

## *Full Length Research*

# **Clients' satisfaction with services in HIV treatment centres: Comparison of urban and rural centres in Anambra State, Nigeria**

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**A satisfied client is a retained client in business, likewise in the business of healthcare. HIV is a chronic disease and regular visit to the health facility is key to a healthy life for a person living with HIV. If a client is not satisfied with the services at an HIV treatment centre, such a patient may not be as compliant as s/he would have been if satisfied. This study compared clients' satisfaction with services in rural and urban HIV treatment centres in Anambra State, Nigeria. This was a descriptive cross-sectional comparative study carried out at four HIV treatment centres (2 urban and 2 rural) in Anambra State, Nigeria. A pre-tested, semi-structured, interviewer administered questionnaire was used to interview the clients. Data were analysed with 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. Association between the independent variables and the dependent variables 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 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. A total of 1100 respondents participated in this study. The response rate was 100%. 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 ( $\pm 10.00$ ) was higher than the mean age of the rural respondents 34.99 ( $\pm 10.71$ ). Majority of the respondents were satisfied 773 (70.3%). However a higher proportion of the urban respondents were satisfied 484 (88.0%), compared with the rural respondents 289 (52.5%). ( $p = 0.000$ ). The urban respondents were 8 times more likely to be satisfied compared with the rural respondents [OR: 8.793 (95% CI: 5.737-13.477)]. This study showed that the respondents in the urban HIV treatment centres were more satisfied than the rural respondents with the overall services they receive at the HIV treatment centres. We recommend further research to determine the factors that make the clients at the urban HIV treatment centres more satisfied than the clients at the rural HIV treatment centres.

**Keywords:** Patient Satisfaction, Urban HIV treatment centres, Rural HIV treatment centres.

## INTRODUCTION

Patient satisfaction surveys are critical for developing measures to increase the utilization of health services. They can help to educate medical staff about their achievements as well as their failures, hence improving their ability to meet patients' needs. Finally they allow managerial decisions to be taken based on evidence rather than guess work (Glick, 2009).

Surveys of patients' satisfaction have usually been fielded for one of the two purposes. They are either used to evaluate provider services and facilities or to predict consumer behaviour (e.g., use of services). The former is based on the assumption that patient satisfaction is an indicator of the structure, process and outcomes of care, while the latter is based on the assumption that the differences in satisfaction influence what people do. Patient satisfaction is very important in order to retain patients.

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 and Ofili, 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). This was well elucidated in a study done in two HIV treatment centres in the

United States of America, which reported that patients with adequate retention were significantly more satisfied with their HIV care than patients with inadequate retention (Dang et al, 2013). Also patients who had excellent adherence to their antiretroviral drugs were significantly more satisfied with their HIV care than patients who did not have excellent adherence to their antiretroviral drugs (Dang et al, 2013). The study concluded that patient satisfaction is an important factor in improving HIV outcomes because of its influence on adherence to Highly Active Antiretroviral Therapy (HAART) and retention in HIV care, both of which result in viral suppression, which is the main goal of HIV care. Patient satisfaction represents an innovative focus for retention and adherence intervention efforts. Its innovation derives from applying the business model of customer satisfaction to improve patient adherence to care. Additionally, interventions to improve patient satisfaction with the overall care experience are not directly dependent on efforts to explicitly change patient behaviour. Patient satisfaction reflects the patient's perception of the entire care process, and improving satisfaction metrics lies within the power of a clinic or institution.

Research indicates that provider and organizational factors play a large role in how patients evaluate their provider and overall clinic care (Dang et al, 2010; Crow et al, 2002).

It has been demonstrated that patient satisfaction is a major determinant of utilization of healthcare services and HIV care services in particular (Andaleeb, 2001). Unfortunately, there is a dearth of data on the level of patient satisfaction with ambulatory HIV care services in Nigeria. In order to reduce significantly the prevalence, morbidity and

mortality due to HIV/AIDS in Nigeria, it is necessary to achieve maximum client retention in HIV treatment centres. To achieve client retention, clients should be satisfied with services provided. Hence, there is need to determine clients' satisfaction levels and desires for improvement.

