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Factors Affecting Adherence to Antiretroviral Therapy among HIV Positive Adults Living in Bison Slums in Tororo Municipality, Tororo District, Eastern Uganda

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ABSTRACT

As of 2020, the global HIV burden affected approximately 37.7 million people, with 36.0 million being adults, including 1.5 million new infections in 2020. By June 2021, about 28.2 million individuals were accessing antiretroviral therapy (ART), representing approximately 73% of those living with HIV, and the majority of them resided in the African region. This study aimed to explore the factors that impact adherence to antiretroviral therapy. Conducted as a descriptive cross-sectional study, data was collected using questionnaires as the primary instruments. The analysis of data was carried out using the Statistical Package for Social Sciences (SPSS) and the results were presented in tabular form. The study identified that adherence to ART was notably higher among those who were employed (88.8%), did not use drugs and alcohol (87.2%), earned an income above 200,000/= per month (90.5%), had knowledge about HIV/AIDS therapy (85.4%), and were informed about the specific ARV drugs in use (85.4%). Moreover, individuals who believed their religion openly supported people living with HIV (86.9%), did not think that HIV could be cured through spiritual intervention (84.4%), had never sought spiritual healing (86.1%), followed a religion that did not discourage ARV use (82.6%), and did not experience religious interference with their ARV intake (84.3%) exhibited higher adherence rates. While the study reveals substantial adherence to ART, it also underscores that the WHO's recommended adherence target has yet to be fully attained. Employment status, substance use, income level, knowledge, as well as religious and cultural beliefs were identified as influential factors affecting adherence to ARV therapy. These findings have important implications for developing interventions and support systems to further enhance adherence rates among individuals living with HIV.

Keywords: adherence, antiretroviral therapy, HIV, AIDS, ARV, associated factors

INTRODUCTION

Globally an estimated 37.7 million people were living with HIV by the end of 2020, of which about 36.0 million are adults, including 1.5 million new infections in 2020. 28.2 million were accessing antiretroviral therapy by the end of June 2021(about 73% of the people living with HIV), about 25.4 million are in the African region [1-8]. East and Southern Africa is the region most affected by HIV in the world and is home to the largest number of people living with HIV, having about 20.6million people living with HIV, 54% [9-16]. In Uganda by the year 2020, an estimated 1.42 million people were living with HIV and about 23000 people died of AIDS related illness. Estimated prevalence among adults (aged 15-49 years) stood at 6.2 % by 2020. Prevalence in eastern Uganda stood at 5.8% [17-21].

HIV is believed to have crossed from Chimpazees to humans in the 1920s in now the current Democratic republic of Congo. Probably due to the Chimpazees carrying the simian immunodeficiency virus (SIV), a virus closely related to HIV, being hunted and eaten by the people of the area. The origin of HIV has been a subject of scientific research and debate virus was identified in 1980s. HIV-1 infection was first recognised in Uganda in 1982 in Rakai District on the shores of Lake Victoria [22-26]. In the late 1980s, a re-known musician Philly

Bongole Lutaaya became the first Ugandan to openly declare to the public that he has HIV [27-31].

HIV, if untreated can cause significant weight loss, chronic weakness, fever and severe neurological complications. The virus causes significant lowering of the patient's immunity which in turn predisposes the patient to many opportunistic infections [32-39].

In 1987, the US Food and Drug Administration (FDA) approved the use of Azidothymidine (AZT) as the first antiretroviral drug for the treatment of HIV/AIDS. Between 1988-1995, reverse transcriptase inhibitors and the first protease inhibitors were also approved by the. In Uganda, antiretroviral therapy was initially rolled out in 2004 and targeted severely immune-compromised patients enrolled in HIV care [40-49].

Adherence to ARV therapy is key in the achievement of the millennium development goal 6 which is; to combat HIV/AIDS, malaria and other diseases [50-53]. A healthy community is vital for social-economic development. In recent years, a lot of investment has been made so as to achieve universal access to ARV therapy. Countries striving to expand treatment access have set goals of providing antiretroviral treatment to 80% of those infected. This however, has not yet been achieved as the current global coverage is 65% [54-58]. The target is yet to be realised due to factors associated with lack of ARV therapy adherence [59-60]. In sub-Saharan Africa, most of the ARV therapy adherence challenges are associated with socio-economic and environmental issues [61-64]. In South Africa, available ARVs were rejected by pentecostals on their first introduction when the pastors preached against the use of the drugs. They argued that the treatment was against the belief of Holy Ghost healing power. This shows how religion affects ARV therapy adherence [65].

