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Pattern of HIV Prevalence in Tertiary Hospitals in Rivers State

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Abstract: **HIV is a global pandemic with enormous socio-economic implications. This study was carried out to determine the prevalence of HIV among patients attending tertiary health care institutions in River state. Ethical approval for the study was obtained from the Rivers state ministry of health. About 3ml of venous blood was collected from each subjects and a structured questionnaire was administered to the subjects for collection of socio-demographic data. The results showed a 56% of HIV among the study subjects, while mean age of the infected subjects was 36.1±11.2 years. The occurrence of HIV was found to be significantly higher (p =0.0003) in the female subjects (66.2%) compared to the male subjects (33.8%). The occurrence of HIV was found to be significantly higher (p < 0.0001) among married persons in the three senatorial zones (RE: 56.4%, RW: 58.1% and RSE: 56.3%). HIV occurrence was significant among people with secondary school education (p = 0.0052) as the highest academic qualification (RE: 54.5%, RW: 50.3% and RSE: 51.6%). Self-employed patients were found to be more significantly infected with HIV (p <0.0001) in the three zones (RE: 48.4%, RW: 31.9%, RSE: 36.3%). The study shows a significant prevalence of HIV among the patients, indicating a high transmission rate of HIV in the state. There is a need for intensified awareness campaign of HIV among residents of the state.**

Keywords: **HIV, Prevalence, Zones, Rivers state.**

1. INTRODUCTION

The HIV pandemic remains a major challenge to global and regional health, especially in resource-constrained settings such as Sub-Saharan Africa. Thirty-three million people living with HIV/AIDS (PLWHA) and about 2.7 million new infections were reported globally in 2007 [1,2]. In 2011, there were 34 million PLWHA and 2.4 million new infections globally, of which 23 million of the PLWHA (70%) were in Sub-Saharan Africa [3].

In the African Region, HIV prevalence in 2010 in adults 15 to 49 years of age was 4.9%: the prevalence for Nigeria, Ghana, Cameroon, Ethiopia and South Africa was 3.1%, 1.9%, 5.1%, 2.1% and 18.1%, respectively [4]. ART coverage in the African Region for persons with advanced HIV infection was 44%; for Nigeria, Ghana, Cameroon, Ethiopia and South Africa, ART coverage for the disease was 26%, 15%, 25%, 29% and 28%, respectively [4]. It was anticipated that as access to ART in these low- and middle-income countries improved (about 8 million people in these countries received treatment in 2011), the population living with HIV would grow as fewer people would die from HIV and AIDS-related causes [4]. In 2011, an estimated 1.73 million people died from AIDS-related causes worldwide (24% less than in 2005), of which an estimated 1.2 million deaths (69.4%) were recorded in the African Region [3]. Treatment delay in ART is defined as delay in initiation of treatment over a period greater than three months after the diagnostic HIV test, or when at diagnosis, the patient has indications of advanced HIV infection as evidenced by CD_4^+ cells less than 200 cells/ml or the presence of at least one AIDS-defining illness [1,5,6,7]. Delay in treatment could adversely affect the course of disease and quality of life in an HIV infected individual and could also indirectly continue the cycle of HIV transmission from individuals that delay in presenting for appropriate treatment. This study was carried out to assess the pattern of HIV prevalence among patients attending tertiary health institutions in Rivers State, Nigeria.

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2. METHODOLOGY

Study Area:

The study was carried out in Rivers, state Southern Nigeria. The state is a oil rich state with an estimated population of 5,185,400 people (NPC, 2010). Selected government hospitals in the areas of study were used as the study sites in the three senatorial districts of the state as follows;

Rivers East:	University of Port Harcourt Teaching Hospital, Port Harcourt
	Braithwaite Memorial Specialist Hospital, Port Harcourt
Rivers West:	Zonal Hospital, Ahoada
Rivers South East:	Zonal Hospital, Bori.

Study Population:

One thousand, two hundred and fifty four (1,254) patients presenting at the hospital and referred for HIV testing between January and June 2015 in the selected hospitals were consecutively recruited for the study.

