

## PREVALENCE OF HIV AND ASSOCIATED RISK FACTORS IN PATIENTS ATTENDING ACCIDENT AND EMERGENCY DEPARTMENT OF A TERTIARY HEALTH INSTITUTION IN SOUTH-WEST NIGERIA.

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### Abstract

**Background:** HIV infection, a major health problem worldwide, has been reported to be prevalent in patients in Accident and Emergency department, thus presents an occupational hazard to health care workers (HCW) who care for these patients.

**Objective:** The purpose of this study was to establish the prevalence of HIV and associated risk factors among patients attending Accident and Emergency department of Federal Teaching Hospital (FETHI), Ido-Ekiti.

**Materials and Methods:** This was a descriptive cross-sectional study. Data were collected using a pre-tested, coded questionnaire and blood samples. A total of 100 patients were recruited and studied. Human Immunodeficiency Virus (HIV) 1 and 2 screening was conducted on consecutive consented conscious patients using the STAT PAK™ (Chembio Diagnostic Systems Inc, USA) and Determine™ (Abbott Laboratories, IL, USA) kits for HIV 1 and 2. Data collected were entered into and analysed with SPSS 20 software (SPSS Inc., Chicago, IL, USA).

**Results:** Out of 100 patients recruited for the study, males accounted for 49% while females accounted for 51%. Those positive for HIV were 2 (2.0%) while 98 (98.0%) were confirmed negative. Both that were positive for HIV were females. The affected age-groups were 31-40 years and 51-60 years.

**Conclusion:** A risk of exposure to HIV exists in HCW who care for these patients in our institution. Thus, all emergency health care workers need to practice universal barrier precautions in order to reduce the risk of exposure to HIV infection.

**Key words:** Accident and Emergency, HCW, HIV prevalence, Patients, Risk factors.

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### INTRODUCTION

Human Immunodeficiency Virus (HIV) epidemic remain a major public health concern globally, and Sub-Saharan Africa is the most heavily affected by HIV and Acquired Immune Deficiency Syndrome (AIDS) than any other region of the world.<sup>1,2</sup> Nigeria has the second largest HIV epidemic in the world and one of the

highest rates of new infection in Sub-Saharan Africa.<sup>1,2</sup> However, despite new advancement in the availability of HIV treatment in the developing countries, many people living with HIV are still unaware of their status.<sup>2</sup> And this prevalence of undiagnosed HIV status has contributed to increase in transmission of the

disease to others and also put health care workers, especially those that work at the accident and emergency unit of hospitals at risk if universal precaution is not taken. HIV prevalence in Nigeria is currently estimated at 2.8%, and Ekiti State has the least prevalence of 0.2%.<sup>3</sup>

In the Accident and Emergency Unit, the chaotic nature of care delivery to the acutely ill patients could expose care givers and health workers to the highest risk of blood-borne diseases, not least the Human Immunodeficiency Virus. This is all the more feasible in cases with open wounds bleeding freely from traumatic injuries which are a major public health problem. Trauma, despite being the most preventable of the major public health problems, still unfortunately, imposes a greater health burden on modern society than all the other diseases. According to several reports from developed countries the prevalence of undiagnosed cases of HIV/AIDS under emergency care is around 25% in USA, 30% in UK, whereas in the underdeveloped areas figures have been graded as high as 90% (Archibald *et al.*).<sup>4</sup> Undiagnosed HIV may be a source of infection of the uninfected health personnel, thereby, posing a serious occupational hazard; in a broader note it could as well be a source of infection of the uninfected and unaffected, thereby, posing a public health problem. This study therefore, was aimed at determining the number of unknown HIV cases in patients presenting at Federal Teaching Hospital, Ido-Ekiti (FETHI), Ekiti State during the period of the study to ascertain their prevalence and by extension the risk to health workers in the tertiary health institution.

