



The Sero-prevalence of HIV/AIDS among Patients Screened from 2008 - 2013 Attending Federal Neuropsychiatric Hospital Barnawa Kaduna State North West Nigeria

Edward Isaac^{1*}, Muktar Haruna², Olabode Samuel³, Edward Deborah⁴,
Musa Maikano¹, Abubakar Sharafudeen¹, Taiwo L. Sheik¹
and Stephen Olatunbosun¹

¹Federal Neuropsychiatric Hospital, Clinical Department Medical Laboratory Services, Barnawa, Kaduna State, Northwest Nigeria.

²Department of Haematology, Ahmadu Bello University, Teaching Hospital, Shika Zaria, Kaduna State, Northwest Nigeria.

³National Veterinary Research Institute, Department of Virology, Vom Plateau State, North Central Nigeria.

⁴Nigerian Prisons Service Staff College, Barnawa, Kaduna State, Northwest Nigeria.

Authors' contributions

This work was carried out in collaboration between all authors. Authors EI and ED designed the study, author AS performed the statistical analysis, author MM wrote the protocol, and author OS wrote the first draft of the manuscript and author SO managed literature searches. Authors EI, MH and TLS managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BMRJ/2015/16757

Editor(s):

(1) Preeti Bharaj, Department of Microbiology and Immunology, University of Texas Medical Branch (UTMB), Galveston, USA.

Reviewers:

(1) Matias Carvalho Aguiar Melo, Department of Medical Sciences, Universidade Federal do Ceará, Brazil.

(2) Anonymous, Case Western Reserve University, USA.

Complete Peer review History: <http://www.sciencedomain.org/review-history.php?iid=1089&id=8&aid=9261>

Original Research Article

Received 12th February 2015
Accepted 1st April 2015
Published 14th May 2015

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

*Corresponding author: E-mail: ishidi03@yahoo.com;

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.

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

Methods: This is a cross-sectional study involving patients that were screened for the presence of HIV from the blood collected between 2008 to 2013 attending Federal Neuropsychiatric Hospital Kaduna State, Northwestern Nigeria. The screening test was done qualitatively with Determine, Unigold and stat-pak, commercially sold kits (Enzyme linked immunosorbent Assay method) as designed by the National algorithm of HIV screening in Nigeria.

Results: 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 positive, while 50 (20.8%) of the females were 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%), while the age group 41-50years has 2 (4.1%) testing positive. The sero-prevalence of HIV positive in this study among Psychiatry patients is 14.2%.

Keywords: Psychiatric; sero-positivity; human immunodeficiency virus.

1. INTRODUCTION

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

Ever since the discovery of HIV/AIDS in the early 80's, several cases of neuropsychiatric symptoms and psychiatric disorders have been documented in HIV infected patients. The HIV virus has been isolated from the human brain tissue and cerebrospinal fluid [5]. Autopsy results have shown that 30 percent of AIDS patient have lesions in their central nervous systems while neuropathologic changes have been observed in 75 percent of AIDS patients [6]. Psychological disorders may occur at two different stages: either after notification of HIV positive status or just before or after diagnosis with AIDS [7].

Many studies have suggested that there is a higher prevalence of HIV in patients having

psychiatric problems compared non-psychiatric patients [1-8]. The prevalence rate is probably high as a result of a wide range of factors such as: presence of prior psychiatric conditions and the direct impact of the virus on the brain and central nervous system leading to HIV encephalopathy, depression, mania and cognitive disorder. Other factors include: alcohol and drug abuse, antiretroviral therapy, effects of social isolation and stigmatization [1,9-12]. The development of psychiatric disorders in HIV/AIDS patients severely affects the ability of patients to adhere to antiretroviral therapy. Therefore HIV positive individuals will benefit from interventions that facilitate early detection and treatment of psychiatric conditions [12].

There is great need to integrate mental health into HIV/AIDS interventions so as to improve the health of people living with HIV/AIDS. Even with the fact that more than 90 percent of the global HIV burden comes from Africa, very few studies have been conducted to establish the association between mental health and HIV/AIDS [1,8].

This study therefore aims to determine the sero-prevalence of HIV/AIDS among psychiatric patients attending the Federal Neuropsychiatric Hospital Barnawa Kaduna, Nigeria from 2008 to 2013.

2. METHODS

This study was carried out in the laboratory department of the Federal Neuropsychiatric Hospital Barnawa Kaduna, Nigeria. The data of 472 psychiatric patients who attended the hospital between 2008 and 2013 were being analysed. The study population involved 232 males and 240 females. Data came from laboratory records and were linked by the use of unique number identifiers. Three demographic variables that influence HIV status were collected from the laboratory records as follows: Age, sex and HIV status of the patients. The ethics committee of the Federal Neuropsychiatric Hospital Barnawa Kaduna, Nigeria, approved the study and issued an ethical clearance before assessing the record.