This study compares clients' satisfaction with services in rural and urban HIV treatment centres in Anambra State, Nigeria. The results will form an evidence base data to guide HIV care services policy formulation and programme implementation. Furthermore, it will evaluate the existing HIV treatment services in the state. This is with a view to retaining clients and thereby reducing the incidence of HIV. Finally it will improve the quality of life of people living with HIV/AIDS (PLWHA).

There is need to research on the satisfaction of rural HIV clients with HIV services. Attention must be given to the rural HIV clients because rural HIV cases are increasing (CDC, 1993). Also migration patterns continue to result in more HIV infected people moving to rural areas, as people with HIV often move home from urban areas to rural areas (Buehler, 1996). As improved clinical care extends the life expectancy of HIV-infected people, rural-based health care and AIDS service organizations will need to provide care to this growing group for substantially longer periods of time. For these reasons, it is important to understand the satisfaction with HIV services in HIV treatment centres, especially those in rural areas, knowing that satisfaction will improve adherence and retention, and ultimately the quality of lives of the HIV clients.

## METHODOLOGY

### Study Area

Anambra state is located in the South-east geopolitical zone of Nigeria. According to the 2006 national census report (National Population Commission, 2006) it has a population of 4,177,828 inhabitants. The urban areas make up 62% of the population of the state (Federal Ministry of Health, 2012). 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, Ukpoko.

### 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; Clients who gave informed consent.

### Exclusion Criteria

Clients 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.

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

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

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 (Ofowwe and 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. 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 of clients in the clinic attendance register. After selecting the first client, every "4th" 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 (2016), for patient satisfaction surveys. This questionnaire was adapted. Some modifications were made to this questionnaire. The questionnaire contained 2 sections: Section 1 borders on socio-demographics; Section 2 contains sub-sections on the client's satisfaction with waiting time (five questions), doctors' services (four questions), nurses' services (two questions), physical environment (four questions) and overall satisfaction (one question). Specific questions on each of these sub-sections were asked and the clients given the option to

identify their satisfaction level on a Likert scale of 1 to 5. A score of 1 represents "very unsatisfied", 2 represents "unsatisfied", 3 represents "neutral", 4 represents "satisfied" and 5 represents "very satisfied". For each item, the client was considered satisfied if he/she ticks a score of 4 or 5.

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

## DATA MANAGEMENT

### Measurement of Variables

The dependent variables were: Clients' satisfaction with waiting time; Clients' satisfaction with the services of doctors and nurses; Clients' satisfaction with the physical environment of the HIV treatment centres; Clients' overall satisfaction with services at the HIV treatment centres. (This is the client's satisfaction with the sum total of the client's experience in the HIV treatment centre he/she was attending (Manaf and Nooi, 2009).

The independent variables were: Socio-demographic characteristics (age, sex, marital

status, educational level and occupation); Location of treatment centre (Urban and Rural).

### 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 a specific dimension of care was determined by finding the average score for the individual items under that dimension. For example a client's satisfaction with waiting time was determined by summing up the scores for the five items under waiting time and then divided by five to obtain the average score. An average score of  $\geq 4$  was interpreted as "satisfied", while average score of  $< 4$  interpreted as unsatisfied. Association between the independent variables (socio-demographic characteristics) and the dependent variables (satisfaction with the different dimensions) was determined using logistic regression analysis. Chi square test was used to test for association between overall satisfaction and the location of the clients (urban/rural). 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 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.

### Limitations of the study

Some aspects of patient satisfaction were not studied because they were practically non-existent. For example, as there was no system for booking or rescheduling appointments by phone calls, the clients' satisfaction with such services was not

studied.