METHODOLOGY

Study Design

A descriptive cross-sectional research design was used to enable the researcher to identify the factors affecting the adherence to ARV therapy among patients on ART from Bison slums.

Study Area

This study was conducted in Bison slum in the western division of Tororo municipality, Tororo District Eastern Uganda.

Study Population

The target population consisted of adults living with HIV and residing in Bison slum, Tororo Municipality, Tororo District, between April-July, 2022. The target population for the study was 84 PLWHIV in the slum and getting ARV therapy at Tororo general hospital and Bison health center III.

Inclusion Criteria

The study population included only adult clients who are HIV positive and residing in Bison slums attending health services at Tororo general hospital.

Exclusion Criteria

Children and adults who are HIV positive and refuse to give consent will be excluded from this study. Also, HIV positive adults not on ARV therapy will be excluded.

Sample Size and Sampling Procedure

Sampling was the procedure by which elements of population were selected as representation of the total population.

Sample Size Determination

The sample size was determined using the Kish and Leslie formula given below; (Kish and Leslie 1965).

$$n = \frac{z^2 p(1-p)}{e^2}$$

Where;

n =estimated minimum sample size required

p= proportion of the characteristic in a sample at approximately 70%

z= 1.96(for 95% confidence interval)

e= margin of error set at 5% (0.05)

$$n = \frac{z^2 p\,(1-p)}{e^2}$$

$$n = \frac{(1.\quad 0.7\times 0.3}{(0.05)^2}$$

n=**323** ıts

Sampling Technique

The researcher used a simple random sampling technique. This was because all the characters in the targeted population were expected to have related desired characteristics, including being HIV positive, living in Bison slum and on ARV therapy getting care at Tororo General Hospital and Bison health centre III.

Data Collection Methods and Management

The study used questionnaires as the tool for data collection. Quantitative data was collected using researcher – administered questionnaires after building rapport and obtaining consent from the client.

Data Analysis

Before processing the responses, the completed questionnaires were checked well for completeness and comprehensibility to ensure consistency. The data was then summarized, coded and entered into appropriate Statistical tables and formulae for analysis to ensure that responses are grouped into various categories. Descriptive statistics such as means, standard deviations and frequency distribution was used to analyze the data. Content analysis was used to analyze descriptive data. Data presentation was done by the use of percentages and frequency tables. This was to ensure that the gathered information is clearly understood by the prospective readers.

Ethical Considerations

Consent was undertaken for all the interviewees before the questionnaires were distributed. No interviewee was coarsed or forced to give information. The questionnaires were designed in such a way that information given by the informants does not reveal their identity.

RESULTS

Majority of the study participants were female (58.0%) as compared to the male(42.0%) as shown in table 1 below.

Table 1: Showing gender of the respondents

Gender	*Frequency (n)*	*Percentage (%)*
Male	84	42.0
Female	116	58.0
Total	**200**	**100**

40.5% of the respondents were between 25 to 34years, 37.5% were between the ages of 35-44 years, 11.5% were between 18-24years and 10.5% were above 45years as shown in the table below.

Table 2: Showing age distribution of the respondents

Age group *Percentage (%)*	*Frequency (n)*	
18-24	23	11.5
25-34	81	40.5
35-44	75	37.5
Above 45	21	10.5
Total	**200**	**100**

Majority (49.0%) of the respondents attained at least secondary education, 42.5% attained primary and 8.5% had no formal education.

Table 3: Showing education levels of the respondents

Educational level	*Frequency (n)*	*Percentage (%)*
Atleast Secondary level	98	49.0
Primary level	85	42.5
No formal Education	17	8.5
Total	**200**	**100**

Majority (40.5%) of the respondents were earning 50,000-100,000/= per month, 27.5% were earning above 200,000/= per month, 21.5% were earning 100,000-200,000 /= per month and 10.5% were earning 0-50,000/= per month as shown in the table below.

Table 4: Showing Income Levels of the Respondents

Monthly Income	Frequency	Percentage (%)
0-50,000/=	21	10.5
50,000-100,000/=	81	40.5
100,000- 200,000/=	43	21.5
above 200,000/=	55	27.5
Total	**200**	**100**

According to the study, adherence to ART was high among employed (88.8%),No use of drugs and alcohol(87.2%) and those earning above 200,000/= per month(90.5%) as shown in the table below.

