
INTERNATIONAL JOURNAL OF CURRENT RESEARCH IN CHEMISTRY AND PHARMACEUTICAL SCIENCES

(p-ISSN: 2348-5213; e-ISSN: 2348-5221)

www.ijcrops.com

(A Peer Reviewed, Referred, Indexed and Open Access Journal)

DOI: 10.22192/ijcrops

Coden: IJCROO(USA)

Volume 10, Issue 11- 2023

Review Article



DOI: <http://dx.doi.org/10.22192/ijcrops.2023.10.11.002>

Storms and Struggles: Managing HIV Amid Natural Disasters

***Emmanuel Ifeanyi Obeagu¹, Nwanganga Ihuoma Uboji², Getrude Uzoma Obeagu³, Hauwa Ali Buhari⁴ and Simeon Ikechukwu Egba⁵**

¹Department of Medical Laboratory Science, Kampala International University, Uganda.

²Department of Public Health Sciences, Faculty of Health Sciences, National Open University of Nigeria, Headquarters, Jabi, Abuja, Nigeria

³School of Nursing Science, Kampala International University, Uganda.

⁴Department of Haematology, School of Medical Laboratory Sciences, Usmanu Danfodiyo University, Sokoto, Nigeria.

⁵Department of Biochemistry, Michael Okpara University of Agriculture, Umudike Abia State

*Corresponding author: Emmanuel Ifeanyi Obeagu, Department of Medical Laboratory Science, Kampala International University, Uganda.

E-mail: emmanuelobeagu@yahoo.com, obeagu.emmanuel@kiu.ac.ug, 0000-0002-4538-0161

Abstract

Natural disasters pose significant challenges in managing HIV/AIDS, disrupting healthcare services, medication access, and exacerbating vulnerabilities among affected populations. This review delves into the intricate intersection between HIV/AIDS management and responses to natural disasters, exploring complexities, strategies, and critical considerations for addressing the needs of individuals living with HIV during crises. The impact of disasters on HIV/AIDS management, including healthcare service disruptions, medication access hurdles, and socio-economic upheavals, magnifies existing vulnerabilities among affected populations. Challenges in disaster response encompass coordination gaps, ensuring medication supply chains, and combating stigma and discrimination. Strategies for effective HIV/AIDS management during disasters entail preparedness planning, community engagement, and flexible healthcare delivery models. Incorporating HIV/AIDS considerations into disaster preparedness plans, engaging community-based organizations, and fostering adaptable healthcare delivery are essential. Policy and ethical considerations emphasize human rights, equity in resource allocation, and ethical resource distribution. Upholding human rights, equitable access to healthcare, and non-discriminatory practices are pivotal in disaster response efforts. Learning from past disasters and building resilience through enhanced preparedness, adaptive strategies, and system strengthening stand as crucial lessons for future disaster responses. In conclusion, managing HIV amidst natural disasters necessitates comprehensive strategies, inclusive policies, community engagement, and adaptable

healthcare delivery models. Integrating HIV/AIDS considerations into disaster frameworks is pivotal for ensuring continuous access to care, reducing vulnerabilities, and upholding human rights in disaster-affected populations.

Keywords: storms, struggles, HIV, AIDS, natural disasters

Introduction

Natural disasters, ranging from hurricanes and earthquakes to floods and wildfires, exert profound impacts on communities worldwide [1]. Amidst these catastrophic events, vulnerable populations face heightened challenges, particularly individuals living with Human Immunodeficiency Virus (HIV). The confluence of HIV/AIDS management and the intricate dynamics of disaster response presents a complex landscape, fraught with unique obstacles and critical considerations [2-8]. Disruptions caused by natural disasters encompass far-reaching implications for healthcare systems, social structures, and access to essential medications, posing severe threats to the well-being of those living with HIV [9-13]. The vulnerabilities of this population are exacerbated by the displacement, loss of healthcare infrastructure, interruptions in medication supply chains, and heightened risks of stigma and discrimination in disaster-affected areas [14-16].

This paper endeavors to navigate the intersectionality of managing HIV/AIDS amidst natural disasters, elucidating the multifaceted challenges, strategies, and ethical imperatives essential for effective responses. Delving into the impact of disasters on HIV/AIDS management, challenges in disaster response, and the pivotal strategies required for optimal care, this exploration aims to highlight the critical importance of integrating HIV/AIDS considerations into disaster preparedness and response frameworks. Against the backdrop of these challenges, this review seeks to offer insights, innovative approaches, and best practices in mitigating the complexities inherent in managing HIV amidst natural disasters. By synthesizing current knowledge, lessons learned from past disasters, and emerging strategies, this review endeavors to provide a comprehensive

understanding aimed at enhancing resilience, inclusivity, and equity in disaster responses for individuals living with HIV.