## MATERIALS AND METHODS

The study was conducted in the adult Accident and Emergency Department of Federal Teaching Hospital, Ido-Ekiti (FETHI), Ekiti State. It is a 300 bedded tertiary institution that runs an inpatient, general and specialized clinics in eighteen (18) clinical departments. It is located in Ido-Osi Local Government area of Ekiti State, South West, Nigeria. The Teaching hospital serves

Ekiti State and the neighbouring States.

The subjects were patients aged 18 years and above, presenting to the Accident and Emergency (A & E) department of FETHI which is the only section of the hospital that is on-duty round the clock attending to patients even when other units are off duty. The study enrolled 100 randomly selected conscious patients who gave their consent. A semi-structured questionnaire drafted in English Language and translated in Yoruba (local language) and back-translated into English was used to obtain relevant information on socio-demographic characteristics of respondents. On collection of blood samples for routine haematological profiling of patients presenting in the department, efforts were made to determine the awareness of the patient on his/her HIV status. This was done to rule out double sampling of HIV positive patients in the study and confirm previously undiagnosed cases.

Inclusion Criteria included in the study are conscious patients presenting in Accident and Emergency department who gave their consent and apparently unaware of their HIV status. Unconscious patients who could not give their consent and those who already know their HIV status were excluded from the study.

This survey used unlinked anonymous testing for HIV. Prior to sending the specimen for HIV screening, the container was labelled with a survey ID number that did not identify the patient. The anonymity of the patient was maintained as different personnel were involved in performing the haematological profiling and HIV screening test.

Two-step algorithm was used in performing the HIV screening test. Determine™ (Abbott Laboratories, IL, USA) HIV reagent was used to screen all specimens. Non-reactive samples were reported as HIV negative. Reactive samples were confirmed using STAT PAK™ 1 and 2 test kit (Chembio Diagnostic Systems Inc, USA) and Specimens in STAT PAK™ tests were reported as

positive for HIV 1, HIV2 or for both. Specimens positive in Determine™ test and negative in STAT PAK™ were reported as discordant. The true sero-status of each of these samples was determined using Enzyme Linked Immunosorbent Assay (ELISA) and Polymerase Chain Reaction (PCR) at the laboratory department.

#### DATA ANALYSIS

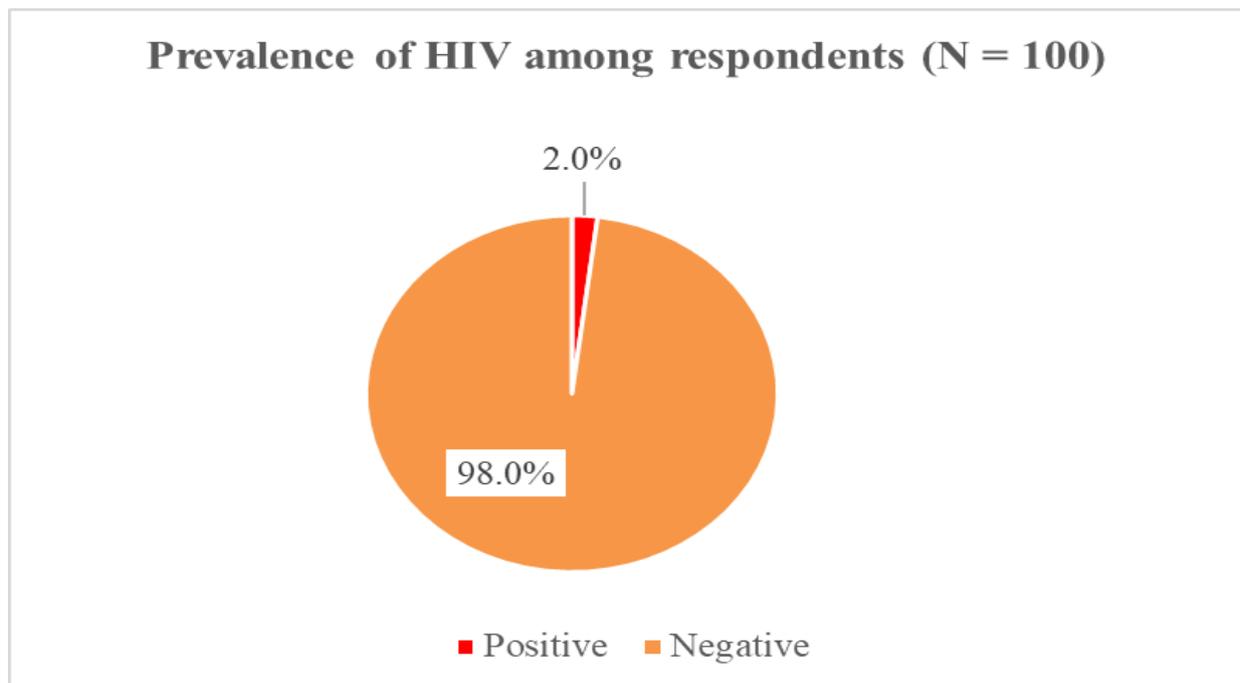
Data collected were entered into and analysed with SPSS 20 software (SPSS Inc., Chicago, IL, USA). Frequency tables and diagrams in the form of charts were generated for relevant variables. Proportions, and percentages were determined as appropriate. Test of significance was done using Pearson's Chi-square test.  $P \leq 0.05$  was taken to be statistically significant.

