

## Human Immunodeficiency Virus Infection In A Rural Community of Plateau State: Effective Control Measures Still A Nightmare?

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### ABSTRACT

**Background:** This study was designed to find out the prevalence of human immunodeficiency virus (HIV) infection in Zawan village as well as their socio-cultural practices that promote its spread.

**Methods:** Three hundred subjects were recruited into the study comprising 193 males and 107 females by a simple random sampling method. A structured questionnaire was administered to each respondent and 5mls of blood collected and assayed for anti-HIV antibodies. The results were analysed using statistical software Epi-Info version 6,  $P < 0.05$  was considered significant.

**Results:** The prevalence of HIV in Zawan village was found to be 8.3% (25 out of 300) and the significant risk factors noted were- use of sharp objects, trading and the divorce/ separated group, ( $P < 0.05$ ). Other factors such as tattooing, male circumcision by traditional method and tonsillectomy were not found to be statistically associated with HIV infection in this community, ( $P > 0.05$ ).

**Conclusion:** HIV is still causing serious devastation in our rural communities. Hence government should supply affordable antiretroviral drugs to our rural dwellers, step up public enlightenment campaign and pursue with vigour the present micro-economic revival policies to alleviate abject poverty in our rural communities.

**KEY WORDS:** Human Immunodeficiency virus; Zawan; Control.

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### INTRODUCTION

When a case of Acquired Immunodeficiency syndrome (AIDS) was first reported in far away USA in 1981<sup>1,2</sup>, the African continent would have at least thought it over that 24 years later, it would turn out to be the worst continent hit by this epidemic<sup>3-7</sup>. In Nigeria, the first case of AIDS was reported in 1986. The disease has attained an unprecedented epidemic as the dreaded HIV currently infects over 7 million of her 130 million people. The disease has continued to ravage both our rural and urban communities' alike<sup>4-6</sup> in the midst of the present control measures employed by government, non-governmental organizations as well as private individuals.

There is therefore the need for periodic assessment for the efficacy of the available control measures against AIDS. As it is in the prevention and control against any other disease, control measures are said to be successful only when there is a sustained decrease in the prevalence of HIV infection in a community.

This study was designed to find out the prevalence of HIV infection in Zawan village as well as their socio-cultural behaviours that could promote the spread of this virus. Findings from the study will also be used to generate

baseline data for future analysis since no similar study has been carried out in the locality.

In addition, there is need for a continued publication and update on a disease that has attained an epidemic of this magnitude with its ongoing catastrophes<sup>9-11</sup>.

### MATERIALS AND METHODS

#### Study Area

The study was carried out in Zawan village, a settlement of about 20 kilometres outside Jos city in Jos south LGA of Plateau state. It has an estimated population of 4,443 inhabitants with farming as their predominant occupation.

#### Study Design

The churches and village heads were used to mobilize people to "Our Lady of Apostles" (OLA). Hospital Zawan, a cottage hospital in the locality. Three hundred subjects were recruited into the study through simple random sampling method. A structured questionnaire was self administered to each respondent and information on their socio-cultural behaviours such as use of sharp objects, tattooing, male circumcision by traditional methods, occupation and marital status were obtained. Five milliliters of blood was collected from a peripheral vein of each respondent. This was allowed to clot, the serum was centrifuged, separated and stored at  $-4^{\circ}\text{C}$  until processed.

#### Test Procedure

Two separate HIV screening kits were used for spot diagnosis, this is a standard recommendation for diagnosis of HIV using spot tests by WHO.

(a). The Genie HIV I/ HIV 2 kit test product of Sanofi diagnostics Pasteur, La Coquette France. It has a sensitivity of 100% and specificity of over 99.8%.

(b). Clinotech Diagnostics method, a product of Clinotech Diagnostics and pharmaceuticals, Richmond BC V7A 4 X 9 . Canada. It has sensitivity and specificity of 99.7%.

#### Interpretation of Results.

The results were interpreted as follows-

i) Positive- Either Sanofi and Clinotech spot tests were reactive, or only one was reactive which was further confirmed reactive by Western blot.

ii) Negative- Either both, or one of the two spot tests were non-reactive which was further confirmed non-reactive by Western blot.

**Ethical Issues** Ethical clearance for the study was sought for and obtained from the Ethical committee of Jos University Teaching Hospital, Jos.

#### Analysis of Results

Results were analysed using statistical software EPI-Info version 6. P values  $< 0.05$  were considered significant.