Impact of Natural Disasters on HIV/AIDS Management

Natural disasters can significantly disrupt HIV/AIDS management, posing numerous challenges that affect healthcare services, medication access, and the overall well-being of individuals living with HIV [17-19]. Natural disasters such as hurricanes, earthquakes, or floods can damage healthcare infrastructure, leading to the closure or limited functionality of clinics, hospitals, and healthcare facilities. This disruption hampers the delivery of routine HIV care, including medication distribution, doctor visits, and laboratory services [20-22]. Disasters can cause interruptions in the supply chain of antiretroviral therapy (ART) and other essential medications for HIV treatment. Displacement, infrastructure damage, and logistical hurdles can lead to shortages or the inability to access medications, resulting in treatment interruptions or medication stockouts [23-26]. Disasters often force populations to evacuate or relocate, resulting in the loss of medical records, treatment histories, and contact with healthcare providers. This can lead to discontinuity of care and difficulties in tracking and maintaining treatment regimens [27]. Disasters exacerbate existing vulnerabilities among people living with HIV, particularly for those facing socioeconomic challenges. Loss of shelter, food insecurity, psychological stress, and reduced access to support networks can compromise mental health and adherence to HIV treatment [28-31]. In disaster-affected areas, individuals living with HIV may face heightened stigma and discrimination due to misconceptions, fear, and social tensions. This can discourage people from seeking necessary healthcare and support

services, further marginalizing this already vulnerable population [32-35]. Natural disasters disrupt the distribution and availability of condoms, education programs, and HIV testing services. This limitation in prevention efforts may lead to increased transmission rates in affected communities [36]. Disasters can lead to the displacement or loss of healthcare workers, affecting the availability of skilled personnel to provide HIV/AIDS care and support services [37-38]. Disruption in HIV/AIDS management during disasters can have long-term health consequences, including increased risks of opportunistic infections, disease progression, and complications due to treatment interruptions [39-44]. Understanding these impacts is crucial for disaster preparedness and response planning. Efforts to mitigate these challenges involve integrating HIV/AIDS considerations into disaster preparedness plans, ensuring resilient healthcare systems, and providing accessible and continuous care and support for individuals living with HIV during and after disasters.

Challenges in Disaster Response for HIV/AIDS Management

Managing HIV/AIDS during and after natural disasters poses several challenges in disaster response. These challenges impact the continuity of care, medication access, and the overall well-being of individuals living with HIV [45-47]. Effective coordination between healthcare providers, disaster relief agencies, and HIV/AIDS programs is critical but often challenging. Lack of communication and coordination can lead to fragmented responses, hindering the delivery of essential services [48-50]. Disasters disrupt supply chains, leading to shortages or interruptions in the availability of antiretroviral therapy (ART) and other medications crucial for HIV/AIDS management. Ensuring uninterrupted access to medications becomes a significant challenge during and after disasters [51-53]. Displacement, damage to healthcare infrastructure, and disruptions in healthcare services pose challenges in providing consistent and comprehensive care for individuals living with HIV. Ensuring continuity of care, including follow-up

appointments and laboratory monitoring, becomes difficult. Disasters can exacerbate social tensions and discrimination against marginalized groups, including individuals living with HIV. Stigma and discrimination can hinder access to healthcare services and support, affecting the mental health and well-being of those affected. Limited resources during disaster responses necessitate difficult decisions regarding resource allocation. Balancing the urgent needs of disaster-affected populations while ensuring continued access to HIV/AIDS care and medications presents ethical and logistical challenges [54-57]. Disasters disproportionately affect vulnerable populations, including those living with HIV/AIDS, exacerbating poverty, homelessness, and food insecurity. These socioeconomic challenges can impact medication adherence and overall health outcomes [58-60]. Damage to healthcare facilities and loss of medical equipment can impede the delivery of essential HIV/AIDS services. Rebuilding healthcare infrastructure is crucial but requires substantial time and resources [61-62]. Addressing these challenges requires integrated disaster response plans that consider the specific needs of individuals living with HIV/AIDS. Coordinated efforts among healthcare providers, disaster relief agencies, and community organizations are essential to ensure the continuity of HIV/AIDS care, medication access, and support services during and after disasters. Ethical resource allocation, stigma reduction initiatives, and inclusive policies are pivotal in effective disaster response for HIV/AIDS management.

Strategies for Effective HIV/AIDS Management During Disasters

In effectively managing HIV/AIDS during disasters, implementing specific strategies tailored to address the unique challenges is crucial [63-64]. Integrate HIV/AIDS-specific components into disaster preparedness plans and protocols. This involves identifying vulnerable populations, ensuring access to medications, and establishing alternative healthcare delivery mechanisms during emergencies. Maintain emergency stockpiles of antiretroviral therapy (ART) and other essential

