **Sex** | | | |
| Female | 31.956 | 9.094 – 112.293 | 0.000* |
| Male | 1.000 | | |
| **Age (years)** | | | |
| >40 years | 6.700 | 2.939 – 15.274 | 0.000* |
| ≤ 40 years | 1.000 | | |
| **Marital status** | | | |
| Currently Married | 1.713 | 0.825 – 3.556 | 0.149 |
| Currently Unmarried | | | |
| **Highest Educational Level** | | | |
| ≤ J. Sec | 0.293 | 0.135 – 0.634 | 0.002* |
| ≥S. Sec | 1.000 | | |
| **Occupation** | | | |
| Currently Employed | 0.799 | 0.353 – 1.808 | 0.591 |
| Unemployed/students | 1.000 | | |



***Endorsed By***: *Innovative Science Research Foundation* ***(ISREF)*** and *International Society of Science Researchers* ***(ISSCIR)***.
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

Table 4 shows adjusted odds ratio for predictors of satisfaction with the doctors' services. Urban respondents were twice likely to be satisfied with doctors' services compared with the rural respondents [OR: 2.376 (95% CI: 1.625-2.223)]. Female respondents were 31 times more likely to be satisfied with doctors' services compared with the male respondents [OR: 31.956 (95% CI: 9.094-112.293)]. Respondents who were older than 40 years were 6 times more likely to be satisfied with the doctors' services compared with those that were 40 years or less [OR: 6.700 (95% CI: 2.939-15.274)]. Respondents who had senior secondary education or more were less likely to be satisfied with doctors' services compared with those who had only junior secondary education or less [OR: 0.293 (95% CI: 0.135-0.634)].

**DISCUSSION**

In this study, there were more female respondents (65.3%) than male respondents (34.7%). This is similar to the findings in an HIV treatment centre in Enugu, Nigeria Uzochukwu, 2009). Also in other HIV treatment centres in Nigeria (Adewole et al, 2009; Oladapo et al, 2005; Olowookere et al, 2008). This may be due to the higher prevalence of HIV among females in Nigeria than males, as reported in the 2012 National HIV and AIDS and Reproductive Health survey (NARHS 2012) conducted by the Federal Ministry of Health (Federal Ministry of Health, 2012).

The commonest age group in this study was the 21-30 years' age group (37.3%). This is dissimilar to the findings at an HIV treatment centre in Oyo, Nigeria were the commonest age group was the 30-39 age group (Olowookere *et al*., 2008). Oladapo et al also reported 30-39 years' age group as the commonest age group at an HIV treatment centre in Ogun state, Nigeria. According to the 2010 National HIV sero-prevalence sentinel survey, the age group 30-34 years had the highest prevalence both in the Southeast zone of Nigeria and nationally (Federal Ministry of Health, 2011).

Majority of the respondents in this study were married (56.2%) this is similar to the findings of a study done in Enugu (Uzochukwu *et al.*, 2009) and a study done at Ibadan (Adewole *et al*., 2009). This is dissimilar to the 2010 National HIV Sero-prevalence sentinel survey which reported that the prevalence of HIV was higher among the single women than the married (Federal Ministry of Health, 2011). This higher proportion of married respondents may be because married HIV positive individuals that are concordant may feel less stigmatized to access care compared with single people who will feel more stigmatised because of the fear of losing possible partners.

The commonest highest educational qualification among the respondents in this study is secondary education (40.3%). This is dissimilar to the finding among HIV positive clients at a tertiary hospital in Anambra State which reported that majority of the respondents had primary education (Nwabueze *et al*., 2011). It is also dissimilar to the finding of a study among HIV positive respondents at Uyo, Southern Nigeria where the majority of the respondents had tertiary education (Opara *et al*., 2007). The difference in the highest educational level of the respondents compared with the previous study by Nwabueze *et al*. (2011) in the same state, may be because of increased acceptance of education over time considering that the previous study was done in 2009.

As high as 45.6% of the respondents in this study are business owners. This is similar to the finding of a study in Enugu also in Southeast Nigeria (Uzochukwu *et al*., 2009), but dissimilar to the finding of a study in Ibadan Southwest Nigeria (Olowookere *et al*., 2008). This may be because the people of Southeast Nigeria are known to engage in trading more than the other geo-political zones in the country.

