

Original Research Article**THE SERO-PREVALENCE OF HIV/AIDS AMONG PATIENTS SCREENED FROM 2008 - 2013 ATTENDING FEDERAL NEUROPSYCHIATRIC HOSPITAL BARNAWA KADUNA STATE NORTH WEST NIGERIA.****ADDRESS**

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ABSTRACT

Out of a total of 472 patients tested, from 2008-2013 at Federal Neuropsychiatric Hospital Barnawa Kaduna State Nigeria, 67 (14.2%) were found to be sero-positive to HIV I/II antibody testing. The test involves 232 males and 240 females, 17 (7.3%) of the males were tested positive, while 50 (20.8%) of the females were found to be sero-positive. The age group (21-30) years has the highest number of patients screened while the age group (51 and above) years has the least number of participants. The age group of 11-20 years has the highest frequency of HIV positive patients with 18 (26.5%) testing positive within their age group while the age group 41-50 years has the least frequency, only 2 (4.1%) of this group testing positive. The sero-prevalence of HIV positive in this study among Psychiatry patients is 14.2%, which is significant.

The p value of <0.0001, the association was found to be statistically significant. The χ^2 value was 16.575 with 1 degree of freedom and odds ratio of 3.328. The 95% confidence interval was calculated as 1.856 to 5.968. Therefore this shows a significant rate of HIV sero-positivity among psychiatric patients attending Federal Neuropsychiatric Hospital Barnawa Kaduna state. This suggests compulsory HIV screening for all new psychiatric patients.

KEY WORDS: Psychiatric, Sero-positivity, Human immunodeficiency virus,

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39 **INTRODUCTION**

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41 Acquired Immunodeficiency Syndrome (AIDS) is a disease condition caused by Human
42 Immunodeficiency Virus (HIV). HIV destroys the immune cells of human beings leading to
43 immune system failure and is a significant cause of death and disability in infected individuals. It
44 is also a predisposing factor for cancer and opportunistic infections.⁽¹⁾ As at the year 2010, an
45 estimated number of 34 million persons were living with HIV globally and about 3.14 million
46 Nigerians were living with HIV⁽²⁻⁴⁾.

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48 Ever since the discovery of HIV/AIDS in the early 80's, several cases of neuropsychiatric
49 symptoms and psychiatric disorders have been documented in HIV infected patents. The HIV
50 virus has been isolated from the human brain tissue and cerebrospinal fluid⁵. Autopsy results
51 have shown that 30 percent of AIDS patient have lesions in their central nervous systems while
52 neuropathologic changes have been observed in 75 percent of AIDS patients ⁽⁶⁾. Psychological
53 disorders may occur at two different stages: either after notification of HIV positive status or just
54 before or after diagnosis with AIDS ⁽⁷⁾.

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56 Many studies have suggested that there is a higher prevalence of HIV in patients having
57 psychiatric problems compared non-psychiatric patients ⁽¹⁻⁸⁾. The prevalence rate is probably
58 high as a result of a wide range of factors such as: presence of prior psychiatric conditions and
59 the direct impact of the virus on the brain and central nervous system leading to HIV
60 encephalopathy, depression, mania and cognitive disorder. Other factors include: alcohol and
61 drug abuse, antiretroviral therapy, effects of social isolation and stigmatization ^(1,9-12). The
62 development of psychiatric disorders in HIV/AIDS patients severely affects the ability of patients
63 to adhere to antiretroviral therapy. Therefore HIV positive individuals will benefit from
64 interventions that facilitate early detection and treatment of psychiatric conditions ⁽¹²⁾.

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66 There is great need to integrate mental health into HIV/AIDS interventions so as to improve the
67 health of people living with HIV/AIDS. Even with the fact that more than 90 percent of the global
68 HIV burden comes from Africa, very few studies have been conducted to establish the
69 association between mental health and HIV/AIDS ^(1,8). This study therefore aims to determine the
70 sero-prevalence of HIV/AIDS among psychiatric patients attending the Federal Neuropsychiatric
71 Hospital Barnawa Kaduna, Nigeria from 2008 to 2013.