Table 5: Showing association between Socio-economic factors and adherence to ARV Therapy

Variable		Adherence			Non-adherence	
	Category	Frequency(n)	Frequency(n)	Percentage (%)	Frequency(n)	Percentage (%)
Employment status	Unemployed	120	89	74.2	31	25.8
	Employed	80	71	88.8	09	11.2
Drugs and alcohol use	Yes	51	30	58.8	21	41.2
	No	149	130	87.2	19	12.8
Income status (earned per month in /=)	0-50,000	21	12	57.1	09	42.9
	50,000-100,000	81	60	74.1	21	25.9
	100,000-200,000	75	67	89.3	08	10.7
	Above 200,000	21	19	90.5	02	9.5

Adherence to ARV therapy was highest among those who had knowledge about HIV/AIDS therapy (85.4%) and those who had knowledge about ARV drugs in use (85.4%) as shown in the table below.

Table 6: Showing association between knowledge and adherence to Antiretroviral Therapy

Variable	Category	Adherence			Non-Adherence	
		Frequency (N)	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Knowledge of HIV/AIDS therapy	Yes	89	76	85.4	13	14.6
	No	111	84	75.7	27	24.3
Knowledge of ARV drugs in use	Yes	48	41	85.4	07	14.6
	No	152	119	78.3	33	21.7

In the study, adherence was highest among those who thought their religion openly supports PLWHIV (86.9%), those who did not believe HIV can be healed through spiritual intervention (84.4%), never sought after spiritual healing (86.1%), those whose religion did not discourage ARV use (82.6%) and those whose ARV intake was not interfered by religion (84.3%) as shown in the table below.

Table 7: Showing association between Religious and Cultural beliefs and Adherence to ARV therapy

	Category	Adherence			Non-Adherence	
		Frequency (n)	Frequency	Percentage (%)	Frequency	Percentage (%)
Do you think your religion openly supports PLWHIV?	**Yes**	145	126	86.9	19	13.1
	No	55	33	60.0	22	40.0
Do you believe HIV can be healed through spiritual interventions?	**Yes**	65	46	70.8	19	29.2
	No	135	114	84.4	21	15.6
Have you sever sought after spiritual healing?	**Yes**	35	18	51.4	17	48.6
	No	165	142	86.1	23	13.9
Does your religion discourage ARV use?	**Yes**	10	03	30.0	07	70.0
	No	190	157	82.6	33	17.4
Have you ever failed to take your ARV because of your religion?	**Yes**	15	04	26.7	11	73.3
	No	185	156	84.3	29	15.7

DISCUSSION

According to the study, adherence to ART was high among employed (88.8%).This is congruent with ILO,2013 study which found out that PLWHIV maintain treatment more successfully when they have a job. This is attributed to financial benefits with jobs and hence able to pay for health care related services.

My study found out that drug adherence was high among participants who were not using of drugs and alcohol (87.2%). Samet, 2012 in his study found similar findings. This is attributed to mental disturbance induced by alcohol and drugs which makes it difficult for them to follow the schedule. Moreover, alcohol has been found to increase HIV viral replication in body systems and suppresses the immune system [66].

The study also showed that ART adherence was high among those participants earning above 200,000/= per month (90.5%). This finding is concordant with that of UNAIDS, 2021 which revealed that non-adherence was associated with low-income status. This is because patients with high income are not limited by distance from the household to the health center since they can afford the transport fare.

Adherence to ARV therapy was highest among those who had knowledge about HIV/AIDS therapy (85.4%) and those who had knowledge about ARV drugs in use (85.4%).A study in Kenya also revealed

similar findings [67].UNAIDS in 2021 reported that patients who have a better understanding of disease progress were more likely to adhere to treatment regimens. Patients with an understanding are aware of the importance of treatment and outcome if they do not take medication judiciously. This may influence adherence to ART therapy.

In the study, adherence was highest among those who thought their religion openly supports PLWHIV (86.9%). This is because, they are less subjected to stigma hence more likely to adhere to treatment.

Adherence was also high among those who did not believe HIV can be healed through spiritual intervention (84.4%). never sought after spiritual healing (86.1%), those whose religion did not discourage ARV use (82.6%) and those whose ARV intake was not interfered by religion (84.3%). This is congruent with the findings of a study [68]. PLWHIV who have strong spiritual.

CONCLUSION

Adherence to ART is high however the WHO recommended target has not yet been achieved. Employed status, drug and alcohol use, income status, knowledge, religious and cultural beliefs influence adherence to antiretroviral therapy.

