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Prevalence of Human Immunodeficiency Virus Infection Among Pregnant Women: Are We Winning the War?

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Abstract

The Human Immunodeficiency Virus (HIV) prevalence in prenatal clinic indicates that the gap in HIV prevalence between sub-regions of Africa is not reducing but widening. No evidence suggests that pregnancy accelerate the progression of HIV infection to AIDS in women, but pregnancy in HIV infected mothers are more likely to result in prematurity, intrauterine growth retardation, spontaneous abortion, and prenatal death. The aim was to determine the prevalence of HIV infection among pregnant women attending a rural primary health center for care. The study was designed as cross-sectional survey and case series using 80 pregnant women, randomly selected among those attending Antenatal care in a primary health center in Local Government Area in Rivers State, Nigeria. Descriptive method was used to represent the characteristics of the subjects and the differences in HIV infection among subjects analyzed using frequencies and percentages. The findings showed that out of 80 subjects studied; (14%) were HIV positive, (86%) were HIV negative; knowledge of risk factors identified were unprotected sex with sex partner/s (39%); existence of other sexually transmitted infection (33%); sharing of sharp instrument (17%); transfusion of unscreened blood (11%). Conclusion, the majority of the women had good knowledge of awareness on HIV infection and control using medication; which is a sound basis for the epidemiology, outcome, and effectiveness in prevention and control of HIV/AIDS in such a rural setting, considering socio-demographic factors. Awareness creation on risk factors of HIV/AIDS, lifestyle changes and adherence

Keywords: Prevalence, HIV, Pregnancy, Ante-Natal Care, Primary Health Centre, Awareness, Control

1. INTRODUCTION

Human Immunodeficiency Virus (HIV) infection, with its high rate and consequences, is a socio-economic disaster for most developing countries and having a potential to reverse health and development gain (WHO, 2010). Depending on socio-economic and gender disparity, women are at high risk of the infection and have had few options for providing for their families and children affected by HIV, due to their parental illness or death. The trend in HIV prevalence in the prenatal clinic indicate that the large gap in HIV prevalence between sub-regions of Africa is not reducing but widening (Cherinet et al., 2013). However, no substantial evidence

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suggesting that pregnancy accelerate the progression of HIV infection to AIDS in women, but pregnancy in HIV infected mothers are more likely to result in prematurity, intrauterine growth retardation, spontaneous abortion, and prenatal death. Therefore, it is important to note that without sustainable strategic interventions, the rate of HIV mother-to-child transmission (MTCT) will continue to increase in its range from 25% to 40% as reported by the Joint United Nations Programme on HIV/AIDS in 2010.

Prevalence in epidemiological point of view is a statistical concept referring to the number of cases of a disease or characteristics of a disease that are present in a particular population group of interest at a given time.

Antenatal care is a care pregnant mother receives from health care professionals during pregnancy in an antenatal clinic, aimed at providing increased continuity of pregnancy care to reducing pregnancy-related morbidity as well as associated HIV infection among pregnant women, as to improve pregnancy outcome.

A pregnant woman who is HIV positive can transmit the virus to others when infected blood or vaginal fluids come in contact with broken skin or mucus membrane. Though cause of AIDS is HIV, but some factors may increase the chance of developing it, such as: having unprotected sex; transfusion of blood infected with HIV; sharing of sharp objects infected with HIV; vertical transmission of HIV from infected mother to child during pregnancy/delivery process; having other sexually transmitted infection/s.

Quite importantly, report had shown that HIV epidemic drivers for pregnant women include; inadequate primary prevention and family services for women living with HIV, particularly those in the rural areas driven by fear of discrimination and stigmatization from city/urban settings; inadequate prevention of mother-to-child transmission (PMTCT) of HIV coverage, particularly the rural communities; low early infant diagnosis (EID), noting peculiarity of rural setting in terms of trained and qualified clinical manpower, adequacy of equipment for testing at 6weeks of age of child; breastfeeding practices, particularly mixed feeding practices and cultural practices, for instance, wife inheritance.