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75 Methods

76 This study was carried out in the laboratory department of the Federal Neuropsychiatric
77 Hospital Barnawa Kaduna, Nigeria. The data of 472 psychiatric patients who attended the
78 hospital between 2008 and 2013 were being analysed. The study population involved 232 males
79 and 240 males. Data came from laboratory records and were linked by the use of unique number
80 identifiers. Three demographic variables that influence HIV status were collected from the
81 laboratory records as follows: Age, sex and HIV status of the patients. The ethics committee of
82 the Federal Neuropsychiatric Hospital Barnawa Kaduna, Nigeria, approved the protocol of the
83 study. The hospital keeps confidential records of all results from HIV tests.

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85 All 427 patients were tested for HIV with consent. The laboratory conducted HIV testing by
86 following the Nigerian national HIV testing algorithm. This involves the use of 3 different rapid
87 HIV test kits by following the manufacturer's instruction. The serum of patients was screened for
88 HIV using two of the HIV test kits: Determine (Abbott Laboratories, Tokyo, Japan) and UniGold
89 HIV 1/2(Trinity Biotech, Wicklow, Ireland). The patient is diagnosed as HIV positive if both test
90 kits produce a positive result or HIV negative if both test kits produce a negative result. In the
91 event that the test kits produce a discordant result where one kit produces a positive result
92 while the other is negative, the third test kit HIV 1/2 Stat-Pak (Chembio Diagnostic Systems Inc,
93 New York, USA) was used as tiebreaker. If the tiebreaker is positive, the patient is diagnosed to
94 be HIV positive and vice versa. The patient serums were also tested for the presence of HIV
95 antigen using the enzyme linked immunosorbent assay (ELISA) test.

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98 Statistical Analysis

99 All statistic analysis where all done using SPSS 16.0 version.

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101 Results

102 This study consisted of 472 psychiatric patients screened for HIV between the year 2008 and
103 2013. 49% of study patient were male while 51% were females. A total of 67 (14.2%) patients
104 were diagnosed to be HIV positive. Out of the 232 male patients screened 7.3% were HIV
105 positive while 20.8% of the 240 female patients screened were diagnosed to be HIV positive (see
106 Fig 1). 25.4% of the 67 HIV positive psychiatric patients were males while 74.6% were females
107 (see Figure 2). Out results also show that of all the age groups screened, group had the highest
108 prevalence rate 26.5%, that is 18 out of a total of 68 patients were HIV positive. Age group 0 – 10
109 had the lowest intra group prevalence rate of 6.7% (see Figure 3). Out of the 67 HIV positive

patients, 3% were within age group 0-10, 27% were within age group 11-20, 46% were within age group 21 – 30, 16% were within age group 31 – 40 while 3% were within age group 41 – 50 and approximately 5% were within the age group 51 and above (see Figure 4). Our results also demonstrate that the distribution HIV was by far higher in females than in males for all age groups except age group 41 – 50.