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

2.1 Statistical Analysis

All statistic analysis was all done using SPSS 16.0 version. 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.

3. RESULTS

This study consisted of 472 psychiatric patients screened for HIV between the year 2008 and

2013. 49% of study patient were male while 51% were females. A total of 67 (14.2%) patients were diagnosed to be HIV positive. Out of the 232 male patients screened 7.3% were HIV positive while 20.8% of the 240 female patients screened were diagnosed to be HIV positive.

4. DISCUSSION

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

From this studies, we recorded an overall prevalence rate of 14.2% from 2008 to 2013. This is more than twice the prevalence recorded in University of Port Harcourt Teaching Hospital (South-South zone of Nigeria) in 2007 who recorded a prevalence rate of 5.58% [12]. It is also higher than the works of Sulyman et al. [13] who got a prevalence rate of 6.9% in the North-East zone of the country. In New York, Empfield et al. [14] and Cournus et al. [15] had a prevalence rate of 6.4% and 5.5% respectively which was lower than our findings.

This studies revealed the prevalence rate among males to be 7.3% which is similar with the work of Lundberg et al in Uganda [16], but the prevalence rate among females (20.8%) was higher than their value of 14.3% (see Table 1). In general however, Women always have significantly higher prevalence rates than men which was similar with this studies and was also noted by Maling et al. [17]. Therefore Women in general faces sexual health risks due to low power in decision-making about sex, the issue of male partner being polygamy, and sexual violence [18-23].

The age group 11-20 years had the highest prevalence rate with 26.5% (see Figs.1 and 2) among their peers which was not similar with the works of Sulyman et al. and Lundberg et al. [13,16]. However, both authors acknowledge risk factors for HIV seropositivity increases with age. Our findings was in compliant with Empfeild et al. [14] who asserted that patients under 40 were six times as likely to test positive to HIV than those over 40 years old.

Table 1. Showing prevalence of HIV among gender cumulative frequency of HIV/AIDS based on gender from 2008 to 2013

Gender	HIV Negative	HIV Positive (%)	Total
Male	215	17 (7.3)	232
Female	190	50 (20.8)	240
Total	405	67 (14.2)	472

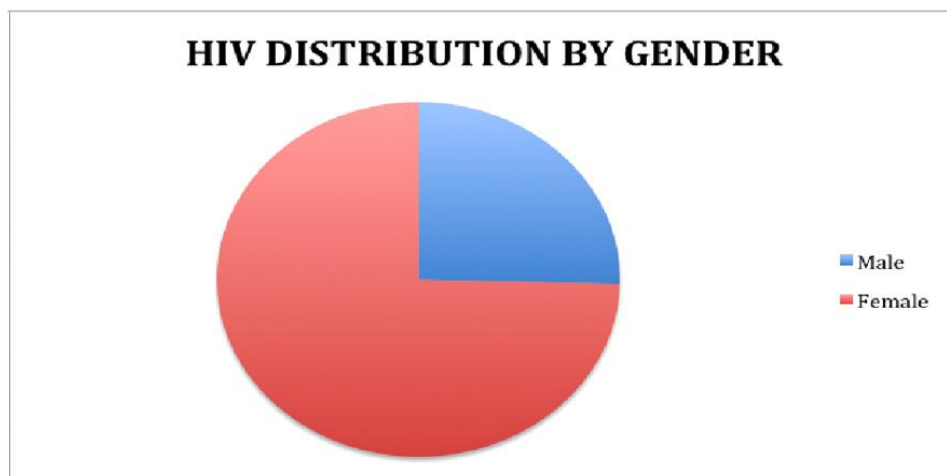
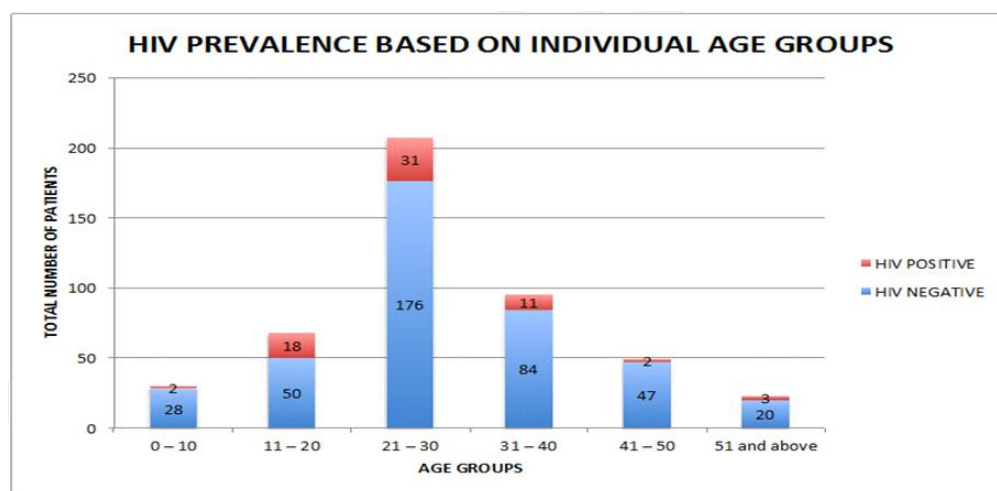