Available literatures showed that globally, the estimate for HIV prevalence among pregnant women of all ages remained at 3.6% in the year 2009 (Joint United Nations Programme on HIV/AIDS, 2010). Pooled data for all countries in sub-Saharan Africa indicated that HIV prevalence among pregnant women declined in trend from 6.5-5.3% from 2003 to 2012 (Eaton *et al.* 2014). In Nigeria, a report from 2001 to 2010 indicated a seemingly gradual and steady decline in the trend of HIV prevalence among pregnant women attending antenatal clinics from 5.5% in 2001; 5.0% in 2003; 4.1% in 2005 and 4.1% in 2010 (FMH, 2012). However, reports from further studies indicated an upward trend in HIV prevalence of 4.9% in Bayelsa in 2013 (Ibrahim, Owoeye and Obilahi, 2013); 8.83% in Nnewi in 2014 (Okafor, Dinmoke and Udigwe, 2014) and slightly lower (8.3%) in Jos in 2016 (Charles, *et al.* 2016).

Nevertheless, in 2014 about 1.2million pregnant women were living with HIV in Nigeria and Nigeria is 1 of only 4 of the 22 priority countries with an HIV testing rate of less than 20% among pregnant women (National HIV and AIDS Sentinel Seroprevalence Survey, 2014). It is therefore, necessary to determine the prevalence of HIV infection among pregnant women attending Antenatal care in a typical rural primary health centre that is operationally designed to serve about 70% population in midst of culturally influenced factors and stigma to form basis for scientific opinion about our winning the war against HIV/AIDS in the light of vision 90-90-90 by 2020 (just 2years away) target on antiretroviral treatment services in Nigeria, targeting about 3.4 million estimated HIV infected persons, pregnant women inclusive. This means that by the year 2020, 90% of all people living with HIV should know their HIV status; 90% of all persons diagnosed with HIV will receive sustained antiretroviral treatment, and 90% of all persons receiving antiretroviral treatment will have durable suppression of the viral load, to reduce new incidences and reduce the prevalence of HIV.

1.1. Aim of the Study

The study aimed to determine the prevalence of HIV infection among pregnant women attending Antenatal care in a typical rural primary health center and to investigate the level of knowledge and awareness on risk factors of HIV infection among pregnant women in such rural setting.

2. MATERIALS AND METHODS

2.1 Research Design

The design used for the study was cross-sectional survey and case report method, aimed at determination of the prevalence of HIV infection as well as knowledge and awareness on risk factors of HIV infection among pregnant women attending ANC in the study area.

The inclusion criterion was all pregnant women attending ANC at the primary health center in the study area, while the exclusion criterion was the removal of any subject with difficulty in extracting complete information required for the study. See the schematic diagram of the design in figure 1.