Ethical Consideration:

Ethical approval for the study was obtained from the Ethics committee of the Rivers State Ministry of Health and the Ethics committee of the School of Graduate Studies of the University of Port Harcourt. Willing informed consent was also obtained from the patients before they were recruited for the study.

Sample Collection and Analysis

About 3ml of venous blood was collected from each subject and dispensed into properly labelled EDTA bottles. HIV tests was carried out on all collected samples with the HIV diagnostic kits according to the manufacturer's instruction.

Data Collection:

An interviewer administered questionnaire was used to collect socio-demographic information from each subject recruited for the study

Data Analysis:

Data collected was presented with descriptive statistical tools. The association of socio-demographic data and HIV prevalence in each zone was assessed with the Chi-square statistical tool at a 95% confidence interval and a p-value of < 0.05 was considered significant. All tests were done with the Epi Info v7 Software (CDC, Atlanta, USA).

3. RESULTS

Table 1 shows the demographic data of the study subjects, with a mean age of 36±13 years. There were 775 (61.7%) female subjects and 479 male subjects, 622 (49.6) resided in RE, 318 (25.4%) in RSE, 274 (21.9%) in RW and 40 (3.1%) did not disclose their residence. Forty-five (3.6%) of the subjects had no formal education, 5 (0.4%) had informal education, 219 (17.5%) had primary education, 640 (51.0%) had secondary education, 252 (20.1%) ad tertiary education and 93 (7.4%) did not disclose their educational background. There were 426 (34.0%) single subjects, 655 (52.2%) were married, 3 (0.2%) divorced, 91 (7.3%) widowed and 76 (6.3%) did not disclose their marital status. Seventy-eight (7.4%) were unemployed, 179 (16.9%) were civil servants, 29 (2.7%) were housewives, 5847 (55.2%) were self-employed, 48 (4.5%) were in private sector employment, 137 (12.9%) were students, 2 (0.2%) were retired and 2 (0.2%) were health workers.

Table 1: Sociodemographic Data of Subjects

Variable	Parameters	Frequency (%)
Age (Mean ± SD)	36±13 years	
Sex		
	Male	479 (38.3)
	Female	775 (61.7)

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Zone of Residence		
	RE	622 (49.6)
	RSE	318 (25.4)
	RW	274 (21.9)
	Undisclosed	40 (3.1)
Education		
	None	45 (3.6)
	Informal	5 (0.4)
	Primary	219 (17.5)
	Secondary	640 (51.0)
	Tertiary	252 (20.1)
	Undisclosed	93 (7.4)
Marital Status		
	Single	426 (34.0)
	Married	655 (52.2)
	Divorced	3 (0.2)
	Widowed	91 (7.3)
	Undisclosed	79 (6.3)
Occupation		
	Unemployed	78 (7.4)
	Civil servant	179 (16.9)
	Housewife	29 (2.7)
	Self Employed	584 (55.2)
	Private Sector Employment	48 (4.5)
	Student	137 (12.9)
	Retired	2 (0.2)
	Health Workers	2 (0.2)

There were 695 (56%) HIV positive subjects and 555 (44%) HIV negative subjects as shown in