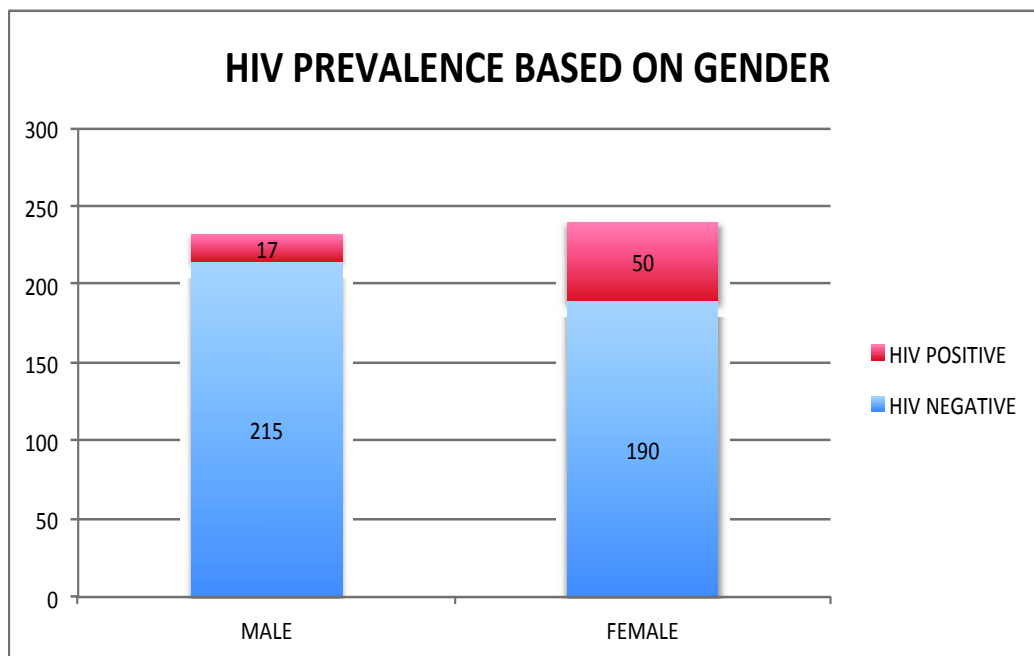


Figure 1: A histogram showing the prevalence of HIV within each gender group screened.

Chi-square Test

The two-sided P value is < 0.0001 , considered extremely significant.

The row/column association is statistically significant.

Calculation details:

Chi-square statistic (with Yates correction) = 16.575

Degrees of freedom = 1

Odds Ratio

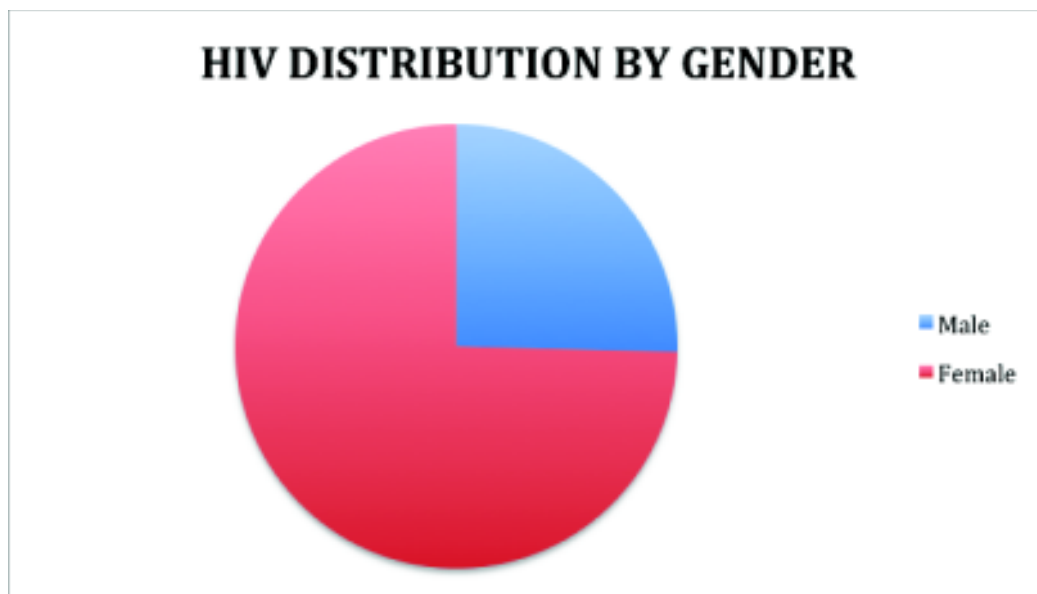
Odds ratio= 3.328

95% Confidence Interval: 1.856 to 5.968 (using the approximation of Woolf.)