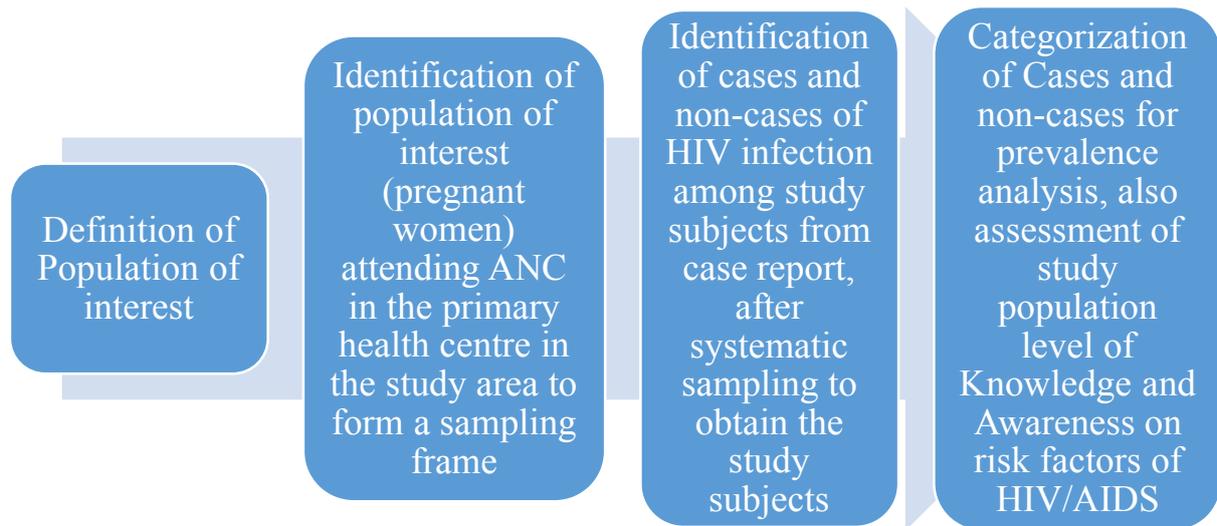


Figure 1 Schematic Diagram of Cross-Sectional Study (Observational Study)

2.2 Area of Study

This research work was carried out in a rural setting of Kegbara Dere community in Gokana Local Government Area of Rivers State, Nigeria. It is situated between longitudes 7.01⁰ and 7.07⁰ E and latitudes 4.08⁰ and 4.2⁰ N of the Niger Delta area of Nigeria, bounded by B. Dere and Biara communities, in the North; Kor and Bomu communities in the South; Bera community in the East; Onne in Eleme Local Government Area in the West. The community has government primary and secondary schools, shell petroleum development facility and a primary health center among other socio-economic facilities.

2.3. Study Population

The population used in this study was pregnant women in Kegbere Dere community in Gokana Local Government Area of Rivers State, Nigeria. From census figure of 2006, the total population of Kegbara Dere stands at 15,269. Therefore, 5% of the total population constitutes pregnant women (NPHCDA, 2012), translating to 0.05X15,269 = 764 pregnant women as an estimation in the study area and forming the basis for the sampling frame at the health facility.

2.3.1 Determination of Sample Size

The sample size for this study was based on the formula for systematic sampling method.

$$N = \frac{Z^2 pq}{d^2} \dots\dots\dots \text{Eq. 1}$$

Where N= Required Size of sample

Z= Level of statistical certainty chosen or confidence interval:

For 95%; Z= 1.96;

d= degree of accuracy desired = half the confidence interval

p= estimated level/prevalence/coverage rate being investigated

For prevalence of 5%; $Z= 1.96$ rounded up to 2 and applying equation 1, we have

$$N = \frac{2^2 \times 0.05 (1 - 0.05)}{0.05^2} = \frac{4 \times 0.05 (0.95)}{0.0025} \\ = \frac{0.19}{0.0025} = 76$$

To make up for coverage error, the sample size was rounded up to 80 by adding 4 (5.2% of 76). This sample size represents about 10% of the study population which is quite significant and so findings suitable for generalization.

2.4 Sampling Procedure

The sampling procedure used was systematic random sampling method where every other name/person from the names of all pregnant women attending ANC at the primary health facility as listed and arranged in order (sampling frame) were picked or selected for the study. On the whole, 80 pregnant women were selected and used for the study.

2.5 Instrument for Data Collection

The instruments used for data collection was set of structured questionnaires. The items were based on demographic characteristics, knowledge, and attitude of the study population as it had to do with risk factors of HIV/AIDS. Also, used was existing medical/health records covering a period of 6months (January – June 2017) which were reviewed to determine the HIV status of the study population. The developed questionnaire was reviewed for content validity. Pilot-testing for an understanding of items by study population was conducted, using 10 pregnant women who did not form part of the sample used for the study.

2.6 Data Collection Procedure

Records of cards/folders of the randomly selected pregnant women attending ANC in the primary health facility were reviewed to provide information concerning screening for HIV to determine their status among others. The questionnaire was also administered on the pregnant women to obtain data on knowledge and awareness on risk factors of HIV/AIDS infection/disease.

2.7 Ethical Consideration

Participants were not subjected to harm in any way whatsoever. The protection of privacy and dignity of participants were ensured. An adequate level of confidentiality of research data was also ensured, noting that full consent of the participants was obtained prior to the study process of data collection. Approval for carrying out the study at study area quite earlier obtained from health authority and health facility management.