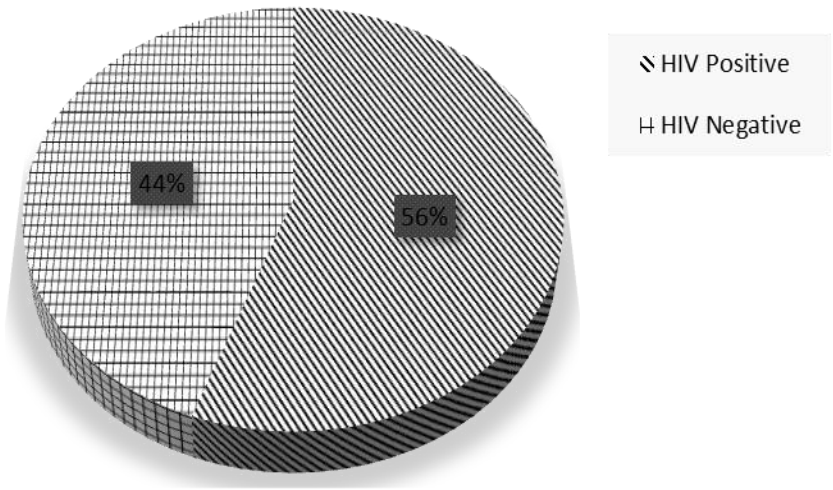

Fig 1: HIV Infection in Study Subjects

Fig 1.

Table 2 shows that of the 695 patients with HIV, 235 (33.8%) were male and 460 (66.2%) were female. There was a significant. The occurrence of HIV between both male and female patients were statistically significant (χ^2 = 12.69, p = 0.0003).

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Table 2: Distribution of HIV infection by sex

Sex	HIV Positive	HIV Negative	Chi-Square (p-value)
Male	235 (33.8)	244 (43.7)	12.69 (0.0003)*
Female	460 (66.2)	315 (56.4)	
Total	**695 (100.0)**	**559 (100.0)**	

Table 3 shows the distribution of HIV infection according to the age groups in the different zones of the state. In Rivers East, 26 (7.8%) were between 16 – 24, 121 (36.1%) were between 25 – 34, 109 (32.5%) were between 35 – 44, 55 (16.4%) were between 45 – 54, 20 (6.0%) were between 55 – 64 and 4 (1.2%) were ≥65 years. The age distribution of the HIV infected persons in Rivers South East include; 16 – 24 (13, 7.6%), 25 – 34 (60, 35.3%), 35- 44 (58, 34.1%), 45 – 54 (27, 15.9%), 55 – 64 (10, 5.9%) and ≥65 (2, 1.2%). In the Rivers West zone, There were 15 (8.1%) between 16 – 24, 67 (36.0%) between 25 -34, 61 (32.8%) between 35 – 44, 30 (16.1%) between 45 – 54, 11 (5.9%) between 55 – 64 and 2 (1.1%) ≥65 years.

Table 3: Distribution of HIV according to Zones

Age Group (years)	RE	RSE	RW	χ^2
16 – 24	26 (7.8)	13 (7.6)	15 (8.1)	0.002**
25 – 34	121 (36.1)	60 (35.3)	67 (36.0)	0.014**
35 – 44	109 (32.5)	58 (34.1)	61 (32.8)	0.06**
45 – 54	55 (16.4)	27 (15.9)	30 (16.1)	0.02**
55 – 64	20 (6.0)	10 (5.9)	11 (5.9)	0.01**
65 and above	4 (1.2)	2 (1.2)	2 (1.1)	0.007**
Total	**335 (100.0)**	**170 (100.0)**	**186 (100.0)**	

RE: Rivers East, RSE: Rivers South East, RW: Rivers West

**Difference is not statistically significant (p > 0.05)

The distribution of HIV according by sociodemographic variables are presented in Table 4 shows no significant association between sex and HIV infection in the three zones (χ^2 = 1.325, p = 0.5155). HIV infection was significantly higher (χ^2 = 68.31, p < 0.0001) in married subjects in the three zones; 56.4%, 58.1% and 56.3% in RE, RW and RSE respectively. HIV infection was also significantly higher (χ^2 = 18.43, p = 0.0052) among subjects with secondary school education; 54.5%, 50.3% and 51.6% in RE, RW and RSE respectively. While the self-employed had a significantly higher (χ^2 = 224, p< 0.0001) proportion of HIV infection in the three zones; 48.4%, 31.4% and 363% in RE, RW and RSE respectively.