medications to ensure continuous access during disasters. Pre-positioning these supplies in safe locations allows rapid distribution to affected areas [65-66]. Implementing mobile clinics, telemedicine, or outreach programs helps reach populations displaced or isolated by disasters [67]. These models ensure continuity of care and medication distribution to individuals living with HIV in remote or affected areas. Engage community-based organizations and peer support networks to disseminate information, provide psychosocial support, and assist in delivering medications and healthcare services to affected individuals. Provide training to healthcare professionals on disaster response protocols, including the management of HIV/AIDS in emergency settings. This ensures that healthcare workers can deliver appropriate care under challenging conditions [68-69]. Establish alternative medication access points or temporary clinics in disaster-affected areas to ensure continued access to ART and other medications for individuals living with HIV. Employ various communication channels (including radio, mobile technology, and community outreach) to disseminate information about HIV/AIDS care, prevention, and available services during and after disasters [70-71]. Conduct awareness campaigns to reduce stigma and discrimination against individuals living with HIV during disaster response efforts. Sensitizing communities helps in ensuring inclusive access to healthcare services. Foster collaboration between healthcare providers, governmental agencies, non-governmental organizations (NGOs), and community groups to ensure a cohesive and coordinated response to the HIV/AIDS needs of affected populations. Address the long-term health needs of individuals living with HIV beyond the immediate disaster response phase. Focus on rebuilding healthcare infrastructure, restoring medication supply chains, and supporting psychosocial recovery. Implementing these strategies requires collaboration, resource allocation, and strong partnerships among healthcare systems, governmental agencies, NGOs, and community-based organizations. Prioritizing the unique needs of individuals living with HIV/AIDS in disaster response plans is

crucial for ensuring their continued access to care and medications during and after disasters.

Policy and Ethical Considerations

In managing HIV/AIDS during disasters, various policy and ethical considerations play a vital role in ensuring equitable access to care, protecting human rights, and addressing the specific needs of affected populations [73]. Upholding human rights principles is fundamental. Ensuring equitable access to healthcare services, medications, and support for all, including vulnerable populations such as individuals living with HIV/AIDS, is imperative. Policies should explicitly prohibit discrimination based on HIV status or any other factor. Disaster response efforts should prioritize non-discriminatory practices, ensuring equal treatment and access to services for all individuals. Ethical considerations in resource allocation involve fair and just distribution of limited resources, including medications and healthcare services. Prioritizing the needs of individuals living with HIV/AIDS without compromising other critical healthcare needs is essential. Protecting the confidentiality and privacy of individuals' HIV status and health information is crucial, particularly during emergency responses. Policies must ensure that sensitive health data remains confidential and is only disclosed on a need-to-know basis. Disaster responses should uphold principles of informed consent, empowering individuals to make informed decisions about their healthcare. This includes respecting patients' autonomy in treatment choices and participation in healthcare programs. Inclusive policies should facilitate the active engagement of affected communities, including individuals living with HIV/AIDS, in decision-making processes related to disaster response planning and implementation. Policies must prioritize the safety and well-being of healthcare workers involved in disaster response efforts. Ensuring access to personal protective equipment (PPE), mental health support, and training in infectious disease control measures is essential. If research or intervention programs are initiated during disaster responses, ethical guidelines must be strictly adhered to, including

obtaining informed consent, ensuring participant safety, and minimizing harm. Policies should be culturally sensitive and respect diverse beliefs, practices, and customs within affected communities. Approaches to healthcare and support services should align with cultural norms and values. Ethical considerations extend beyond the immediate response phase. Policies should prioritize the long-term recovery of healthcare systems, rebuilding infrastructure, and ensuring sustained access to HIV/AIDS care and support services.

Adhering to these policy and ethical considerations ensures that disaster response efforts are not only effective but also uphold the dignity, rights, and well-being of individuals living with HIV/AIDS and other affected populations. Integrating these principles into disaster response frameworks is crucial for ethical, inclusive, and equitable healthcare delivery during crises.

Lessons Learned and Future Directions

In examining the management of HIV/AIDS during natural disasters, understanding lessons learned from past experiences and identifying future directions are crucial for enhancing preparedness and response strategies. Integrating HIV/AIDS considerations into disaster preparedness plans is essential. Past experiences highlight the necessity of inclusive disaster planning to ensure continuous access to HIV/AIDS care, medications, and support services during emergencies. Building resilient healthcare systems capable of adapting to crises is critical. Lessons from disasters emphasize the importance of flexible healthcare delivery models, such as telemedicine and mobile clinics, to ensure continuity of care. Engaging affected communities and leveraging community networks are valuable. Peer support and community-based organizations play a crucial role in disseminating information, providing support, and delivering services during disasters. Disaster responses need to address underlying socioeconomic vulnerabilities. Efforts to mitigate poverty, homelessness, and food insecurity among affected populations are

essential for ensuring medication adherence and overall health outcomes. Lessons learned underscore the need for stigma reduction initiatives. Reducing stigma and discrimination against individuals living with HIV during disasters is vital for ensuring equitable access to healthcare services and support.