Slightly higher than half (51.5%) of the respondents in this study were satisfied with the services of the doctors. A higher percentage of satisfied clients (65%) was reported at urban Sokoto, Nigeria (Adamu and Oche, 2014). A much higher satisfaction (81%) was reported in urban Dhaka, Senegal (Islam and Jabba, 2008). Surprisingly, a high percentage (80.8%) of satisfied respondents was reported in rural India (Aswar *et al*., 2013). Several other studies also reported high percentage of clients satisfied with doctors' services (Chimbindi *et al*., 2014; Patavegar *et al*., 2012; Bhagat *et al*., 2011; Saeed *et al*., 2001).



***Endorsed By***: *Innovative Science Research Foundation (**ISREF**)* and *International Society of Science Researchers (**ISSCIR**).*
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

The differences in the satisfaction could be because of motivation of the doctors in the different facilities. Doctors that are well motivated may be more humane to their clients. The difference may also be due to the differences in the doctor patient ratio in the different centres. When a doctor has a lot of patients to see he may be in a hurry and may not give them the attention they desire hence leaving the patients unsatisfied. Our study revealed that a greater proportion of the urban respondents were satisfied with doctors' services (97.8%) compared with the rural respondents (5.8%). Furthermore, we were able to demonstrate by logistic regression that the urban respondents were twice more likely to be satisfied with the doctors' services compared with the rural respondents. This lower satisfaction with doctors' services in the rural centres could be because the patients to be attended to are many while there are few doctors in the rural centres. This reflects the inverse care law in Nigeria whereby more health professionals are in the urban areas than in the rural areas.

In conclusion, our study has revealed that there is higher satisfaction with doctors' services in the urban HIV treatment centres compared with the rural HIV treatment centres in Anambra State. We therefore recommend that government should provide more HIV treatment centres in the rural areas so that fewer clients will access care in each of the centres. Also, government should create special incentives for health workers in the rural areas so as to attract more health workers to the rural areas. An example could be, paying them substantial rural allowance that will be significant enough to encourage health workers to decide to relocate to the rural areas and work in the rural facilities.

## COMPETING INTERESTS

Authors have declared that no competing interests exist. We also want to declare that this study was part of a bigger study which was conducted in partial fulfilment of the requirements for the award of the Fellowship of the West African College of Physicians. The remaining parts of the big study are also in different stages of the process of publication.


## ACKNOWLEDGEMENT

We wish to thank all the clients that participated in this study. We also thank the managements of the four HIV treatment centres where this study was carried out. We thank the research assistants who gave their best in the data collection process.


## REFERENCES


Adamu, H. and Oche, M.O. (2014). Patient satisfaction with services at a general outpatient clinic of a tertiary hospital in Nigeria. *British Journal of Medicine and Medical Research*; 4(11): 2181-2202.

Adewole, O.O., Anteyi, E., Ajuwon, Z., Wada, I., Elegba, F. and Ahmed, P. et al. (2009). Hepatitis B and C virus co-infection in Nigerian patients with HIV infection. *The Journal of Infection in Developing Countries*; 3(5). Available at http://www.jidc.org/index.php/journal/article/view/19759507. (Accessed 16/12/14).

Ajayi, I..O., Olumide, E.A. and Oyediran, O. (2005). Patient satisfaction with the services provided at a general outpatients' clinic, Ibadan, Oyo state, Nigeria. *African Journal of Medicine and Medical Science;* 3(2): 133-140.

Andaleeb, S.S. (2001). Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. *Social Science and Medicine*; 52: 1359-1370.

Araoye, M.O. (2003). Research methodology with statistics for health and social sciences. 1st Ed. Ilorin: Nathadex Publishers.

Aswar, N.R., Kale, K.M., Rewatkar, M.P., Jain, A. and Barure, B.S. (2014). Patients' waiting time and their satisfaction of health care services provided at outpatient department of Government Medical College, Nanded Maharashtra, India. *International Journal of Health Sciences and Research*; 4(4): 21-27.