### RESULTS

Out of 300 subjects comprising 193 (64.3%) males and 107 (35.7%) females, 25 (8.3%) were reactive for HIV. This

comprises of 17(5.6%) males and 8(2.7%) females. (Table I).

Eighty three (27.7%) respondents had tonsillectomy out of which 4(1.3%) were reactive for HIV, (P>0.05). Similarly, 80(26.7%) respondents had circumcision by traditional method of which 5(1.7%) were reactive for HIV, (P>0.05). Seven (2.3%) were reactive among 101(33.7%) subjects who practiced tattooing, (P>0.05), and 14(4.7%) respondents were reactive for HIV out of the 168 that engaged in the use of sharp instruments ( P>0.05). Out of the 17 divorcee/ separated group, 9(3.0%) were reactive for HIV, (P<0.05). Eight (2.3%) and 3(1.0%) were reactive among the married and single group respectively (P>0.05), (Table II).

Table III shows occupational distribution of HIV in Zawan village. Five (1.7%) persons were reactive among farmers,(P>0.05), 6(2.0%) among students, (P>0.05%). Among housewife and civil servants, 2(0.7%) and 3(1.0%) were reactive for HIV respectively, (P>0.05).

**Table I. Age And Sex Distribution Of Human Immunodeficiency Virus Seroprevalence In Zawan Village, Plateau State.**

| HUMAN IMMUNODEFICIENCY VIRUS SEROPREVALENCE |          |        |              |          |           |
|---|----------|--------|--------------|----------|-----------|
| AGE   | REACTIVE |        | NON-REACTIVE |          | TOTAL     |
|   | M        | F      | M            | F        |           |
| 11-20                                       | 3(1.0)   | 1(0.3) | 12(4.0)      | 6(2.0)   | 22(7.3)   |
| 21-30                                       | 6(2.0)   | 4(1.4) | 62(20.7)     | 49(16.3) | 120(39.3) |
| 31-40                                       | 5(1.4)   | 2(0.7) | 48(16)       | 24(8.0)  | 80(27.0)  |
| 41-50                                       | 2(0.3)   | 1(0.3) | 33(11.0)     | 10(3.3)  | 46(15.4)  |
| 51-60                                       | 1(0.3)   | 0(0)   | 17(5.7)      | 8(2.7)   | 26(9.0)   |
| 61-70                                       | 0(0)     | 0(0)   | 4(1.3)       | 2(0.7)   | 6(2.0)    |
| TOTAL                                       | 17(5.6)  | 8(2.7) | 176()        | 99()     | 300(100)  |

(Parenthesis=percent Total)

**Table II. Seroprevalence Of Human Immunodeficiency Virus By Associated risk factors in Zawan village, Plateau State.**

| HUMAN IMMUNODEFICIENCY VIRUS SEROPREVALENCE       |          |              |                |          |
|---|----------|--------------|----------------|----------|
| RISK FACTORS                                      | REACTIVE | NON REACTIVE | X <sup>2</sup> | P VALUES |
| TONSILLECTOMY<br>n = 83                           | 4(1.3)   | 79(26.3)     | 0.08           | >0.05    |
| MALE CIRCUMCISION BY TRADITIONAL METHOD<br>n = 80 | 5(1.7)   | 75(25.0)     | 0.08           | >0.05    |
| TATTOO<br>n= 101                                  | 7(2.3)   | 94(31.3)     | 0.13           | >0.05    |
| USE OF SHARP OBJECTS<br>n=168                     | 14(4.7)  | 154(51.3)    | 0.31           | >0.05    |
| MARRIED<br>n = 172                                | 8(2.7)   | 164(54.7)    | 0.10           | >0.05    |
| SINGLE<br>n= 101                                  | 3(1.0)   | 98(32.7)     | 0.02           | >0.05    |
| DIVORCE<br>n= 27                                  | 9(3.0)   | 18(6.0)      | 5.63           | <0.05    |

(Parenthesis=Percent Total)