## RESULTS

Table 1 shows the socio demographic characteristics of the respondents in urban and 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 ( $\pm 10.00$ ) was higher than the mean age of the rural respondents 34.99 ( $\pm 10.71$ ). 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%) ( $p = 0.000$ ).

Table 2 shows the respondents' overall satisfaction with services in the centres by location. Taking an average of overall satisfaction and grouping the respondents into satisfied and unsatisfied, majority of the respondents were satisfied 773 (70.3%). However a higher proportion of the urban respondents were satisfied 484 (88.0%), compared with the rural respondents 289 (52.5%). ( $p = 0.000$ ).

Table 3 shows the association between the respondents' socio-demographic characteristics and their overall satisfaction with services at the HIV treatment centres. A higher proportion of those satisfied were urban respondents 484 (62.6%), compared with the rural respondents 289 (37.4%) ( $p = 0.000$ ). A higher proportion of those who were satisfied were less than 31 years of age 319 (41.3%), compared with those who were greater than 50 years of age 94 (12.2%) ( $p = 0.000$ ). A higher proportion of those satisfied were married 469 (60.7%), compared to those who were single 204 (26.4) ( $p = 0.000$ ). A higher proportion of those Satisfied had senior secondary education 296 (38.3%), compared with those that had junior secondary education 77 (10.0%) ( $p = 0.036$ ).

Table 4 shows adjusted odds ratio for predictors of overall satisfaction. The urban respondents were 8 times more likely to be satisfied compared with the rural respondents [OR: 8.793 (95% CI: 5.737-

13.477)]. The female respondents were less likely to be satisfied than the male respondents [OR: 0.339 (95% CI: 0.235-0.489)]. The respondents who had at least senior secondary education were twice likely to be satisfied than the others [OR: 2.240 (95% CI: 1.601-3.134)].

Table 5 shows adjusted odds ratio for predictors of overall satisfaction, with the satisfaction with the different dimensions of service as the independents variables. Respondents who were satisfied with waiting time were thrice likely to be satisfied compared with those who were unsatisfied with waiting time [OR: 3.993 (95% CI: 2.525-6.313)]. Respondents who were satisfied with doctors' services were twice likely to be satisfied compared with those who were unsatisfied with doctors' services [OR: 2.486 (95% CI: 1.722-3.591)]. Respondents who were satisfied with physical environment were 18 times more likely to be satisfied compared with those who were unsatisfied with physical environment [OR: 18.738 (95% CI: 11.125-31.561)].

## 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 et al, 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 of Nigeria, 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 where the commonest age group was the 30-39 years age group (Olowookere et al, 2008). Oladapo et al, (2005) 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 of Nigeria, 2011).

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

Variables	Urban N=550, n (%)	Rural N:550, n (%)	Total N=1100, n (%)	X <sup>2</sup>	p-value
<b>Sex</b>					
Male	187(34.0)	195(35.5)	382(34.7)	0.257	0.612
Female	363 (66.0)	355 (64.5)	718 (65.3)		
Total	550(100.0)	550(100.0)	1100(100.0)		
<b>Age (years)</b>					
≤ 20	0 (0.0)	25 (4.5)	25 (2.3)	52.002	0.000*
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)		
<b>Marital status</b>					
Single	74 (13.5)	240 (43.6)	314 (28.5)	243.905	0.000*
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)		
<b>Highest Educational Level</b>					
No formal education	36 (6.5)	97 (17.6)	133(12.1)	40.391	0.000*
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)		

\*Statistically Significant.

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; 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 of Nigeria, 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 stigmatized

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

**Table 2.** Respondents' overall satisfaction with services in the HIV centres by location.

Overall satisfaction with services in the centre	Urban N=550, n (%)	Rural N:550, n (%)	Total N=1100 n (%)	X <sup>2</sup>	p-value
Satisfied	484(88.0)	289(52.5)	773(70.3)	165.476	0.000*
Unsatisfied	66(12.0)	261(47.5)	327(29.7)		
Total	550(100.0)	550(100.0)	1100(100.0)		

\*Statistically Significant.