Future Directions

Strengthening disaster preparedness plans to incorporate specific strategies for managing HIV/AIDS during emergencies is imperative. This includes proactive measures to ensure medication availability, healthcare infrastructure resilience, and streamlined communication systems. Further research on the impact of disasters on HIV/AIDS management is essential. Collecting data and conducting studies to assess the long-term effects of disasters on HIV/AIDS outcomes and inform future response strategies is crucial. Continuous training of healthcare workers and responders in disaster management specific to HIV/AIDS is essential. Building capacity in disaster response protocols and healthcare delivery in emergency settings is pivotal. Advocating for policies that prioritize the needs of individuals living with HIV/AIDS during disasters is crucial. Integration of ethical considerations and human rights principles into disaster response policies is necessary. Focus on long-term recovery and rebuilding efforts in post-disaster phases. This involves restoring healthcare infrastructure, reestablishing medication supply chains, and addressing lingering health and socioeconomic impacts. Collaboration among countries and global health organizations to share best practices, experiences, and resources can enhance preparedness and response strategies globally. Learning from past experiences and implementing future-focused strategies will enhance resilience, adaptability, and inclusivity in managing HIV/AIDS during natural disasters, ultimately improving outcomes and reducing vulnerabilities for affected populations.

Conclusion

Managing HIV/AIDS amidst natural disasters presents multifaceted challenges, requiring comprehensive, ethical, and adaptive responses to ensure continuous access to care, medications, and support services for affected populations. The intersection of HIV/AIDS management and disaster responses illuminates the critical importance of integrating HIV/AIDS considerations into disaster preparedness and response frameworks. In essence, effective management of HIV/AIDS during natural disasters requires a holistic approach that considers the unique needs of affected populations, upholds ethical principles, and fosters adaptive strategies. By integrating lessons learned and embracing future-focused initiatives, stakeholders can collectively enhance resilience, reduce vulnerabilities, and ensure equitable access to care for individuals living with HIV/AIDS amidst the challenges posed by natural disasters. Such efforts contribute to a more inclusive and effective response, safeguarding the rights and well-being of all, irrespective of the challenges faced during crises.

References

1. Keller EA, DeVecchio DE. Natural hazards: earth's processes as hazards, disasters, and catastrophes. Routledge; 2019 Mar 29.
2. Obeagu EI, Okwuanaso CB, Edoho SH, Obeagu GU. Under-nutrition among HIV-exposed Uninfected Children: A Review of African Perspective. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022 Nov 23;2(3):120-7.
3. Obeagu EI, Alum EU, Obeagu GU. Factors associated with prevalence of HIV among youths: A review of Africa perspective. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2023 Jan 16;3(1):13-8. <https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/93>.
4. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2023 Jan 1;3(1):7-12. <https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/91>.
5. Obeagu EI, Obeagu GU. An update on premalignant cervical lesions and cervical cancer screening services among HIV positive women. J Pub Health Nutri. 2023; 6 (2). 2023;141:1-2. links/63e538ed64252375639dd0df/An-update-on-premalignant-cervical-lesions-and-cervical-cancer-screening-services-among-HIV-positive-women.pdf.
- 6.
7. Ezeoru VC, Enweani IB, Ochiabuto O, Nwachukwu AC, Ogbonna US, Obeagu EI. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. Journal of Pharmaceutical Research International. 2021;33(4):10-9.
8. Omo-Emmanuel UK, Chinedum OK, Obeagu EI. Evaluation of laboratory logistics management information system in HIV/AIDS comprehensive health facilities in Bayelsa State, Nigeria. Int J Curr Res Med Sci. 2017;3(1):21-38. DOI: [10.22192/ijcrms.2017.03.01.004](https://doi.org/10.22192/ijcrms.2017.03.01.004)
9. Aitsi-Selmi A, Egawa S, Sasaki H, Wannous C, Murray V. The Sendai framework for disaster risk reduction: Renewing the global commitment to people's resilience, health, and well-being. International journal of disaster risk science. 2015 Jun;6:164-76.
10. Obeagu EI, Obeagu GU, Musiimenta E, Bot YS, Hassan AO. Factors contributing to low utilization of HIV counseling and testing services. Int. J. Curr. Res. Med. Sci. 2023;9(2):1-5. DOI: [10.22192/ijcrms.2023.09.02.001](https://doi.org/10.22192/ijcrms.2023.09.02.001)
11. Obeagu EI, Obeagu GU. An update on survival of people living with HIV in Nigeria. J Pub Health Nutri. 2022; 5 (6). 2022;129. links/645b4bfcf3512f1cc5885784/An-update-on-survival-of-people-living-with-HIV-in-Nigeria.pdf.
12. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN. Facilitators and barriers to retention in HIV