From table, 232 males and 240 females were enrolled in the study, 17 (7.3%) of the males were tested positive while 50 (20.8%) of the females were found to be seropositive. Out of a total of 472 patients tested, 67 (14.2%) were found to be positive to HIV antibody testing. With a p value of < 0.0001 , the association was found to be statistically significant. The χ^2 value was 16.575 with 1 degree of freedom and odds ratio of 3.328. The 95% confidence interval was calculated as 1.856 to 5.968.

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166 Figure 2: A pie chart showing the distribution of HIV positive psychiatric patients based on
 167 gender.
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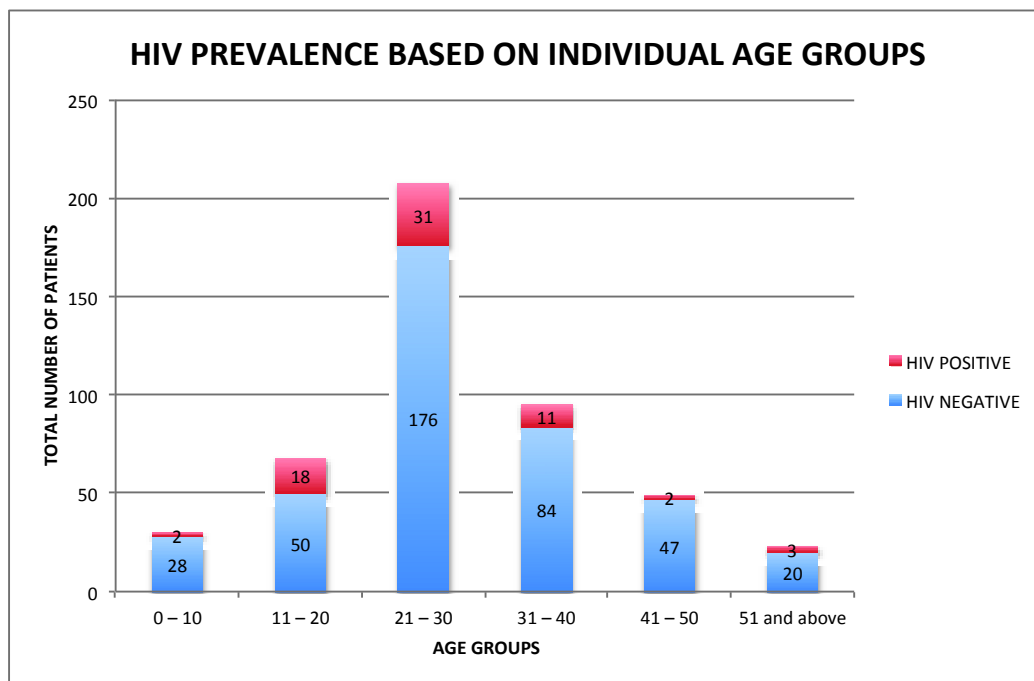


Figure 3: A histogram showing the intra age group HIV prevalence amongst the psychiatric patients.

196 Chi-square: 14.586

197 Degrees of Freedom: 5

198 The P value is 0.0123. The row and column variables are significantly associated.

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200 **Chi-Squared Test for Trend.**

201 Chi-squared for trend = 3.671 (1 degree of freedom)

202 The P value is 0.0554.

203 Figure 3 above shows the frequency distribution on a histogram of the age groups. The age

204 group (21-30) has the highest number of patients screened while the age group (51 and above)

205 has the least number of participants. The age group of 11-20 has the highest frequency of HIV

206 positive patients with 18 (26.5%) testing positive within their age group while the age group 41-

207 50 has only 2 (4.1%) of their group testing positive.