2.8 Method of Data Analysis

Data from responses and review of existing medical/health records of participants were collated and presented in a tabular form with nominal scale, showing values for the variable of study. The entries were double checked for possible error of recording. Qualitative descriptive analysis by way of frequencies and percentages were carried out. Descriptive method was used to represent the characteristics of the subjects and the differences in HIV infection among subjects.

3. RESULTS

TABLE 1 Distribution of Socio-Demographic Characteristics of Study Population

Variables/Factors	Frequency	%
Age in Years		
18-22	22	27
23-27	29	36
28-32	23	29
33-37	4	5

38-42	2	3
43 & Above	0	0
Total	80	100
Marital Status		
Single	34	42
Married	20	25
Separated	6	8
Widow	20	25
Total	80	100

TABLE 2 Distribution of Socio-Economic Characteristics of Study Population

Variables/Factors	Frequency	%
Educational qualification		
Primary	20	25
Secondary	39	49
Tertiary	7	9
Non formal education	14	17
Total	80	100
Occupational status		
Civil servant	9	11
House wife	28	35
Self-employed	7	9
Unemployed	36	45
Total	80	100

Table 1 showed that, a total of eighty pregnant women were studied in this research work, in which the age distribution revealed that **majority, 29 (36.0%) were within 23-27 years' age bracket**, against 23 (29.0%) within 28-32years' age group and 22 (27%) within 18-22 years, whereas the age groups of 33-37 years and 38-42 years were 4(5%) and 2(3%) respectively; none of the participants fell under the age group of 43 and above. The marital status distribution showed that **majority, 34 (42%) were single**, against 20(25%) each who was married and widowed; while 6(8%) were separated.

In table 2, the educational qualification distribution showed that the **majority, 39(49%) had obtained secondary school education**, against 20(25%) who had primary school education; while 14(17%), had non-formal education; whereas 7(9%), had tertiary school education. The occupational distribution indicated that the **majority, 36(45%) were unemployed**, against 28(35%) who were house wife, while 9(11%) were civil servants, whereas 7(9%) were self-employed.

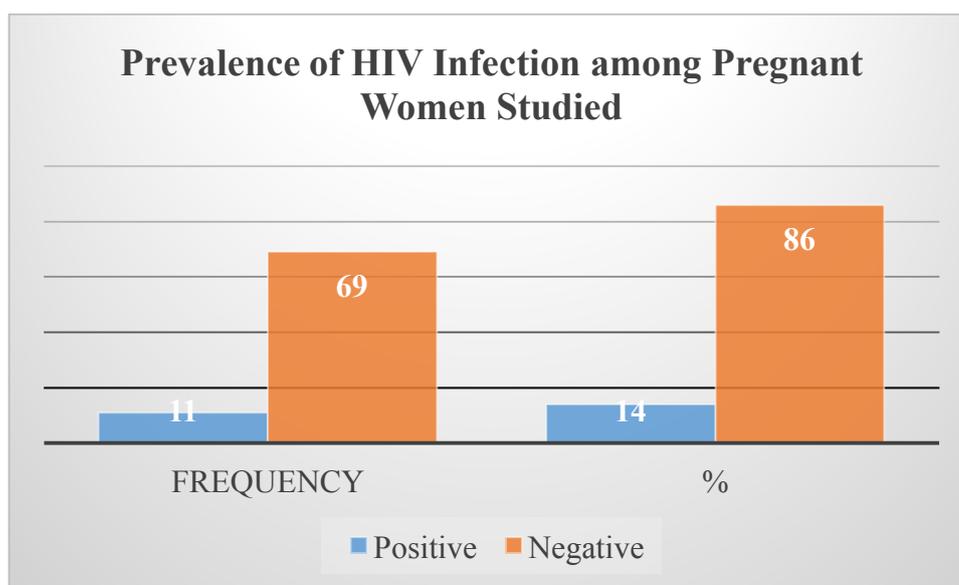


Figure 2: Prevalence of HIV Infection among Pregnant Women

In figure 2, showing the prevalence of HIV infection among N=80 pregnant women studied in this research work revealed that n=69(86%) were of negative HIV status, against n=11(14%) who were of positive HIV status.