- care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. *Journal of Pharmaceutical Research International*. 2021 Nov 30;33(52B):10-9.
13. Obeagu EI, Ogbonna US, Nwachukwu AC, Ochiabuto O, Enweani IB, Ezeoru VC. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. *Journal of Pharmaceutical Research International*. 2021 Feb 23;33(4):10-9.
 14. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng UE, Ikpeme M, Basse JO, Paul AO. TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice. *Journal of Pharmaceutical Research International*. 2020 Sep 18;32(22):101-9.
 15. Obeagu EI, Eze VU, Alaebob EA, Ochei KC. Determination of haematocrit level and iron profile study among persons living with HIV in Umuahia, Abia State, Nigeria. *J BioInnovation*. 2016;5:464-71.[links/592bb4990f7e9b9979a975cf/DETERMINATION-OF-HAEMATOCRIT-LEVEL-AND-IRON-PROFILE-STUDY-AMONG-PERSONS-LIVING-WITH-HIV-IN-UMUAHIA-ABIA-STATE-NIGERIA.pdf](https://doi.org/10.5923/ijarbs.2016.03.10.009).
 16. Ifeanyi OE, Obeagu GU. The values of prothrombin time among HIV positive patients in FMC owerri. *International Journal of Current Microbiology and Applied Sciences*. 2015;4(4):911-6.[https://www.academia.edu/download/38320140/Obeagu Emmanuel Ifeanyi and Obeagu Getrude Uzoma2.EMMA1.pdf](https://www.academia.edu/download/38320140/Obeagu_Emanuel_Ifeanyi_and_Obeagu_Getrude_Uzoma2.EMMA1.pdf).
 17. Brown LL, Martin EG, Knudsen HK, Gotham HJ, Garner BR. Resilience-focused HIV care to promote psychological well-being during COVID-19 and other catastrophes. *Frontiers in Public Health*. 2021 Aug 4;9:705573.
 18. Izuchukwu IF, Ozims SJ, Agu GC, Obeagu EI, Onu I, Amah H, Nwosu DC, Nwanjo HU, Edward A, Arunsi MO. 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.* 2016;3(10):55-65.DOI: [10.22192/ijarbs.2016.03.10.009](https://doi.org/10.22192/ijarbs.2016.03.10.009)
 19. Chinedu K, Takim AE, Obeagu EI, Chinazor UD, Eloghosa O, Ojong OE, Odunze U. HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. *IOSR J Pharm Biol Sci.* 2017;12(4):70-71.[5.links/5988ab6d0f7e9b6c8539f73d/HIV-and-TB-co-infection-among-patients-who-used-Directly-Observed-Treatment-Short-course-centres-in-Yenagoa-Nigeria.pdf](https://doi.org/10.5923/ijarbs.2016.03.10.009)
 20. Hassan EM, Mahmoud HN. Orchestrating performance of healthcare networks subjected to the compound events of natural disasters and pandemic. *Nature communications*. 2021 Feb 26;12(1):1338.
 21. Oloro OH, Oke TO, Obeagu EI. 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* ISSN: 2814-3035. 2022 Oct 16;2(3):110-9.
 22. Nwosu DC, Obeagu EI, Nkwocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Elendu HN, Ofoedeme CN, Ozims SJ, Nwankpa P. 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.* 2016;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](https://doi.org/10.5923/ijarbs.2016.03.10.009).
 23. Zhao Y, Han M, Lian Y, Wang Q, Gan X, Yu L, Ma C. A Secure Supply of Antiretroviral Medicines for People Living with HIV During the COVID-19 Pandemic—China’s Experience. *China CDC Weekly*. 2022 Sep 9;4(38):849.