Fig. 1. A pie chart showing the distribution of HIV positive psychiatric patients based on gender



Age (Year)	HIV negative	HIV positive (%)	Total
0 – 10	28	2 (6.7)	30
11 – 20	50	18 (26.5)	68
21 – 30	176	31 (15.0)	207
31 – 40	84	11 (11.6)	95
41 – 50	47	2 (4.1)	49
51 and above	20	3 (13.0)	23
Total	405	67 (14.2)	472

The P value is 0.0554

Fig. 2. A histogram showing the intra age group HIV prevalence amongst the psychiatric patients

Our data therefore suggested one out of every seven patients admitted into the psychiatric hospital tests positive for HIV. Similar findings were recorded among psychiatric patients in a New York City Men's Shelter who recorded a prevalence rate of 13.3% and 19.4% when the status of those not known is not included in the study [9]. The prevalence is almost three times the prevalence rate for the general individuals in Kaduna State Nigeria which was recorded as 5.1% in 2010 [24-26].

This studies is similar to Prevalence rates in mentally ill in-patients and out-patients which have been reported to be between 5% and 23%, compare with a range of 0.3% to 0.4% in general population in the United State of America over comparable time periods. Some studies have reported behavioural risk factor for transmission of HIV in between 30% and 60% of people with severe mental illness [1]. Psychiatric disorder occur frequently in HIV infected patients, but the reported prevalence rates differs considerably, depending on the stage of infection and study population.

A number of studies from across the globe suggest that mental health issues are on the rise in people who have HIV/AIDS. Infact, an analysis of these findings suggests that twice as many people without the disease [27].

4.1 Limitation

- There is no enough funds to expand the work because it was self sponsor
- The data gotten, various psychiatric conditions of the patients was not included
- This was only a retro spectral study that involve the age, sex, and HIV results.

5. CONCLUSION

The sero-prevalence of HIV positive in this study among Psychiatry patients is 14.2%, which is significant. This data suggest the need for screening of HIV among all psychiatric patients attending clinic for the first time as obtainable in the West Cape Town in South Africa guideline for investigating psychiatric patient; that all first presentations of a psychotic disorder must have a serological test for syphilis and HIV test [23]. Other test should be done if clinically indicated; this will rule out treatable co-morbid medical conditions earlier; would give treatment options to these individuals with psychotic disorders and would help to reduce the spread of infection

among the populace. The need for integration of mental health into HIV/AIDS initiatives and programme in countries presents an opportunity to improve the health of people with HIV/AIDS. Support is needed for research on the interaction between mental health and HIV/AIDS.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. World Health Organization. HIV/AIDS and mental health report by the Secretariat. Geneva: WHO; 2008.
2. Demberg T, Robert-Guroff M. Controlling the HIV/AIDS epidemic: Current status and global challenges. *Frontiers in immunology*. 2012;3:250. Available:<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3418522/2012> Aug 14. DOI: 10.3389/fimmu.2012.00250.
3. Federal Ministry of Health (FMOH) National HIV/Syphilis seroprevalence sentinel survey among pregnant women attending antenatal clinics in Nigeria. Department of Public Health National AIDS/STI Control Programme. Abuja, Nigeria; 2010.
4. UNAIDS Global AIDS Epidemic Update. Geneva, Switzerland; 2011.
5. Dube B, Benton T, Cruess DG, Evans DL. Neuropsychiatric manifestations of HIV infection and AIDS. *Journal of Psychiatry & Neuroscience*. 2005;30(4):237-46.
6. Stern RA, Perkins DO, Evans DL. Neuropsychiatric manifestations of HIV-1 infection with AIDS. *Psychopharmacology: The fourth generation of progress*. 1995; 1545-58.
7. Nott KH, Vedhara K, Power MJ. THE role of social support in HIV-infection. *Psychological Medicine*. 1995;25(5):971-83.
8. Adewuya AO, Afolabi MO, Ola BA, Ogundele OA, Ajibare AO, Oladipo BF. Psychiatric disorders among the HIV-positive population in Nigeria: A control study. *Journal of Psychosomatic Research*. 2007;63(2):203-6.
9. Tostes MA, Chalub M, Botega NJ. The quality of life of HIV-infected women is associated with psychiatric morbidity. *AIDS Care-Psychological and Socio-Medical Aspects of AIDS/HIV*. 2004;16(2):177-86.