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.

The proportion of clients who were satisfied with the overall services they received in the HIV treatment centres was 70.3% while the proportion that was unsatisfied was 29.7%. This is much higher than the proportion of satisfied patients (52%) reported by Adamu and Oche (2014), in an outpatient clinic at urban Sokoto, Nigeria. In a rural antiretroviral clinic at Oyo state, Nigeria, it was reported that 77% of the clients were satisfied with the services (Olowookere et al, 2012). This is lower than the finding of 78.5% by Adekanye et al., (2013) at an urban tertiary centre in Bida, Nigeria. Similarly, Iliyasu et al., (2010) reported 83% in urban Kano, Nigeria which was lower than 92.1% reported by Olowookere et al (2013) in an antiretroviral clinic in Osogbo Nigeria, though an even higher proportion of satisfied clients (99.6%) was reported in an urban antiretroviral clinic in Sokoto, Nigeria by Oche et al (2013). In a rural centre in Bangladesh a proportion (68%) that is similar to the finding of the index study was reported (Aldana et al, 2001). In rural India 65.3% was reported by Aswar et al (2014), while in rural Saudi Arabia slightly lower proportions (64.2% and 60%) were reported in two different studies (Al-Sakkak et al, 2008 and Ali and Mahmoud, 1993). Lower proportions were reported in rural Ethiopia by Abdosh (2006), rural Pakistan by Javed (2005), and rural Iraq by Sa'adoon (2008). The differences in the proportion of clients that were satisfied in the different studies may be due to the differences in the organization of services in the facilities. They may be due to differences in the types of services available in the different facilities. Inherent characteristics of the study participants may also account for these differences. In this study, the

proportion of respondents that are satisfied in the urban centres (88.0%) was higher than the proportion that was satisfied in the rural centres (52.5%). This may be due to several factors such as the concentration of health workers in the urban centres hence there will be fewer clients to be seen by each health worker compared with the rural centres where the health workers will have to see more clients. Thus the waiting time in the urban centres will be shorter and the health workers will give better attention to the clients. All these are likely to make the urban clients more satisfied than the rural clients. Also the concentration of more facilities in the urban centres will likely lead to more satisfaction among the urban centres compared with the rural centres.

In this study, logistic regression model revealed that the respondents in the urban centres had 8 times likelihood of being satisfied with the services in the HIV treatment centres compared with the respondents in the rural centres. Some socio-demographic characteristics also predicted overall satisfaction. The female clients were less likely to be satisfied than the male clients. The older clients were more likely to be satisfied than the younger clients (though not statistically significant). The more educated clients were twice likely to be satisfied than the less educated clients. Several studies have also demonstrated the effects of socio-demographic characteristics on overall satisfaction (Islam and Jabbar, 2008; Al-Sakkak et al, 2008; Sa'adoon et al, 2008; Nabbuye-Sekandi et al, 2011; Al-Doghaither et al, 2000).

Out of the four dimensions of service investigated in this study, satisfaction with the physical environment predicted overall satisfaction more than the others, followed by waiting time. A study done in Bida Nigeria reported that satisfaction with physical environment was significantly associated with overall satisfaction (Adekanye et al, 2013). However

**Table 3.** Association between respondents' socio-demographic characteristics and their overall satisfaction with services at the HIV treatment centres.