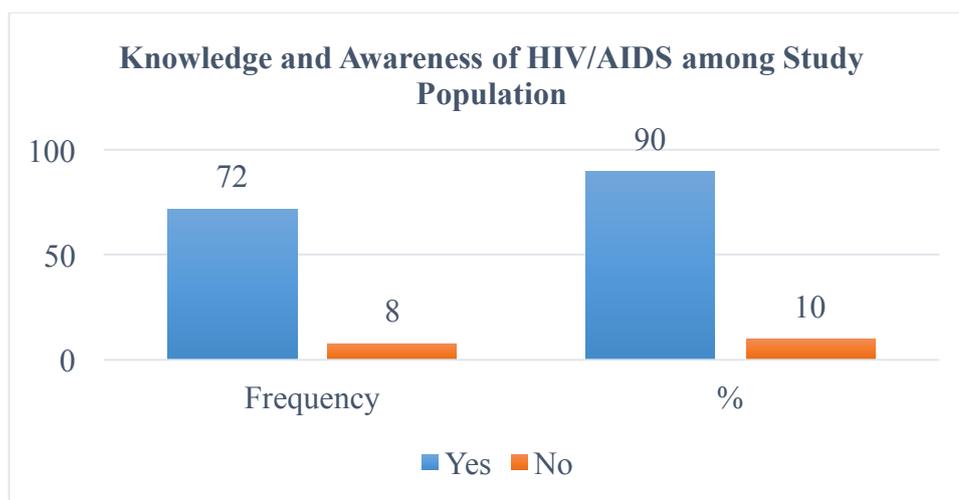


Figure 3: Knowledge and Awareness of HIV/AIDS among Study Population

Figure 3, which reflected knowledge and awareness of the study population, indicated that of N=80, n=72(90%) had knowledge and awareness of HIV/AIDS, while n=8(10%), claimed ignorant of HIV/AIDS.

Table 3 Knowledge and Awareness on Risk factors associated with HIV/AIDS among Study Population

Risk Factor	Frequency(n)	%
Sharing of sharp instrument/objects	14	17.0
Unprotected sex with sex partner/s	31	39.0
Transfusion of unscreened blood	9	11.0
The existence of other sexually transmitted infection/disease	26	33.0
Total	80	100

Table 3, showed knowledge and awareness on risk factors associated with HIV/AIDS as declared by the study population, N=80, in which majority, n=31(39%) identified unprotected sex with sex partner/s as the most common risk factor, followed closely by n=26(33%), who identified existence of other sexually transmitted infection/disease as the more common risk factor of HIV/AIDS. The other risk factors identified in their order were, sharing of sharp instrument/object, 14(17%) and transfusion of unscreened blood, 9(11%) respectively.

4. FINDINGS

The socio-demographic characteristic distribution of the study population showed that **majority, 29 (36.0%) were within 23-27 years' age bracket**, closely followed by 23 (29.0%) within 28-32years' age group and 22 (27%) within 18-22 years. In the marital status category, **the majority, 34 (42%) were single**, against 6(8%) who were separated. In the socio-economic characteristic distribution, more of the subjects, **39(49%) had obtained secondary school education**, against 7(9%), who had tertiary school education. **The majority, 36(45%) were unemployed**, against 7(9%) who were self-employed. For the prevalence of HIV infection n=69(86%) were of negative HIV status, against n=11(14%) who were of positive HIV status. As regards, knowledge, and awareness of the study population, n=72(90%) had knowledge and awareness of HIV/AIDS, against n=8(10%), who claimed ignorant of HIV/AIDS. In the case of risk factors associated with HIV/AIDS, the majority, n=31(39%) identified unprotected sex with sex partner/s as the most common risk factor, against transfusion of blood infected with HIV, 9(11%) as the least factor identified.