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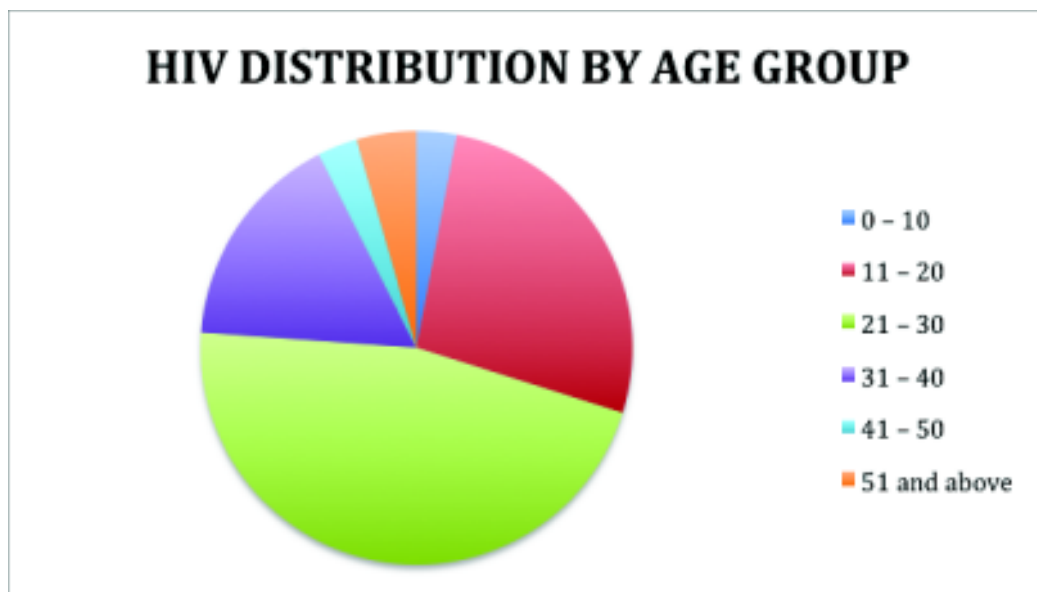


Figure 4: A pie chart showing the distribution of HIV positive psychiatric patients based on age groups.

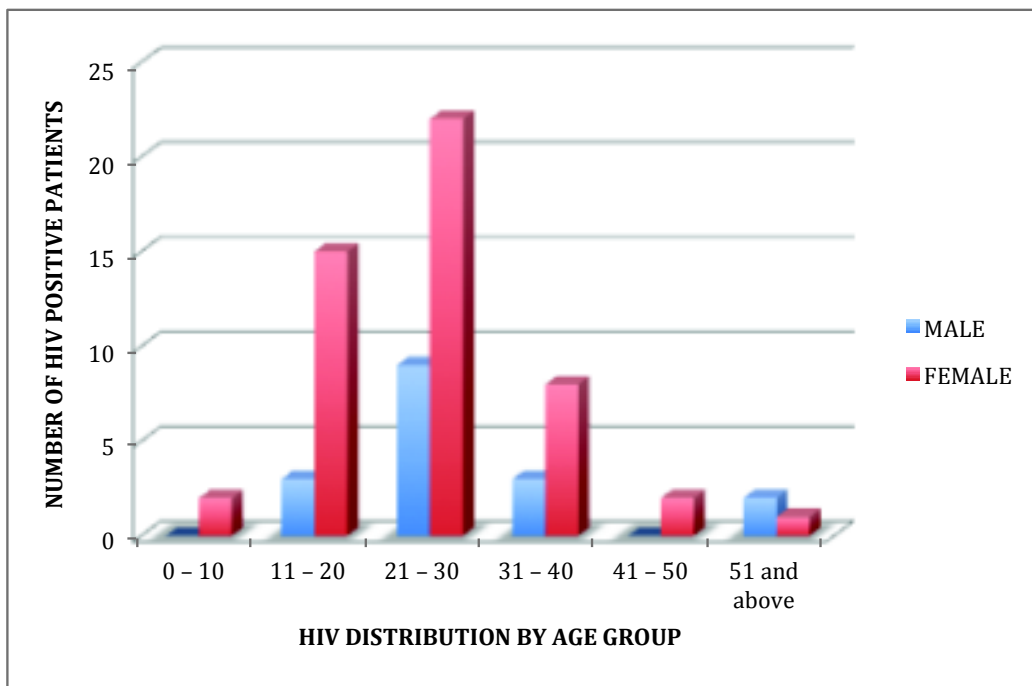


Figure 5: A histogram showing the distribution of HIV positive psychiatric patients based on age groups and gender.