REFERENCES

1. Obeagu, E. I., Okwuanaso, C. B., Edoho, S. H., & Obeagu, G. U. (2022). Under-nutrition among HIV-exposed Uninfected Children: A Review of African Perspective. Madonna University journal of Medicine and Health Sciences, 2(3):120-7.
2. Obeagu, E. I., Alum, E. U., & Obeagu, G. U. (2023). Factors associated with prevalence of HIV among youths: A review of Africa perspective. Madonna University journal of Medicine and Health Sciences, 3(1):13-8. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/93.
3. Obeagu, E. I. (2023). A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences,3(1):7-12. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/91.
4. Obeagu, E. I., & Obeagu, G. U. (2023). An update on premalignant cervical lesions and cervical cancer screening services among HIV positive women. J Pub Health Nutri., 6(2):141:1-2. links/63e538ed64252375639dd0df/An-update-on-premalignant-cervical-lesions-and-cervical-cancer-screening-services-among-HIV-positive-women.pdf.
5. Ezeoru, V. C., Enweani, I. B., Ochiabuto, O., Nwachukwu, A. C., Ogbonna, U. S., & Obeagu, E. I. (2021). Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International, 33(4):10-9.
6. Omo-Emmanuel, U. K., Chinedum, O. K., & Obeagu, E. I. (2017). Evaluation of laboratory logistics management information system in HIV/AIDS comprehensive health facilities in Bayelsa State, Nigeria. Int J Curr Res Med Sci., 3(1):21-38.DOI: 10.22192/ijcrms.2017.03.01.004
7. Obeagu, E. I., Obeagu, G. U., Musiimenta, E., Bot, Y. S., & Hassan, A. O. (2023). Factors contributing to low utilization of HIV counseling and testing services. Int. J. Curr. Res. Med. Sci., 9(2):1-5.DOI: 10.22192/ijcrms.2023.09.02.001
8. Obeagu, E. I., & Obeagu, G. U. (2022). An update on survival of people living with HIV in Nigeria. J Pub Health Nutri., 5 (6): 129. links/645b4bfcf3512f1cc5885784/An-update-on-survival-of-people-living-with-HIV-in-Nigeria.pdf.
9. UNAIDS. (2021, 2022). *Report on the Global AIDS Epidemic.* New York: World Health Organization. 40
10. Offie, D. C., Obeagu, E. I., Akueshi, C., Njab, J. E., Ekanem, E. E., Dike, P. N., & Oguh, D. N. (2021). Facilitators and barriers to retention in HIV care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. Journal of Pharmaceutical Research International, 33(52B):10-9.
11. Obeagu, E. I., Ogbonna, U. S., Nwachukwu, A. C., Ochiabuto, O., Enweani, I. B., & Ezeoru, V. C. (021). Prevalence of Malaria with Anaemia and HIV status in women of

reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International, 33(4):10-9.
12. Odo, M., Ochei, K. C., Obeagu, E. I., Barinaadaa, A., Eteng, U. E., Ikpeme, M., Bassey, J. O., & Paul, A. O. (2020). TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice. Journal of Pharmaceutical Research International, 32(22):101-9.
13. Obeagu, E. I., Eze, V. U., Alaeboh, E. A., & Ochei, K. C. (2016). Determination of haematocrit level and iron profile study among persons living with HIV in Umuahia, Abia State, Nigeria. J BioInnovation, 5:464-71. links/592bb4990f7e9b9979a975cf/DETERMINATION-OF-HAEMATOCRIT-LEVEL-AND-IRON-PROFILE-STUDY-AMONG-PERSONS-LIVING-WITH-HIV-IN-UMUAHIA-ABIA-STATE-NIGERIA.pdf.
14. Ifeanyi, O. E., & Obeagu, G. U. (2015). The values of prothrombin time among HIV positive patients in FMC owerri. International Journal of Current Microbiology and Applied Sciences, 4(4):911-6. https://www.academia.edu/download/38320140/Obeagu_Emmanuel_Ifeanyi_and_Obeagu__Getrude_Uzoma2.EMMA1.pdf.
15. Izuchukwu, I. F., Ozims, S. J., Agu, G. C., Obeagu, E. I., Onu, I., Amah, H., Nwosu, D. C., Nwanjo, H. U., Edward, A., & Arunsi, M. O. (2016). Knowledge of preventive measures and management of HIV/AIDS victims among parents in Umuna Orlu community of Imo state Nigeria. Int. J. Adv. Res. Biol. Sci., 3(10):55-65.DOI; 10.22192/ijarbs.2016.03.10.009
16. Chinedu, K., Takim, A. E., Obeagu, E. I., Chinazor, U. D., Eloghosa, O., Ojong, O. E., & Odunze, U. (2017). HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. IOSR J Pharm Biol Sci., 12(4):70-5. links/5988ab6d0f7e9b6c8539f73d/HIV-and-TB-co-infection-among-patients-who-used-Directly-Observed-Treatment-Short-course-centres-in-Yenagoa-Nigeria.pdf
17. Oloro, O. H., Oke, T. O., & Obeagu, E. I. (2022). Evaluation of Coagulation Profile Patients with Pulmonary Tuberculosis and Human Immunodeficiency Virus in Owo, Ondo State, Nigeria. Madonna University journal of Medicine and Health Sciences, 2(3):110-9.
18. Nwosu, D. C., Obeagu, E. I., Nkwocha, B. C., Nwanna, C. A., Nwanjo, H. U., Amadike, J. N., Elendu, H. N., Ofoedeme, C. N., Ozims, S. J., & Nwankpa, P. (2016). Change in Lipid Peroxidation Marker (MDA) and Non enzymatic Antioxidants (VIT C & E) in HIV Seropositive Children in an Urban Community of Abia State. Nigeria. J. Bio. Innov., 5(1):24-30. links/5ae735e9a6fdcc5b33eb8d6a/CHANGE-IN-LIPID-PEROXIDATION-MARKER-MDAAND-NON-ENZYMATIC-ANTIOXIDANTS-VIT-C-E-IN-HIV-SEROPOSITIVE-CHILDREN-IN-AN-URBAN-COMMUNITY-OF-ABIA-STATE-NIGERIA.pdf.
19. Igwe, C. M., Obeagu, I. E., & Ogbuabor, O. A. (2022). Clinical characteristics of people living with HIV/AIDS on ART in 2014 at tertiary health institutions in Enugu, Nigeria. J Pub Health Nutri., 5 (6): 130. links/645a166f5762c95ac3817d32/Clinical-characteristics-of-people-living-with-HIV-AIDS-on-ART-in-2014-at-tertiary-health-institutions-in-Enugu.pdf.
20. Ifeanyi, O. E., Obeagu, G. U., Ijeoma, F. O., & Chioma, U. I. (2015). The values of activated partial thromboplastin time (APTT) among HIV positive patients in FMC Owerri. Int J Curr Res Aca Rev., 3:139-44. https://www.academia.edu/download/38320159/Obeagu_Emmanuel_Ifeanyi3__et_al.IJCRAR.pdf.
21. Obiomah, C. F., Obeagu, E. I., Ochei, K. C., Swem, C. A., & Amachukwu, B. O. (2018). Hematological indices o HIV seropositive subjects in Nnamdi Azikiwe University teaching hospital (NAUTH), Nnewi. Ann Clin Lab Res., 6(1):1-4. links/5aa2bb17a6fdccd544b7526e/Haematological-Indices-of-HIV-Seropositive-Subjects-at-Nnamdi-Azikiwe.pdf
22. Omo-Emmanuel, U. K., Ochei, K. C., Osuala, E. O., Obeagu, E. I., & Onwuasoanya, U. F. (2017). Impact of prevention of mother to child transmission (PMTCT) of HIV on positivity rate in Kafanchan, Nigeria.