Beck, E.J., Griffith, R., Fitzpatrick, R., Mandalia, S., Carrier, J., Coulon, C. et al. (1999). Patient satisfaction with HIV services provision in NPMS





***Endorsed By***: *Innovative Science Research Foundation (**ISREF**)* and *International Society of Science Researchers (**ISSCIR**).*
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

hospital: the development of a standard questionnaire. *AIDS Care*; 11(3): 331-343.

Bhagat, V.K., Pal, D.K., Lodha, R.S. and Bankwar, V. (2011). Clients' satisfaction with antiretroviral therapy services at Hamidia hospital Bhopal. *National Journal of Community Medicine*; 2(2): 241-243.

Campbell, J.L., Ramsay, J. and Green, J. (2001). Age, gender, socioeconomic and ethnic differences in patients' assessment of primary healthcare. *Quality in Healthcare*; 10: 90-95.

Chimbindi, N., Barnighausen, T. and Newell, M.L. (2014). Patient satisfaction with HIV treatment and TB care in rural KwaZulu-Natal, South Africa. A Researching Equity in Access to Healthcare (REAH) Study. Available online www.afrcicacentre.ac.za (Accessed 20/2/14).

Dang, B.N., Westbrook, R.A., Black, W.C., Rodriguez-Barradas, M.C. and Giordano, T.P. (2013). Examining the link between patient satisfaction and adherence to HIV care: a structural equation model. *Plos One*; 8(1). e54729.doi:10.1371/journal.pone.0054729.

Emelumadu, O.F. and Ndulue, C.N. (2012). Patients' characteristics and perception of quality of care in a teaching hospital in Anambra State, Nigeria. Nigerian *Journal of Medicine*; 21(1): 16-20.

Federal Ministry of Health of Nigeria (2011). 2010 National HIV sero-prevalence sentinel survey. Abuja: Federal Ministry of Health.

Federal Ministry of Health of Nigeria (2012). National HIV and AIDS and Reproductive Health Survey (NARHS Plus II, 2012). Abuja: Federal Ministry of Health.

Federal Ministry of Health of Nigeria (2012). National HIV and AIDS and Reproductive Health Survey (NARHS Plus II, 2012). Abuja: Federal Ministry of Health.

Ilia, L., Panagiotis, T. and Pandelis, I. (2007). Patients' satisfaction and quality of care: an empirical study in a Greek central hospital. *Management of International Business and Economic Systems*; 1(1): 46-59.

Islam, M.Z. and Jabbar, M.A. (2008). Patients' satisfaction of health care services provided at out-patient department of Dhaka medical college hospital. *Ibrahim Medical College Journal*; 2(2): 55-57.

Javed, A. (2005). Patients satisfaction towards outpatient department services in Pakistan Institute of Medical Sciences, Islamabad. A thesis submitted for the degree of Master of Primary Healthcare Management at the Mahidol University. 2005. ISBN974-04-5687-1 www.li.mahidol.acth/e-thesis/4737959.pdf (Accessed 9/2/14).

Magoro, M.T., Hoque, M.E. and Heaver, H.V. (2012). ART patients' satisfaction level regarding comprehensive HIV and AIDS care management and antiretroviral treatment programme in Pretoria. South *African Journal of Epidemiology and Infection*; 27(2): 71-75.

Manaf, N.H. and Nooi, P.S. Patient satisfaction as an indicator of service quality in Malaysian public hospitals. *Asian Journal of Quality*; 10(1): 77-87.

Muhondwa, E.P., Leshabari, M.T., Mwangu, M., Mbembati, N. and Ezekiel, M.J. (2008). Patient satisfaction at the Muhimbili National Hospital in Dar es Salaam, Tanzania. *East African Journal of Public Health*; 5(2): 67-73.

National Population Commission (2006). Nigeria National Census Report.

Newman, R.D., Gloyd, S., Nyangezi, J.M., Machobo, F. and Muiser, J. (1998). Satisfaction with outpatient healthcare services in Manica Province, Mozambique. *Health Policy and Planning*; 13(2): 174-180.