266 Discussion

267 Several psychiatric conditions may predispose individuals to acquiring HIV infection as a
268 consequence of their influence on behaviour. There is also strong evidence of the relationship of
269 substance use disorders and severe mental illnesses with HIV infection. HIV related psychiatric
270 disorders also offer a challenge to clinicians in issues of differential diagnosis and management(
271 ¹¹).

272 From our studies, we recorded an overall prevalence rate of 14.2% from 2008 to 2013 record.
273 This is more than twice the prevalence recorded in University of Port Harcourt Teaching
274 Hospital (South-South zone of Nigeria) in 2007 who recorded a prevalence rate of 5.58% ⁽¹²⁾. It
275 is also not in agreement with the works of Sulyman et al ⁽¹³⁾ who got a prevalence rate of 6.9% in
276 the North-East zone of the country. In New York, Empfield et al ⁽¹⁴⁾ and Cournus et al ⁽¹⁵⁾ had a
277 prevalence rate of 6.4% and 5.5% respectively which was not in agreement with our findings.

278 Our findings revealed the prevalence rate among males to be 7.3% which is in agreement with
279 the work of Lundberg et al in Uganda ⁽¹⁶⁾ but the prevalence rate among females (20.8%) was
280 not in agreement with their value of 14.3%. Women had significantly higher prevalence rates
281 than men which was in agreement with our findings. This was also noted by Maling et al ⁽¹⁷⁾.
282 Women in general face sexual health risks due to low power in decision-making about sex ⁽¹⁸⁾,
283 male partner non-monogamy ^(19,20), and intimate partner violence ^(21,22).

284 The age group 11-20 had the highest prevalence rate with 26.5% among their peers which was
285 not in agreement with the works of Sulyman et al and Lundberg et al ^(13,16). Both authors say risk
286 factors for HIV seropositivity increases with age. Our findings was in compliant with Empfeild et
287 al ⁽¹⁴⁾ who asserted that patients under 40 were six times as likely to test positive to HIV than
288 those over 40 years old.

289 Our data suggests one out of every seven patients admitted into the psychiatric hospital tests
290 positive for HIV. Similar findings were recorded among psychiatric patients in a New York City
291 Men's Shelter who recorded a prevalence rate of 13.3% and 19.4% when the status of those not
292 known is not included in the study ⁽⁹⁾. The prevalence is almost three times the prevalence rate
293 for the general individuals in Kaduna State Nigeria which was recorded as 5.1% in 2010.^(25,26)

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CONCLUSION

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304 The sero-prevalence of HIV positive in this study among Psychiatry patients is 14.2%, which is
305 significant. This data suggest the need for screening of HIV among all psychiatric patients
306 attending clinic for the first time as obtainable in the West Cape Town in South Africa guideline
307 for investigating psychiatric patient; that all first presentations of a psychotic disorder must have
308 a serological test for syphilis and HIV test ⁽²³⁾. Other test should be done if clinically indicated;
309 this will rule out treatable co-morbid medical conditions earlier; would give treatment options to
310 these individuals with psychotic disorders and would help to reduce the spread of infection
311 among the populace. The need for integration of mental health into HIV/AIDS initiatives and
312 programme in countries presents an opportunity to improve the health of people with HIV/AIDS.
313 Support is needed for research on the interaction between mental health and HIV/AIDS.

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