Int. J. Curr. Res. Med. Sci., 3(2):28-34.DOI: 10.22192/ijcrms.2017.03.02.005
23. Aizaz, M., Abbas, F. A., Abbas, A., Tabassum, S., & Obeagu, E. I. (2023). Alarming rise in HIV cases in Pakistan: Challenges and future recommendations at hand. Health Science Reports, 6(8):e1450.
24. Obeagu, E. I., Amekpor, F., & Scott, G. Y. (2023). An update of human immunodeficiency virus infection: Bleeding disorders. J Pub Health Nutri., 6(1): 139. links/645b4a6c2edb8e5f094d9bd9/An-update-of-human-immunodeficiency-virus-infection-Bleeding.pdf.
25. Obeagu, E. I., Scott, G. Y., Amekpor, F., Ofodile, A. C., Edoho, S. H., & Ahamefula, C. (2022). Prevention of New Cases of Human Immunodeficiency Virus: Pragmatic Approaches of Saving Life in Developing Countries. Madonna University journal of Medicine and Health Sciences, 2(3):128-34. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/86.
26. Walter, O., Anaebo, Q. B., Obeagu, E. I., & Okoroiwu, I. L. (2022). Evaluation of Activated Partial Thromboplastin Time and Prothrombin Time in HIV and TB Patients in Owerri Metropolis. Journal of Pharmaceutical Research International, 21:29-34.
27. Odo, M., Ochei, K. C., Obeagu, E. I., Barinaadaa, A., Eteng, E. U., Ikpeme, M., Bassey, J. O., & Paul, A. O. (2020). Cascade variabilities in TB case finding among people living with HIV and the use of IPT: assessment in three levels of care in cross River State, Nigeria. Journal of Pharmaceutical Research International, 32(24):9-18.
28. Jakheng, S. P., & Obeagu, E. I. (2022). Seroprevalence of human immunodeficiency virus based on demographic and risk factors among pregnant women attending clinics in Zaria Metropolis, Nigeria. J Pub Health Nutri., 5(8):137. links/6317a6b1acd814437f0ad268/Seroprevalence-of-human-immunodeficiency-virus-based-on-demographic-and-risk-factors-among-pregnant-women-attending-clinics-in-Zaria-Metropolis-Nigeria.pdf.
29. Obeagu, E. I., & Obeagu, G. U. (2023). A Review of knowledge, attitudes and socio-demographic factors associated with non-adherence to antiretroviral therapy among people living with HIV/AIDS. Int. J. Adv. Res. Biol. Sci., 10(9):135-42.DOI: 10.22192/ijarbs.2023.10.09.015.
30. Obeagu, E. I., & Onuoha, E. C. (2023). Tuberculosis among HIV Patients: A review of Prevalence and Associated Factors. Int. J. Adv. Res. Biol. Sci., 10(9):128-34.DOI: 10.22192/ijarbs.2023.10.09.014
31. Obeagu, E. I., Ibeh, N. C., Nwobodo, H. A., Ochei, K. C., & Iwegbulam, C. P. (2017). Haematological indices of malaria patients coinfected with HIV in Umuahia. Int. J. Curr. Res. Med. Sci., 3(5):100-4.DOI: 10.22192/ijcrms.2017.03.05.014 https://www.academia.edu/download/54317126/Haematological_indices_of_malaria_patients_coinfected_with_HIV.pdf
32. Jakheng, S. P., Obeagu, E. I., Abdullahi, I. O., Jakheng, E. W., Chukwueze, C. M., Eze, G. C., Essien, U. C., Madekwe, C. C., Madekwe, C. C., Vidya, S., & Kumar, S. (2022). Distribution Rate of Chlamydial Infection According to Demographic Factors among Pregnant Women Attending Clinics in Zaria Metropolis, Kaduna State, Nigeria. South Asian Journal of Research in Microbiology, 13(2):26-31.
33. Viola, N., Kimono, E., Nuruh, N., & Obeagu, E. I. (2023). Factors Hindering Elimination of Mother to Child Transmission of HIV Service Uptake among HIV Positive Women at Comboni Hospital Kyamuhunga Bushenyi District. Asian Journal of Dental and Health Sciences, 3(2):7-14. http://ajdhs.com/index.php/journal/article/view/39.
34. Okorie, H. M., Obeagu, E. I., Okpoli, H. C. H., & Chukwu, S. N. (2020). Comparative study of enzyme linked immunosorbent assay (Elisa) and rapid test screening methods on HIV, Hbsag, Hcv and Syphilis among voluntary donors in. Owerri, Nigeria. J Clin Commun Med., 2(3):180-83. **DOI:** 10.32474/JCCM.2020.02.000137

links/5f344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-ElISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf.