#### RESULTS

Of the total number of 100 patients recruited for the study, 49 (49.0%) were males while 51 (51.0%) were females. The age group 31-40 years and above 60 years have the highest number of patients in the study 25 (25%) each. Eighty-two (82.0%) were married (Table 1). Two respondents were positive for HIV (figure 1) and both were females. As shown in table 2, respondents who were sero-positive attended the accident and emergency department on account of illness, undiagnosed of HIV before the screening, have HIV negative sexual partner but has been engaging in unprotected short-term sexual relationship, not an intravenous drug user in the past 5 years.

**Table 1: Socio-demographic characteristics of respondent patients**

Variable	Frequency N = 100	Percentage (%)
Sex		
<b>Male</b>	49	49.0
<b>Female</b>	51	51.0
Age category (in years)		
<b>11 – 20</b>	3	3.0
<b>21 – 30</b>	12	12.0
<b>31 – 40</b>	14	14.0
<b>41 – 50</b>	25	25.0
<b>51 – 60</b>	21	21.0
<b>Above 60</b>	25	25.0
Occupation		
<b>Civil servant</b>	26	26.0
<b>Artisan</b>	6	6.0
<b>Trading</b>	47	47.0
<b>Farming</b>	11	11.0
<b>Retiree</b>	10	10.0
Marital Status		
<b>Single</b>	15	15.0
<b>Married</b>	82	82.0
<b>Divorced</b>	2	2.0
<b>Widowed</b>	1	1.0
Domicile		
<b>Urban Ekiti</b>	48	48.0
<b>Rural Ekiti</b>	44	44.0
<b>Outside Ekiti</b>	8	8.0
Religion		
<b>Christianity</b>	74	74.0
<b>Islam</b>	26	26.0
Educational level		
<b>None</b>	19	19.0
<b>Primary</b>	13	13.0
<b>Secondary</b>	22	22.0
<b>Tertiary</b>	27	27.0
<b>Postgraduate</b>	19	19.0
Income (in Naira)		
<b>≤ 20,000</b>	50	50.0
<b>&gt;20,000 – 40,000</b>	36	36.0
<b>&gt; 40,000</b>	14	14.0