Table 4: Sociodemographic distribution and HIV prevalence in each Zone

Variable	RE (n, %)	RW (n, %)	RSE (n, %)	χ^2 (p-value)
Sex				
Male	100 (31.8)	65 (34.0)	70 (36.8)	1.325 (0.5155)**
Female	214 (68.2)	126 (66.0)	120 (63.2)	
Total	**314 (100.0)**	**191 (100.0)**	**190 (100.0)**	
Marital Status				
Single	120 (38.2)	59 (30.9)	62 (32.6)	68.31 (<0.0001)*
Married	177 (56.4)	111 (58.1)	107 (56.3)	
Divorced	0 (0.0)	1 (0.5)	20 (10.5)	
Widowed	17 (5.4)	20 (10.5)	1 (0.5)	
Total	**314 (100.0)**	**191 (100.0)**	**190 (100.0)**	
Education				
No Formal education	4 (1.3)	14 (7.3)	13 (6.8)	18.43 (0.0052)*
Primary	62 (19.7)	43 (22.5)	47 (24.7)	
Secondary	171 (54.5)	96 (50.3)	98 (51.6)	
Tertiary	77 (24.5)	38 (19.9)	32 (16.8)	

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Total	**314 (100.0)**	**191 (100.0)**	**190 (100.0)**	
Occupation				
Civil servant	53 (16.9)	22 (11.5)	50 (26.3)	
Private Employment	31 (9.9)	19 (9.9)	54 (28.4)	
Self Employed	152 (48.4)	61 (31.9)	69 (36.3)	224 (<0.0001)*
Health worker	2 (0.6)	60 (31.4)	0 (0.0)	
Student	34 (10.8)	17 (8.9)	10 (5.3)	
Unemployed	42 (13.4)	12 (6.3)	7 (3.7)	
Total	**314 (100.0)**	**191 (100.0)**	**190 (100.0)**	

RE: Rivers East, RSE: Rivers South East, RW: Rivers West

*Difference between the groups is statistically significant ($p < 0.05$)

**Difference between the groups is not statistically significant ($p > 0.05$)

4. DISCUSSION

The study showed a 56% of HIV among the study subjects. This is higher than the prevalence of HIV recorded in other hospital-based study across Nigeria ranging from 28.4% - 37.8% [8-11]. The prevalence is also higher than the national prevalence of 4.6% [12-13]. This is also consistent with the similar studies indicating that HIV prevalence is similarly higher in Rivers state compared to other parts of the country [14].

The mean age of the infected subjects was 36.1±11.2 years. This is consistent with the findings of similar studies which reports a significant prevalence of HIV infection among young people [6-7]. HIV is prevalent in the young population due to some of the practice of risky social behaviours predisposing increasing the probability of infection among them [12].

The occurrence of HIV was found to be significantly higher ($p = 0.0003$) in the female subjects (66.2%) compared to the male subjects (33.8%). This is consistent with previous studies reporting a higher prevalence of HIV among females, compared to males [13-14]. Heterosexual intercourse with multiple have been reported to account for almost 80% of HIV infections key populations [15].

The occurrence of HIV was found to be significantly higher ($p < 0.0001$) among married persons in the three senatorial zones (RE: 56.4%, RW: 58.1% and RSE: 56.3%). This is not consistent with the reports of similar studies, indicating a significantly higher prevalence of HIV among single individuals, compared to married individuals [8-10]. However, a high prevalence of HIV among married people may be attributed to having infected spouses, prompting a need for HIV testing for the patients, which accounts for the high prevalence of HIV among the married subjects in this study.

HIV occurrence was significant among people with secondary school education ($p = 0.0052$) as the highest academic qualification (RE: 54.5%, RW: 50.3% and RSE: 51.6%). This is similar to the findings of related studies which indicate that HIV prevalence tend to be higher among people with secondary education or less, compared to people with post-secondary education [13-15]. People with post-secondary education tend be more perceptive on the knowledge of HIV prevention [15].

5. CONCLUSION

The study showed a significantly high prevalence among the subjects. The high prevalence of HIV among married people could be an indication of the increasing transmission of HIV from infected spouses. There is a need for an increase in HIV awareness among residents of Rivers state to curb HIV prevalence and improve the quality of life of the inhabitants of the state.

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