35. Ezugwu, U. M., Onyenekwe, C. C., Ukibe, N. R., Ahaneku, J. E., Onah, C. E., Obeagu, E. I., Emeje, P. I., Awalu, J. C., & Igbokwe, G. E. (2021). Use of ATP, GTP, ADP and AMP as an Index of Energy Utilization and Storage in HIV Infected Individuals at NAUTH, Nigeria: A Longitudinal, Prospective, Case-Controlled Study. Journal of Pharmaceutical Research International, 33(47A):78-84.
36. Emannuel, G., Martin, O., Peter, O. S., Obeagu, E. I., & Daniel, K. (2023). Factors Influencing Early Neonatal Adverse Outcomes among Women with HIV with Post Dated Pregnancies Delivering at Kampala International University Teaching Hospital, Uganda. Asian Journal of Pregnancy and Childbirth, 6(1):203-11. http://research.sdpublishers.net/id/eprint/2819/.
37. Igwe, M. C., Obeagu, E. I., Ogbuabor, A. O., Eze, G. C., Ikpenwa, J. N., & Eze-Steven, P. E. (2022). Socio-Demographic Variables of People Living with HIV/AIDS Initiated on ART in 2014 at Tertiary Health Institution in Enugu State. Asian Journal of Research in Infectious Diseases, 10(4):1-7.
38. Vincent, C. C., Obeagu, E. I., Agu, I. S., Ukeagu, N. C., & Onyekachi-Chigbu, A. C. (2021). Adherence to Antiretroviral Therapy among HIV/AIDS in Federal Medical Centre, Owerri. Journal of Pharmaceutical Research International, 33(57A):360-8.
39. Igwe, M. C., Obeagu, E. I., & Ogbuabor, A. O. (2022). Analysis of the Factors and Predictors of Adherence to Healthcare of People Living With HIV/AIDS in Tertiary Health Institutions in Enugu State. Madonna University journal of Medicine and Health Sciences, 2(3):42-57. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/75.
40. Madekwe, C. C., Madekwe, C. C., & Obeagu, E. I. (2022). Inequality of monitoring in Human Immunodeficiency Virus, Tuberculosis and Malaria: A Review. Madonna University journal of Medicine and Health Sciences, 2(3):6-15. https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/69
41. Echendu, G. E., Vincent, C. C., Ibebuike, J., Asodike, M., Naze, N., Chinedu, E. P., Ohale, B., & Obeagu, E. I. (2023). Weights Of Infants Born To Hiv Infected Mothers: A Prospective Cohort Study In Federal Medical Centre, Owerri, Imo State. European Journal of Pharmaceutical and Medical Research, 10(8): 564-568
42. Nwosu, D. C., Nwanjo, H. U., Okolie, N. J., Ikeh, K., Ajero, C. M., Dike, J., Ojiegbe, G. C., Oze, G. O., Obeagu, E. I., Nnatunanya, I., & Azuonwu, O. (2015). Biochemical Alterations In Adult HIV Patients On Antiretrqviral Therapy. **World Journal of Pharmacy and Pharmaceutical Sciences, 4(3): 153-160.** links/5a4fd0500f7e9bbc10526b38/BIOCHEMICAL-ALTERATIONS-IN-ADULT-HIV-PATIENTS-ON-ANTIRETRQVIRAL-THERAPY.pdf.
43. Obeagu, E. I., & Obeagu, G. U. (2015). Effect of CD4 Counts on Coagulation Parameters among HIV Positive Patients in Federal Medical Centre, Owerri, Nigeria. Int. J. Curr. Res. Biosci. Plant Biol., 2(4):45-9.
44. Obeagu, E. I., & Nwosu, D. C. (2019). Adverse drug reactions in HIV/AIDS patients on highly active antiretro viral therapy: a review of prevalence. Int. J. Curr. Res. Chem. Pharm. Sci., 6(12):45-8. DOI: 10.22192/ijcrcps.2019.06.12.004 links/650aba1582f01628f0335795/Adverse-drug-reactions-in-HIV-AIDS-patients-on-highly-active-antiretro-viral-therapy-a-review-of-prevalence.pdf.
45. Obeagu, E. I., Scott, G. Y., Amekpor, F., & Obeagu, G. U. (2023). Implications of CD4/CD8 ratios in Human Immunodeficiency Virus infections. Int. J. Curr. Res. Med. Sci., 9(2):6-13. DOI: 10.22192/ijcrms.2023.09.02.002 links/645a4a462edb8e5f094ad37c/Implications-of-CD4-CD8-ratios-in-Human-Immunodeficiency-Virus-infections.pdf.