**Figure 1: A pie chart showing the prevalence of HIV among the respondent patients**

**Table 2: Relationship between prevalence of HIV among respondents and some risk factors**

Variable	HIV Status		Chi square	p-value
	Positive n (%)	Negative n (%)		
Reason for attending casualty				
<b>Injury</b>	0 (0.0)	22 (22.4)		<b>1.000*</b>
<b>Illness</b>	2 (100.0)	76 (77.6)		
HIV positive blood test				
<b>Yes</b>	0 (0.0)	1 (1.0)		<b>1.000*</b>
<b>No</b>	2 (100.0)	97 (99.0)		
Been sexual partner of HIV positive person				
<b>No</b>	2 (100.0)	98 (100.0)		
Intravenous drug user in the last 5 years				
<b>No</b>	2 (100.0)	98 (100.0)		
Use of condom during short term sexual relationship				
<b>Always</b>	0 (0.0)	9 (9.2)	2.358	<b>0.502**</b>
<b>Sometimes</b>	1 (50.0)	33 (33.7)		
<b>Never</b>	1 (50.0)	22 (22.4)		
<b>Does not apply</b>	<b>0 (0.0)</b>	<b>34 (34.7)</b>		

## DISCUSSION

The prevalence of HIV seropositivity in some emergency population has been reported to be higher than in general population and thus presents an occupational hazard to healthcare workers who care for these patients. The present study has documented the prevalence and risk factors of HIV infection among patients attending Accident and Emergency department, FETHI, Ekiti State. The present study highlights 2.0% HIV seropositivity which was high as compared to seroprevalence among the general population (0.2%) in Ekiti State, but similar to the HIV prevalence in Nigeria currently estimated at 2.8%. The present study found lower prevalence than found by Archibald *et al.*<sup>4</sup> in the developed countries (25% in USA, 30% in UK), and in several sub-Saharan African countries.

The reduced prevalence rate in this study as compared with that of Archibald *et al.* in sub-Saharan African countries could be as a result of increased HIV awareness programmes in the country, particularly in Ekiti State known as the Fountain of Knowledge, along with voluntary counselling and testing (VCT) and a host of other relevant available interventions like antiretroviral therapy (ART). This difference in HIV seroprevalence reflects differences in the overall prevalence for risk factors for HIV infection in general population from one country to another.

The affected HIV sero-positive in the present study was females across two age groups, 31-40 years and above 60 years. This is in tandem with what is generally known that females are more prone to HIV/AIDS than males<sup>2,5,6</sup> and this may be from the biological point of view.

The affected age group in this study shows that all the age groups are prone to undiagnosed HIV/AIDS and could endanger the uninfected and unaffected care giver, thus making a case for the disclosure of the status of the patient to the care giver, in order to reduce the chance of getting infected.

The HIV sero-positive in this study reported to have risk factor for HIV infection mainly short-term sexual relationship without protective barriers, which was similar to what was reported in Tamilnadu, South India<sup>7</sup> and Tanzania.<sup>8</sup> The reason

most of the respondents attended the Accident and emergency department was on account of illness and not injury.

## CONCLUSION

In conclusion, this study has shown that HIV infection is prevalent among patients attending Accident and emergency department of FETHI. This preliminary study has elucidated that many emergency cases are unaware of their status even though FETHI serves as a referral centre for primary and secondary health care centres in Ekiti and its environs, and thus emphasizes the need for more study. Therefore, more efforts are needed in our Emergency Units to identify all cases of HIV/AIDS so as to rule out occurrences of undiagnosed/misdiagnosed HIV/AIDS. Also, there is a substantial risk of exposure to HIV exists in health care workers who care for these patients, hence all health care workers in the Accident and Emergency department need to practice universal barrier precautions in order to reduce the risk of exposure to HIV infection.

## CONFIDENTIALITY

The Health Institution's (FETHI) policy states that the haematological profile of all patients presenting at the A&E department should be determined since there is a possible chance of receiving blood transfusion.

## ETHICAL APPROVAL

The research work was examined and approved by the hospital research and ethics committee.

## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

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