Nwabueze, S.A., Adogu, P.O., Ilika, A.L., Asuzu, M.C. and Adinma, E.D. (2011). Perception of quality of care in HIV/AIDS programmes among patients in a tertiary healthcare facility in Anambra State. *Nigerian Journal of Medicine*; 20(1): 144-150



***Endorsed By***: *Innovative Science Research Foundation (**ISREF**)* and *International Society of Science Researchers (**ISSCIR**).*
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*

Ofovwe, C.E. and Ofili, A.N. (2005). Indices of patient satisfaction in an African population. *Public Health*; 119(7): 582-586.

Ogunfowokan, O. and Mora, M. (2012). Time, expectation and satisfaction: patients' experience at National Hospital Abuja, Nigeria. *African Journal of Primary Healthcare and Family Medicine*; 4(1): 1-6.

Oladapo, O.T, Daniel, O.J., Odusoga, O.L. and Ayoola-Sotubo, O. (2005). Fertility desires and intentions of HIV-positive patients at a suburban specialist centre. *Journal of the National Medical Association*; 97(12): 1672-1681.

Olowookere, S.A., Fatiregun, A.A., Akinyemi, J.O., Bamgboye, A.E. and Osagbemi, G.K. (2008). Prevalence and determinants of non-adherence to highly antiretroviral therapy among people living with HIV/AIDS in Ibadan, Nigeria. *Journal of Infection in Developing Countries*; 2(5): 369-372.

Opara, D.C., Umoh, I.B. and John, M. (2007). Socio-demographic and anthropometric variables of persons living with HIV and AIDS in Uyo, south eastern Nigeria. *Pakistan Journal of Nutrition*; 6(6): 547-557.

Patavegar, B.N., Shelke, S.C., Adhav, P. and Kamble, M.S. (2012). A cross-sectional study of patients' satisfaction towards services received at a tertiary care hospital on OPD basis. *National Journal of Community Medicine*; 3(2): 232-237.

Roberts, K.J. (2002). Physician-patient relationships, patient satisfaction and antiretroviral medication adherence among HIV-infected adults attending a public health clinic. AIDS Patient Care and STDs; 22: 677-686.

Saeed, A.A., Mohammed, B.A., Magzoub, M.E. and Al-Doghaither, A.H. (2001). Satisfaction and correlates of patients' satisfaction with physicians' services in primary health care centres. *Saudi Medical Journal*; 22(3): 262-267.

United States Department of Health and Human Services (2014).. Patient Satisfaction Survey Form. Available online www.hhs.gov (Accessed 25/2/14).

Uzochukwu, B.S.C., Onwujekwe, O.E., Onoka, A.C., Okoli, C., Uguru, N.P. and Chukwuogo, O.I. (2009). Determinants of non-adherence to subsidized anti-retroviral treatment in southeast Nigeria. *Health Policy and Planning*; 24: 189-196.

Wouters, E., Heunis, C., Renburg, D. and Meulemans, H. (2008). Patient satisfaction with antiretroviral services at primary healthcare facilities in the Free state, South Africa-a two-year study using four waves of cross-sectional data. BMC Health Services Research, 2008; 8: 201. doi:101186/1472-6963-8-210.

**AUTHOR'S CONTRIBUTION**

This work was carried out in collaboration between all authors. Authors Azuike EC and Adinma ED designed the study. Authors Duru CB, Onyemachi PE and Agunwa CC wrote the protocol. Authors Anemeje OA and Igwebike UN did literature searches and review. Authors Duru CB, Onyemachi PE, Agunwa CC, Anemeje OA and Igwebike UN were involved in data collection. Data analyses were performed by Azuike EC and Adinma ED. Azuike EC wrote the first draft of the manuscript. All authors read and approved the final manuscript.



***Endorsed By***: *Innovative Science Research Foundation (**ISREF**)* and *International Society of Science Researchers (**ISSCIR**).*
***Indexed By***: *African Journal Online (AJOL); Texila American University; Genamics; Scholarsteer; EIJASR; CAS-American Chemical Society*; and *IRMS Informatics India* (*J-Gate)*