10. Els C, Boshoff W, Scott C, Strydom W, Joubert G, van der Ryst E. Psychiatric comorbidity in South African HIV/AIDS patients. *South African Medical Journal*. 1999;89(9):992-5.
11. Chandra PS, Ravi V, Desai A, Subbakrishna DK. Anxiety and depression among HIV-infected heterosexuals - A report from India. *Journal of Psychosomatic Research*. 1998;45(5):401-9.
12. Angelino AF, Treisman GJ. Management of psychiatric disorders in patients infected with human immunodeficiency virus. *Clinical Infectious Diseases*. 2001;33(6): 847-56.
13. Sulyman D, Ayanda KA, Jibrin BY, Babaji A, EsaN E. Human Immunodeficiency Virus Infection among Psychiatric Patients Admitted into a Nigerian Teaching Hospital. *Savannah Journal of Medical Research and Practice*. 2013;2(1).
14. Empfield M, Cournos F, Meyer I, Mckinnon K, Horwath E, Silver M, Schrage H, Herman R. HIV seroprevalence among homeless patients admitted to a psychiatric inpatient unit. *Am J Psychiatric*. 1993; 150(1):47-52.
15. Cournos F, Empfield M, Horwarth E, Mckinnon K, Meyer I, Schrage H, Currie C, Agosin B. HIV seroprevalence among patients admitted to two psychiatric hospitals. *Am J Psychiatric*. 1991;148(9): 1225-30.
16. Patric Lundberg, Noeline Nakasujja, Seggane Musisi, Anna Ekéus Thorson, Elizabeth Cantor-Graae, Peter Allebeck. HIV prevalence in persons with severe mental illness in Uganda: A cross-sectional hospital-based study. *International Journal of Mental Health Systems*. 2013;7:20.
17. Maling S, Todd J, Van Paal L, Grosskurth H, Kinyanda E. HIV-1 seroprevalence and risk factors for HIV infection among first-time psychiatric admissions in Uganda. *AIDS Care*. 2011;23:171-178.
18. Blanc AK, Wolff B. Gender and decision-making over condom use in two districts in Uganda. *Afr J Reprod Health*. 2001;5:15-28
19. Kajubi P, Green EC, Hudes ES, Kamya MR, Ruark AH, et al. Multiple sexual partnerships among poor urban dwellers in Kampala, Uganda. *J Acquir Immune Defic Syndr*. 2011;57:153-156.
20. Maher D, Waswa L, Karabarinde A, Baisley K. Concurrent sexual partnerships and associated factors: A cross-sectional population-based survey in a rural community in Africa with a generalised HIV epidemic. *BMC Publ Health*. 2011;11:651.
21. Speizer IS. Intimate partner violence attitudes and experience among women and men in Uganda. *J Interpers Violence*. 2010;25:1224-1241.
22. Koenig MA, Lutalo T, Zhao F, Nalugoda F, Kiwanuka N, et al. Coercive sex in rural Uganda: Prevalence and associated risk factors. *SocSci Med*. 2004;58:787-798.
23. Assessment of Routine laboratory screening of Adult psychiatric patient. *South African Medical Journal*. 2011; 101(12). Presented in Cape Town.
24. Röttgers HR, Weltermann BM, Evers S, Husstedt IW. Psychiatrische Akutsymptomatik als Erstmanifestation einer HIV-Infektion. *Nervenarzt*. 2000;71: 404-10. Available:<http://amedeo.com/lit.php?id=10846717>
25. Einsiedel RW von, Berger T, Weisbrod M, Unverricht S, Hartmann M. HIV-Patienten mit psychiatrischen Krankheiten. Behandlungsstrategien und Medikamenteninteraktionen. *Nervenarzt*. 2001;72:204-15. Available:<http://amedeo.com/lit.php?id=11268765>
26. Kaduna State AIDS Control Agency. *KADSACA News Magazine*. 2013;1(2):7.
27. John M Grohol. Heightened incidence of mental health disorders in HIV/AIDS patient reviewed 10th September; 2010.

© 2015 Isaac et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<http://www.sciencedomain.org/review-history.php?iid=1089&id=8&aid=9261>