Variables	Overall Satisfaction with services. Frequency (%)				
	Satisfied	Unsatisfied	Total	X <sup>2</sup>	P-value
<b>Location</b>					
Urban	484(62.6)	66(20.2)	550(50.0)	165.476	0.000*
Rural	289(37.4)	261(79.8)	550(50.0)		
Total	773(100.0)	327(100.0)	1100(100.0)		
<b>Sex</b>					
Male	303(39.2)	79(24.2)	382(34.7)	22.928	0.000*
Female	470(60.8)	248(75.8)	718(65.3)		
Total	773(100.0)	327(100.0)	1100(100.0)		
<b>Age (years)</b>					
≤30	319(41.3)	116(35.5)	435(39.5)	23.969	0.000*
31-40	220(28.5)	126(38.5)	346(31.5)		
41-50	140(18.1)	70(21.4)	210(19.1)		
≥51	94(12.2)	15(4.6)	210(19.1)		
Total	773(100.0)	327(100.0)	1100(100.0)		
<b>Marital Status</b>					
Single	204(26.4)	110(33.6)	314(28.5)	79.906	0.000*
Married	469(66.7)	149(45.6)	618(56.2)		
Others	100(12.9)	68(20.8)	168(15.3)		
Total	773(100.0)	327(100.0)	1100(100.0)		
<b>Highest Educational level</b>					
No formal education	102(13.2)	31(9.5)	133(12.1)	10.266	0.036
Primary	116(15.0)	46(14.1)	162(14.7)		
J.Sec	77(10.0)	19(5.8)	96(8.7)		
S.Sec	296(38.3)	147(45.0)	443(40.3)		
Tertiary	182(23.5)	84(25.7)	266(24.2)		
Total	773(100.0)	327(100.0)	1100(100.0)		

\*Statistically Significant.

it must be noted that most studies reported a statistically significant association between overall satisfaction and waiting time (Ogunfowokan and Mora, 2012; Manaf and Nooi, 2009; Abdosh, 2006; Oljira and Gebre, 2001; Nyongesa et al, 2014). This status of physical environment being the best predictor of overall satisfaction may be due to the

high proportion of the rural respondents who were unsatisfied with the physical environment in their centres (26.2%) compared with only 4.4% in the urban centres.

In conclusion, this study has shown that the respondents in the urban HIV treatment centres were more satisfied than the rural respondents with

**Table 4.** Adjusted odds ratio for predictors of overall satisfaction.

<b>Overall satisfaction</b>			
<b>Variables</b>	<b>Odds Ratio</b>	<b>95% Confidence Interval</b>	<b>P-Value</b>
<b>Location</b>			
Urban	8.793	5.737-13.474	0.000*
Rural	1.000		
<b>Sex</b>			
Female	0.339	0.235-0.489	0.000*
Male	1.000		
<b>Age (years)</b>			
>40 years	1.063	0.715-1.582	0.761
≤40years	1.000		
<b>Marital status</b>			
Currently married	0.658	0.465-0.930	0.018*
Currently unmarried	1.000		
<b>Highest Educational Level</b>			
≥ S. Sec	2.240	1.601-3.134	0.000*
≤ J. Sec	1.000		

\*Statistically Significant.

**Table 5.** Adjusted odds ratio for predictors of overall satisfaction, with the satisfaction with the different dimensions of service as independent variables.

<b>Overall Satisfaction</b>			
<b>Variables</b>	<b>odds ratio</b>	<b>95% Confidence Interval</b>	<b>P-Value</b>
<b>Satisfaction with waiting Time</b>			
Satisfied	3.993	2.525-6.313	0.000*
Unsatisfied	1.000		
<b>Satisfaction with Doctors' Services</b>			
Satisfied	2.486	1.722-3.591	0.000*
Unsatisfied	1.000		
<b>Satisfaction with Nurses' Services</b>			
Satisfied	0.726	0.506-1.043	0.083
Unsatisfied	1.000		
<b>Satisfaction with physical environment</b>			
Satisfied	18.738	11.125-37.561	0.000*
Unsatisfied	1.000		

\*Statistically Significant.

the overall services they receive at the HIV treatment centres. Furthermore the physical environment followed by the waiting time predicted the overall satisfaction more than the other dimensions.

## RECOMMENDATION

We recommend further research to determine the factors that make the clients at the urban HIV treatment centres more satisfied than the clients at the rural HIV treatment centres. This will aid evidence based interventions to increase the satisfaction of clients at the rural HIV treatment centres.

## 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 other parts of the big study are also in different stages of the process of publication.

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