5. DISCUSSION AND INTERPRETATION OF RESULTS

The 14% prevalence of HIV among pregnant women attending ANC is much higher than the estimated National prevalence of 3.4% (FMH, 2012); higher than 5.4% in Bishoftu hospital in Ethiopia, East Africa; also, much higher than the 3.2% reported in an earlier study conducted among rural pregnant women in North Central Nigeria (Isichie, *et al.*2015), still higher, though closer to the 8.83% and 8.3% reported in the works of Okafor, Dinmoke and Udigwe, (2014) in Nnewi, Southeast, Nigeria and Charles, *et al.*(2016) in Jos, North Central Nigeria respectively; but lower than the prevalence of 19.1% reported in the study of Agida, *et al.* (2010) in Makurdi, North Central Nigeria also. The observed differences in the prevalence of HIV among pregnant women across the various regions may be explained in terms of differences in the peculiarity of socio-economic and cultural practices drivers for HIV transmission. However, considering the seemingly commitment by government, development partners and health care professionals in the fight against HIV, more so among pregnant women and the implicated mother-to-child transmission of HIV, an increased difference of about 5% HIV prevalence among pregnant women in recent studies in Nigeria, does not depict a winning trend in the fight against HIV/AIDS. Therefore, it is a signal for more serious concern, noting that socio-demographic factors associated with HIV transmission as observed in this study were outstanding. More so, in this work, the sexually active age from 18-27years combined as studied constitute 63%; the majority (45%) unemployed; the majority (42%) single, are strong socio-demographic and socio-economic drivers for HIV infection. More importantly, pregnant women are among the priority subpopulations having a higher risk of acquiring HIV, and so increasing, decreasing, or stable prevalence is an indicator of winning the fight against HIV/AIDs or not. This is very important in the epidemiological and disease control point of view, since such may account for new infections including newborn via mother-to-child transmission (MTCT), noting that Nigeria accounted for 33% (n=58,000) of all new childhood infections among the sub-Saharan Africa priority countries (National HIV and AIDS Sentinel Sero-prevalence Survey, 2014).

Also, although a good number of pregnant women 72(90%) had knowledge and awareness of HIV infection, but it was observed to be slightly lower to the findings in Lagos (100%), Southwest Nigeria; Nnewi (99%) and Abakaliki (100%), Southeast Nigeria (Agbogborbia, 2002; Igwegbe and Ilika, 2005; Eze and Onwasigwe, 2017). However, Lagos, Abakaliki, and Nnewi are cities and urban settlements, therefore, the difference in knowledge and awareness of HIV infection may be attributed to high level of HIV/AIDS campaign carried out by the government in collaboration with various non-governmental organizations with more concentration in the cities and urban settlements than the rural settlements. From this indication, it is auspicious that we refocus our awareness creation strategies on HIV infection and control towards the rural settlements if we have to win the war against HIV/AIDS in Nigeria and indeed globally. Also, having noted that from table 3, the sex-related risk

factors (unprotected sex with sex partner/s and existence of other sexually transmitted infection/disease) constitute 72% of all risk factors studied, provide basis for aggressive awareness creation campaigns on protective/safe sexual practices intervention strategies directed more at the rural communities so as to reverse any further increasing trend in the prevalence of HIV in the population.

6. CONCLUSION

The seemingly good knowledge on awareness and risk of HIV infection among pregnant women attending ANC at typical rural Primary Health Centre is a sound basis for epidemiology, outcome, and effectiveness in prevention and control of HIV/AIDS, considering implicated socio-demographic and socio-economic factors. This may provide the platform for the sustainable winning trend in the fight against HIV/AIDS.

7. RECOMMENDATIONS

1. Awareness creation on risk factors of HIV/AIDS, lifestyle changes as well as implicated cultural practices and adherence to medication (antiretroviral) requires sustainable attention with particular focus in the rural community settings in our vision to end the scourge.
2. Further population-based studies should be conducted, noting the limitation of health facility-based studies on prevalence, which may not be representative of all cases in the population being studied.
3. Facilities and capacities of health care professionals should be sustainably upgraded to ensure effective early infant diagnosis (EID), in rural Primary Health facilities in particular.

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