

Communication

INNOVATIVE METHODS FOR MITIGATING UNDIAGNOSED NEUROPSYCHIATRIC COMPLICATIONS ASSOCIATED WITH HIV/AIDS IN SUB-SAHARAN AFRICA

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ABSTRACT

This design paper suggests scientifically researched methods for mitigating undiagnosed neuropsychiatric complications among HIV/AIDS patients in sub-Saharan Africa. **Objectives:** Innovative methods for timely diagnosing undiagnosed neuropsychiatric complications that are associated with HIV/AIDS infections in sub-Saharan Africa **Methods:** A retrospective meta-analysis of 10-15 articles was used for researching topic-related searches i.e., neuropsychiatric complications in HIV/AIDS patients and lack of early diagnosis. **Conclusion:** There is a justifiable need to increase specialized medical centres and supply of specific medical personnel to meet the demand for treating HIV/AIDS patients suffering from undiagnosed neuropsychiatric conditions.

Keywords: HIV/AIDS; Opportunistic Infections; Neuropsychiatry; Psychosis.

INTRODUCTION

Human Immuno-deficiency Virus (HIV) has caused lots of complications and unnecessary deaths in sub-Saharan Africa. The World Health Organization (WHO) estimated in 2021 that 25.7 million people are currently living with active HIV infection globally [WHO, 2022]. Sub-Saharan Africa has the highest rates of HIV infections in any part of the world despite better, newer, and effective Antiretroviral Drugs (ARVs). Acquired Immunodeficiency Syndrome (AIDS) is the third stage of the HIV infection whereby an infected person has CD4 counts drop below 200 cells per milliliter of blood [CDC, 2022]. Opportunistic Infections (OIs) as the name suggests are those infections that creep into a person infected with HIV that has CD4 counts drop below 200 cells per milliliter of blood. Some of the known OIs include candidiasis, invasive cervical cancer, coccidiomycosis, cryptosporidiosis, cryptococcosis, Cytomegalovirus (CMV), HIV-related encephalopathy, Herpes Simplex Virus (HSV), Histoplasmosis, Kaposi's Sarcoma (KS), lymphoma, tuberculosis (TB), Mycobacterium Avium Complex (MAC), Pneumocystis Pneumonia (PCP), Pneumonia, Progressive Multifocal Leukoencephalopathy (PML), Salmonella Septicemia, Toxoplasmosis, and Wasting Syndrome due to HIV [CDC, 2022].

Approximately 20%-30% neuropsychiatric undiagnosed conditions such as Major Depressive Disorder (MDD), schizophrenia, and anxiety disorders may be directly associated with HIV and, in the absence, or presence of OIs [Gaynes *et al.*, 2015]. In a typical clinic set-up in sub-Saharan Africa such as in Zambia, Malawi, Kenya, and Zimbabwe, a suspected HIV subject may not receive a full neuropsychiatric evaluation at the time of a positive diagnosis with HIV ELISA and Western Blot Assay. Could it be that a gap of insufficient psychiatrists, internal medicine and family medicine physicians, psychologists, and epidemiologists in sub-Saharan Africa

be the probable cause of the undiagnosed Major Depressive Disorder (MDD), schizophrenia, and anxiety disorders at the time of HIV diagnosis?

DISCUSSION AND PROPOSED SOLUTIONS

The proposed initial solution to timely identifying and diagnosing Major Depressive Disease (MDD), schizophrenia, and anxiety disorders concurrently with a primary HIV diagnosis would be to increase the number of slots for residency training in psychiatry, public health, and HIV-medicine in sub-Saharan Africa. This is only possible after medical students graduate from medical school and successful completion of medical training internship programs. For example, in Kenya, medical internship training programs typically last one year after graduating from medical school. After completing the internship program, non-specialized doctors may choose to specialize in whatever medical sub-specialty available. This is the genesis of the gap that could account for the supply of inadequate psychiatrists, epidemiologists, internal medicine, and family medicine physicians to meet the increasing incidence rates and cases of HIV-related neuropsychiatric cases in sub-Saharan Africa. In addition, during internship, freshly trained doctors should rotate in psychiatry hospitals and departments. The more exposure to psychiatric services the newly graduated doctors have, the more confident they will become to screen and treat common psychiatric conditions.