46. Obeagu, E. I., Ochei, K. C., Okeke, E. I., & Anode, A. C. (2016). Assessment of the level of haemoglobin and erythropoietin in persons living with HIV in Umuahia. Int. J. Curr. Res. Med. Sci., 2(4):29-33. links/5711c47508aeebe07c02496b/Assessment-of-the-level-of-haemoglobin-and-erythropoietin-in-persons-living-with-HIV-in-Umuahia.pdf.
47. Ifeanyi, O. E., & Obeagu, G. U. (2015). The Values of CD4 Count, among HIV Positive Patients in FMC Owerri. Int. J. Curr. Microbiol. App. Sci., 4(4):906-10. https://www.academia.edu/download/38320134/Obeagu_Emmanuel_Ifeanyi_and_Obeagu__Getrude_Uzoma.EMMA2.pdf.
48. Obeagu, E. I., Okeke, E. I., & Anonde, A. C. (2016). Evaluation of haemoglobin and iron profile study among persons living with HIV in Umuahia, Abia state, Nigeria. Int. J. Curr. Res. Biol. Med., 1(2):1-5.
49. Alum, E. U., Ugwu, O. P., Obeagu, E. I., & Okon, M. B. (2023). Curtailing HIV/AIDS Spread: Impact of Religious Leaders. Newport International Journal of Research in Medical Sciences (NIJRMS), 3(2):28-31.
50. Nwonwu, F. (2023). Millennium Development Goals: Achievements and Prospects of Meeting the Targets in Africa. Oxford: African Books Collective. 2008.
51. Obeagu EI, Obeagu GU, Paul-Chima UO. Stigma Associated With HIV. AIDS: A Review. Newport International Journal of Public Health and Pharmacy (Nijpp), 3(2):64-7.
52. Alum, E. U., Obeagu, E. I., Ugwu, O. P., Aja, P. M., & Okon, M. B. (2023). HIV Infection and Cardiovascular diseases: The obnoxious Duos. Newport International Journal of Research in Medical Sciences (NIJRMS), 3(2):95-9.
53. Ibebuike, J. E., Nwokike, G. I., Nwosu, D. C., & Obeagu, E. I. (2018). A Retrospective Study on Human Immune Deficiency Virus among Pregnant Women Attending Antenatal Clinic in Imo State University Teaching Hospital. *International Journal of Medical Science and Dental Research,* 1(2):08-14. https://www.ijmsdr.org/published%20paper/li1i2/A%20Retrospective%20Study%20on%20Human%20Immune%20Deficiency%20Virus%20among%20Pregnant%20Women%20Attending%20Antenatal%20Clinic%20in%20Imo%20State%20University%20Teaching%20Hospital.pdf.
54. Obeagu, E. I., Obarezi, T. N., Omeh, Y. N., Okoro, N. K., & Eze, O. B. (2014). Assessment of some haematological and biochemical parametrs in HIV patients before receiving treatment in Aba, Abia State, Nigeria. Res J Pharma Biol Chem Sci., 5:825-30.
55. Obeagu, E. I., Obarezi, T. N., Ogbuabor, B. N., Anaebo, Q. B., & Eze, G. C. (2014). Pattern of total white blood cell and differential count values in HIV positive patients receiving treatment in Federal Teaching Hospital Abakaliki, Ebonyi State, Nigeria. International Journal of Life Science, Biotechnology and Pharama Research, 391:186-9.
56. Obeagu, E. I. (2023). A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences, 3(1): 7-12.
57. Oloro, O. H., & Obeagu, E. I. (2022). A Systematic Review on Some Coagulation Profile in HIV Infection. International Journal of Innovative and Applied Research, 10(5):1-1.
58. Nwosu, D. C., Obeagu, E. I., Nkwuocha, B. C., Nwanna, C. A., Nwanjo, H. U., Amadike, J. N., Ezemma, M. C., Okpomeshine, E. A., Ozims, S. J., & Agu, G. C. (2015). Alterations in superoxide dismutiase, vitamins C and E in HIV infected children in Umuahia, Abia state. International Journal of Advanced Research in Biological Sciences, 2(11):268-71.
59. Volberding, P. (2008). Global HIV/AIDS Medicine. Amsterdam: Elsevier Health Sciences.
60. Obeagu, E. I., Malot, S., Obeagu, G. U., & Ugwu, O. P. (2023). HIV resistance in patients with Sickle Cell Anaemia. Newport International Journal of Scientific and Experimental Sciences (NIJSES), 3(2):56-9.

61. Getnet, R. (2013). Antiretroviral Treatment in Sub-Saharan Africa. Challenges and Prospects. Oxford: African Books Collective.
62. Ifeanyi, O. E., Uzoma, O. G., Stella, E. I., Chinedum, O. K., & Abum, S. C. (2018). Vitamin D and insulin resistance in HIV sero positive individuals in Umudike. Int. J. Curr. Res. Med. Sci., 4(2):104-8.
63. Ifeanyi, O. E., Leticia, O. I., Nwosu, D., & Chinedum, O. K. (2018). A Review on blood borne viral infections: universal precautions. Int. J. Adv. Res. Biol. Sci., 5(6):60-6.
64. Nwovu, A. I., Ifeanyi, O. E., Uzoma, O. G., & Nwebonyi, N. S. (2018). Occurrence of Some Blood Borne Viral Infection and Adherence to Universal Precautions among Laboratory Staff in Federal Teaching Hospital Abakaliki Ebonyi State. Arch Blood Transfus Disord., 1(2).
65. Thera, R. V. (2014). Religion and AIDS-Treatment in Africa: Saving Souls, Prolonging Lives. Farnham: Ashgate Publishing, Ltd.
66. Schlossberg, D. (2008). Clinical Infectious Disease. Cambridge: Cambridge University Press.
67. Kimani, J. K. (2007). Knowledge of HIV/AIDS and AIDS Voluntary Counseling and Testing: What's Their Influence on Risky Sexual Behavior in Kenya? Ann Arbor, Michigan:ProQuest.
68. Kielburger, M., (2008). HIV in Africa: Distinguishing disease from witchcraft. 2007; Retrieved from www.thestar.com/oppinion/columnist:www.thestar.com/opinion/columnists/2008/02/18/hiv_in_africa_distinguishing_disease_from_witchcraft.html

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