24. Igwe CM, Obeagu IE, Ogbuabor OA. Clinical characteristics of people living with HIV/AIDS on ART in 2014 at tertiary health institutions in Enugu, Nigeria. *J Pub Health Nutri.* 2022; 5 (6). 2022;130.[links/645a166f5762c95ac3817d32/Clinical-characteristics-of-people-living-with-HIV-AIDS-on-ART-in-2014-at-tertiary-health-institutions-in-Enugu.pdf](https://doi.org/10.24242/links/645a166f5762c95ac3817d32/Clinical-characteristics-of-people-living-with-HIV-AIDS-on-ART-in-2014-at-tertiary-health-institutions-in-Enugu.pdf).
25. Ifeanyi OE, Obeagu GU, Ijeoma FO, Chioma UI. The values of activated partial thromboplastin time (APTT) among HIV positive patients in FMC Owerri. *Int J Curr Res Aca Rev.* 2015;3:139-44.https://www.academia.edu/download/38320159/Obeagu_Emanuel_Ifeanyi3_et_al_IJCRAR.pdf.
26. Obiomah CF, Obeagu EI, Ochei KC, Swem CA, Amachukwu BO. Hematological indices o HIV seropositive subjects in Nnamdi Azikiwe University teaching hospital (NAUTH), Nnewi. *Ann Clin Lab Res.* 2018;6(1):1-4.[links/5aa2bb17a6fdccd544b7526e/Haematological-Indices-of-HIV-Seropositive-Subjects-at-Nnamdi-Azikiwe.pdf](https://doi.org/10.24242/links/5aa2bb17a6fdccd544b7526e/Haematological-Indices-of-HIV-Seropositive-Subjects-at-Nnamdi-Azikiwe.pdf)
27. Hasegawa A, Ohira T, Maeda M, Yasumura S, Tanigawa K. Emergency responses and health consequences after the Fukushima accident; evacuation and relocation. *Clinical Oncology.* 2016 Apr 1;28(4):237-44.
28. Omo-Emmanuel UK, Ochei KC, Osuala EO, Obeagu EI, Onwuasoanya UF. Impact of prevention of mother to child transmission (PMTCT) of HIV on positivity rate in Kafanchan, Nigeria. *Int. J. Curr. Res. Med. Sci.* 2017;3(2):28-34.DOI: [10.22192/ijcrms.2017.03.02.005](https://doi.org/10.22192/ijcrms.2017.03.02.005)
29. Aizaz M, Abbas FA, Abbas A, Tabassum S, Obeagu EI. Alarming rise in HIV cases in Pakistan: Challenges and future recommendations at hand. *Health Science Reports.* 2023 Aug;6(8):e1450.
30. Obeagu EI, Amekpor F, Scott GY. An update of human immunodeficiency virus infection: Bleeding disorders. *J Pub Health Nutri.* 2023; 6 (1). 2023;139.[links/645b4a6c2edb8e5f094d9bd9/An-update-of-human-immunodeficiency-virus-infection-Bleeding.pdf](https://doi.org/10.24242/links/645b4a6c2edb8e5f094d9bd9/An-update-of-human-immunodeficiency-virus-infection-Bleeding.pdf).
31. Obeagu EI, Scott GY, Amekpor F, Ofodile AC, Edoho SH, Ahamefula C. Prevention of New Cases of Human Immunodeficiency Virus: Pragmatic Approaches of Saving Life in Developing Countries. *Madonna University journal of Medicine and Health Sciences* ISSN: 2814-3035. 2022 Dec 20;2(3):128-34.<https://madonnauniversity.edu.ng/journal/index.php/medicine/article/view/86>.
32. Walter O, Anaebo QB, Obeagu EI, Okoroiwu IL. Evaluation of Activated Partial Thromboplastin Time and Prothrombin Time in HIV and TB Patients in Owerri Metropolis. *Journal of Pharmaceutical Research International.* 2022 Jan 21:29-34.
33. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng EU, Ikpeme M, Bassey JO, Paul AO. 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.* 2020 Oct 1;32(24):9-18.
34. Jakheng SP, Obeagu EI. Seroprevalence of human immunodeficiency virus based on demographic and risk factors among pregnant women attending clinics in Zaria Metropolis, Nigeria. *J Pub Health Nutri.* 2022; 5 (8). 2022;137.[links/6317a6b1acd814437f0ad268/Seroprevalence-of-human-immunodeficiency-virus-based-on-demographic-and-risk-factors-among-pregnant-women-attending-clinics-in-Zaria-Metropolis-Nigeria.pdf](https://doi.org/10.24242/links/6317a6b1acd814437f0ad268/Seroprevalence-of-human-immunodeficiency-virus-based-on-demographic-and-risk-factors-among-pregnant-women-attending-clinics-in-Zaria-Metropolis-Nigeria.pdf).
35. Obeagu EI, Obeagu GU. 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.* 2023;10(9):135-42.DOI:

- 10.22192/ijarbs.2023.10.09.015
[links/6516faa61e2386049de5e828/A-Review-of-knowledge-attitudes-and-socio-demographic-factors-associated-with-non-adherence-to-antiretroviral-therapy-among-people-living-with-HIV-AIDS.pdf](https://www.ijarbs.com/links/6516faa61e2386049de5e828/A-Review-of-knowledge-attitudes-and-socio-demographic-factors-associated-with-non-adherence-to-antiretroviral-therapy-among-people-living-with-HIV-AIDS.pdf)
36. Dambre C, Baumgart NJ, Feron S, Engel O, Seddighi H, Degomme O, Gallo V. 'It never rains, but it pours'—Disasters triggered by natural hazards, sexual risk-taking behavior, and the role of health systems: A worldwide ecological analysis. *The Journal of Climate Change and Health*. 2022 Oct 1;8:100158.
37. Obeagu EI, Onuoha EC. Tuberculosis among HIV Patients: A review of Prevalence and Associated Factors. *Int. J. Adv. Res. Biol. Sci.* 2023;10(9):128-34. DOI: 10.22192/ijarbs.2023.10.09.014
[links/6516f938b0df2f20a2f8b0e0/Tuberculosis-among-HIV-Patients-A-review-of-Prevalence-and-Associated-Factors.pdf](https://www.ijarbs.com/links/6516f938b0df2f20a2f8b0e0/Tuberculosis-among-HIV-Patients-A-review-of-Prevalence-and-Associated-Factors.pdf).
38. Obeagu EI, Ibeh NC, Nwobodo HA, Ochei KC, Iwegbulam CP. Haematological indices of malaria patients coinfecting with HIV in Umuahia. *Int. J. Curr. Res. Med. Sci.* 2017;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
39. Jakheng SP, Obeagu EI, Abdullahi IO, Jakheng EW, Chukwueze CM, Eze GC, Essien UC, Madekwe CC, Madekwe CC, Vidya S, Kumar S. 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*. 2022 Aug 9;13(2):26-31.
40. Viola N, Kimono E, Nuruh N, Obeagu EI. 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*. 2023 Jun 15;3(2):7-14. <http://ajdhs.com/index.php/journal/article/view/39>.
41. Okorie HM, Obeagu Emmanuel I, Okpoli Henry CH, Chukwu Stella N. 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*. 2020;2(3):180-83. DOI: DOI: 10.32474/JCCM.2020.02.000137
[links/5f344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-EIISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf](https://www.jccm.com/links/5f344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-EIISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf).
42. Ezugwu UM, Onyenekwe CC, Ukibe NR, Ahaneku JE, Onah CE, Obeagu EI, Emeje PI, Awalu JC, Igbokwe GE. 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*. 2021 Oct 25;33(47A):78-84.
43. Emmanuel G, Martin O, Peter OS, Obeagu EI, Daniel K. 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*. 2023 Jul 29;6(1):203-11. <http://research.sdpublishers.net/id/eprint/2819/>.
44. Okoroiwu GIA, Ubosi NI. Assessment of Knowledge, Attitude and Practice of Pregnant Women Attending Antenatal Clinic Towards the Prevention of Mother to Child Transmission of HIV/Aids in Gwagwalada Area Council. *International Journal of Novel Research in Healthcare and Nursing*. 2023; 10(3):261-270. Available at: www.noveltyjournal.com
45. Aliyu A. Management of disasters and complex emergencies in Africa: The challenges and constraints. *Annals of African Medicine*. 2015 Jul 1;14(3):123.
46. Igwe MC, Obeagu EI, Ogbuabor AO, Eze GC, Ikpenwa JN, Eze-Stephen PE. 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. 2022 Aug 1;10(4):1-7.
47. Vincent CC, Obeagu EI, Agu IS, Ukeagu NC, Onyekachi-Chigbu AC. Adherence to Antiretroviral Therapy among HIV/AIDS in Federal Medical Centre, Owerri. Journal of Pharmaceutical Research International. 2021 Dec 14;33(57A):360-8.
 48. Igwe MC, Obeagu EI, Ogbuabor AO. 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 ISSN: 2814-3035. 2022 Sep 29;2(3):42-57.<https://madonnauniversity.edu.ng/journal/index.php/medicine/article/view/75>.
 49. Madekwe CC, Madekwe CC, Obeagu EI. Inequality of monitoring in Human Immunodeficiency Virus, Tuberculosis and Malaria: A Review. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2022 Sep 24;2(3):6-15.<https://madonnauniversity.edu.ng/journal/index.php/medicine/article/view/69>
 50. Echendu GE, Vincent CC, Ibebuike J, Asodike M, Naze N, Chinedu EP, Ohale B, Obeagu EI. 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, 2023;10(8): 564-568
 51. Nwosu DC, Nwanjo HU, Okolie NJ, Ikeh K, Ajero CM, Dike J, Ojiegbe GC, Oze GO, Obeagu EI, Nnatunanya I, Azuonwu O. BIOCHEMICAL ALTERATIONS IN ADULT HIV PATIENTS ON ANTIRETROVIRAL THERAPY. **World Journal of Pharmacy and Pharmaceutical Sciences**, 2015; 4(3): 153-160. [links/5a4fd0500f7e9bbc10526b38/BIOCHEMICAL-ALTERATIONS-IN-ADULT-HIV-PATIENTS-ON-ANTIRETROVIRAL-THERAPY.pdf](https://www.wjpps.com/index.php/wjpps/article/view/1000).
 52. Obeagu EI, Obeagu GU. Effect of CD4 Counts on Coagulation Parameters among HIV Positive Patients in Federal Medical Centre, Owerri, Nigeria. Int. J. Curr. Res. Biosci. Plant Biol. 2015;2(4):45-9.
 53. Obeagu EI, Nwosu DC. Adverse drug reactions in HIV/AIDS patients on highly active antiretro viral therapy: a review of prevalence. Int. J. Curr. Res. Chem. Pharm. Sci. 2019;6(12):45-8. DOI: 10.22192/ijcrps.2019.06.12.004 [links/650aba1582f01628f0335795/Adverse-drug-reactions-in-HIV-AIDS-patients-on-highly-active-antiretro-viral-therapy-a-review-of-prevalence.pdf](https://www.ijcrps.com/index.php/ijcrps/article/view/1000).
 54. Obeagu EI, Scott GY, Amekpor F, Obeagu GU. Implications of CD4/CD8 ratios in Human Immunodeficiency Virus infections. Int. J. Curr. Res. Med. Sci. 2023;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](https://www.ijcrms.com/index.php/ijcrms/article/view/1000).
 55. Obeagu EI, Ochei KC, Okeke EI, Anode AC. Assessment of the level of haemoglobin and erythropoietin in persons living with HIV in Umuahia. Int. J. Curr. Res. Med. Sci. 2016;2(4):29-33. [links/5711c47508aeebe07c02496b/Assessment-of-the-level-of-haemoglobin-and-erythropoietin-in-persons-living-with-HIV-in-Umuahia.pdf](https://www.ijcrms.com/index.php/ijcrms/article/view/1000).
 56. Ifeanyi OE, Obeagu GU. The Values of CD4 Count, among HIV Positive Patients in FMC Owerri. Int. J. Curr. Microbiol. App. Sci. 2015;4(4):906-10. https://www.academia.edu/download/38320134/Obeagu_Emanuel_Ifeanyi_and_Obeagu_Getrude_Uzoma.EMMA2.pdf.
 57. Obeagu EI, Okeke EI, Anonde Andrew C. Evaluation of haemoglobin and iron profile study among persons living with HIV in Umuahia, Abia state, Nigeria. Int. J. Curr. Res. Biol. Med. 2016;1(2):1-5.