**Table III. Seroprevalence Of Human Immunodeficiency Virus By Occupation in Zawan Village, Plateau State.**

| HUMAN IMMUNODEFICIENCY VIRUS SEROPREVALENCE |          |              |                |          |
|---|----------|--------------|----------------|----------|
| OCCUPATION                                  | REACTIVE | NON-REACTIVE | X <sup>2</sup> | P VALUES |
| FARMER<br>n = 99                            | 5(1.7)   | 94(31.3)     | 0.07           | >0.05    |
| STUDENT<br>n = 51                           | 6(2.0)   | 45(15.0)     | 0.52           | >0.05    |
| TRADER<br>n= 45                             | 17(5.7)  | 28(9.3)      | 7.33           | <0.05    |
| HOUSEWIFE<br>n= 41                          | 2(0.7)   | 39(13.0)     | 0.03           | >0.05    |
| CIVIL SERVANT<br>n = 23                     | 3(1.0)   | 20(6.7)      | 0.11           | >0.05    |
| OTHERS<br>n= 31                             | 1(0.3)   | 30(10)       | 0.01           | >0.05    |

(Parenthesis=Percent Total)

## DISCUSSION

The prevalence of HIV infection in Zawan village was 8.3%(25 out of 300). This finding is higher than that of the over all national prevalence of 5.5%<sup>7</sup> but similar to the findings from Benue state of 9.3%<sup>7</sup> and markedly higher than the findings from Osun state of 1.2%<sup>7</sup>. This shows that the prevalence of HIV in Nigeria varies from community to community and from region to region. The prevalence of 12% in another community further strengthens this view<sup>7</sup>.

The HIV seroprevalence of 8.3% from this study is much higher than that of Durosini<sup>2</sup> in Ile Ife of 3% among blood donors. Both regions have some resemblance, while Zawan is a rural community, Ile-Ife is semi urban in nature. The high prevalence recorded in Zawan could be due to the low level of awareness about the control and prevention of this disease. On the other hand Ile-Ife, with relatively more health facilities typified by the presence of the Ultramodern Teaching hospital complex has higher chances of accessibility to appropriate preventive and control measures against HIV. The appropriate attitudinal changes being exhibited by the people of Ile-Ife may still be lacking in Zawan village. In addition, the illiteracy level in Zawan village could contribute to this high prevalence. Over 70% of the people in the locality did not attain secondary education, hence this could make the task of health education more difficult. This also ignites the vicious circle of public health concern- illiteracy-ignorance-poverty disease.

The findings from this study are consistent with the findings of *Idigbe et. al*<sup>12</sup> in 1997 from a prison study. This raises the suspicion of possible exposure to similar risk factors by these two groups of people. The prevalence of HIV was highest among the 21-30 years old range. This is consistent with finding from other studies<sup>2,14</sup>. However findings from males was higher than females (5.6% versus 2.7%); this difference was statistically significant (p < 0.05). This may be due to the adventurous nature of males in this locality which contrariwise has placed them at a higher risk compared to the females. There was no significant association between HIV and sociocultural practices such as tonsillectomy, tattooing, use of sharp objects and male

circumcision by traditional method. The few cases noted among those categories of people however, still constitute a serious public health problem. This is going by the simple analogy that, in 1986 it was only one case of AIDS that was reported in the entire country<sup>2</sup>. Also the lack of association with male circumcision could be due to the relative newness of HIV infection, since this is not likely to be a risk factor to those 25 years and above. Female circumcision is not practiced in this locality.

The prevalence of HIV was high among the divorcee/separated group possibly due to multiple sexual practice. This calls for the need for appropriate policy formulation towards reorientation, rehabilitation and job creation for this category of people whose population continue to increase day by day. Since from the public health point of view, they constitute a large reservoir for the continuous spread of this infection<sup>15-17</sup>.

Among the occupations practised in the community, the prevalence of HIV was found to be significantly high among traders. There is need for proper and more elaborate education of this category of people on safe and healthier sexual relations while on transit. This should among others include:-regular and proper use of condoms; maintaining permanent friends along their travel routes; insistence on regular and periodic HIV been screening among sexual relations, and to continue using condom with friends that have screened and found to be negative.

## CONCLUSION

Human immunodeficiency virus infection is still a medical disaster with us. We call on the federal government to make antiretroviral drugs available to the infected people in the rural communities alike. Similarly, the ongoing health education should be strengthened and redesigned to accommodate the pace of knowledge assimilation of our rural dwellers.

In addition, the poverty level in the country is quite alarming and it constitutes a serious impediment towards realizing the goal of effective HIV control in the country as it has been done in other nations of the world<sup>18</sup>. Therefore, government should pursue her micro-economic revival policies with vigor such as:-New economic empowerment strategy (NEEDS); National poverty eradication programme (NAPEP) and Small and medium enterprises development agency of Nigeria (SMEDAN) among others. This will act as a catalyst towards the success of the war against HIV in Nigeria.

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