Sharing and pooling of ideas during pre-and-post undergraduate medical training among upcoming doctors in sub-Saharan African countries would offer multiple advantages. For instance, medical students in Eswatini that are enrolled in their pre-final year in one of the medical universities could participate in an exchange program with their counterparts in Zambia, Zimbabwe, Malawi, South Africa, Botswana, Namibia, Kenya, Uganda, Tanzania, and Rwanda. The same rotation and exchange program would apply for medical students undertaking their pre-and-post medical training as well medical internship programs in any of the proposed sub-Saharan countries. The idea of sharing medical ideas would improve the mindsets of the upcoming young medical professionals and provide valuable exposure towards timely diagnosing

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neuropsychiatric condition in HIV/AIDS patients with or without OIs. It could also improve healthcare service delivery and correction of misdiagnoses of neuropsychiatric conditions in sub-Saharan Africa.

Devolving of the healthcare sector is another probable solution that could mitigate the missed diagnosis of Major Depressive Disorder (MDD), schizophrenia, and anxiety disorders in a HIV patient [Pieper *et al.*, 2021]. Devolving refers to establishing specific medical specialty centers across all countries in sub-Saharan Africa such as psychiatry and infectious disease-based hospitals and centers. This will decongest the general flow of patients in typical general hospital set-ups where patients with surgical, internal medicine, obstetrics, and gynecology patients are attended to by a doctor in a single hospital. This could hasten patient screening processes, early diagnosis, and referral to the appropriate medical specialist for further specialized evaluation and treatment.

Introducing affordable healthcare comprehensive packages for HIV/AIDS patients is a great step that could reduce the total cost of health care and ARVS including seeking specialist services for HIV infected persons. The average cost of treating a severely ill HIV patient with OIs in sub-Saharan Africa is approximately \$47 million per annum depending on the country and its current economic status [Michael, 2016]. This cost could be lowered with an efficient functional devolved healthcare setup.

Integration of mental health services into primary ART care would help in diagnosing and treating mental disorders in persons living with HIV. Use of simple screening tools that can be used by general practitioners and nurses should be introduced. This will be especially useful in primary health settings that do not have psychiatrists or psychologists. A similar study conducted in South Africa looked at training of primary health care workers on how to screen for Neurocognitive decline using International Dementia Rating Scale (IHDS) and Cognitive Assessment Tool –rapid (CAT-R) [Musnami *et al.*, 2022].

Increasing and hiring of infectious disease epidemiologists, biostatisticians, practicing public health practitioners, health management and policy experts is key. This ensures that annual comprehensive metrics for HIV-related prevention data are carefully analyzed by epidemiologists and biostatisticians. It also ensures that critical healthcare HIV-prevention strategies and policies are developed from an evidence-based and data-driven perspective.

Periodic Health Needs Assessments (PHNA) with specificity to HIV-related cases and neuropsychiatric conditions in sub-Saharan Africa is key in paving the way to establishing secure data bases with Protected Health Information (PHI) for medical research and innovation purposes.

CONCLUSION

Increasing Non-governmental Organizational (NGO) and governmental donor funding for construction of the devolved medical centers in Sub-Saharan Africa is essential for sustainability of such programs [U.S Embassy Kenya, 2022]. Increasing training slots of medical experts and specialist post-internship training is imperative for increasing the supply of medical experts to meet the ever-rising demand for medical services in sub-Saharan Africa [Mutambo and Hlongwana, 2019]. Developing new and harmonizing medical curricula and training in public health and psychiatry in sub-Saharan Africa is necessary for improving healthcare services including early diagnosis of HIV-related neuropsychiatric conditions [Kiguli-Malwade *et al.*, 2020]. Declaration of Conflict of Interests: The authors declare that they have no conflict of interest.

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