58. Alum EU, Ugwu OP, Obeagu EI, Okon MB. Curtailing HIV/AIDS Spread: Impact of Religious Leaders. Newport International Journal of Research in Medical Sciences (NIJRMS). 2023;3(2):28-31.
59. Obeagu EI, Obeagu GU, Paul-Chima UO. Stigma Associated With HIV. AIDS: A Review. Newport International Journal of Public Health and Pharmacy (Nijpp). 2023;3(2):64-7.
60. Alum EU, Obeagu EI, Ugwu OP, Aja PM, Okon MB. HIV Infection and Cardiovascular diseases: The obnoxious Duos. Newport International Journal of Research in Medical Sciences (NIJRMS). 2023;3(2):95-9.
61. Ibebuike JE, Nwokike GI, Nwosu DC, Obeagu EI. 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*, 2018; 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>.
62. Obeagu EI, Obarezi TN, Omeh YN, Okoro NK, Eze OB. Assessment of some haematological and biochemical parameters in HIV patients before receiving treatment in Aba, Abia State, Nigeria. Res J Pharma Biol Chem Sci. 2014;5:825-30.
63. Obeagu EI, Obarezi TN, Ogbuabor BN, Anaebio QB, Eze GC. 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 Pharmacy Research. 2014;391:186-9.
64. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035. 2023 Jan 1; 3 (1): 7-12.
65. Oloro OH, Obeagu EI. A Systematic Review on Some Coagulation Profile in HIV Infection. International Journal of Innovative and Applied Research. 2022;10(5):1-1.
66. Nwosu DC, Obeagu EI, Nkwuocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Eemma MC, Okpomeshine EA, Ozims SJ, Agu GC. Alterations in superoxide dismutase, vitamins C and E in HIV infected children in Umuahia, Abia state. International Journal of Advanced Research in Biological Sciences. 2015;2(11):268-71.
67. Attipoe-Dorcoo S, Delgado R, Gupta A, Bennet J, Oriol NE, Jain SH. Mobile health clinic model in the COVID-19 pandemic: lessons learned and opportunities for policy changes and innovation. International Journal for Equity in Health. 2020 Dec;19(1):1-5.
68. Obeagu EI, Malot S, Obeagu GU, Ugwu OP. HIV resistance in patients with Sickle Cell Anaemia. NEWPORT INTERNATIONAL JOURNAL OF SCIENTIFIC AND EXPERIMENTAL SCIENCES (NIJSES). 2023;3(2):56-9.
69. Ifeanyi OE, Uzoma OG, Stella EI, Chinedum OK, Abum SC. Vitamin D and insulin resistance in HIV sero positive individuals in Umudike. Int. J. Curr. Res. Med. Sci. 2018;4(2):104-8.
70. Ifeanyi OE, Leticia OI, Nwosu D, Chinedum OK. A Review on blood borne viral infections: universal precautions. Int. J. Adv. Res. Biol. Sci. 2018;5(6):60-6.
71. Nwovu AI, Ifeanyi OE, Uzoma OG, Nwebonyi NS. 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. 2018;1(2).

72. Burkholder TW, Hill K, Hynes EJ. Developing emergency care systems: a human rights-based approach. Bulletin of the World Health Organization. 2019 Sep 9;97(9):612.

Access this Article in Online	
	Website: www.ijcrps.com
	Subject: Health Sciences
Quick Response Code	
DOI: 10.22192/ijcrps.2023.10.11.002	

How to cite this article:

Emmanuel Ifeanyi Obeagu, Nwanganga Ihuoma Ubosi, Getrude Uzoma Obeagu, Hauwa Ali Buhari and Simeon Ikechukwu Egba. (2023). Storms and Struggles: Managing HIV Amid Natural Disasters. Int. J. Curr. Res. Chem. Pharm. Sci. 10(11): 14-25.

DOI: <http://dx.doi.org/10.22192/ijcrps.2023.10.11.002>