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Human Immunodeficiency Virus (HIV): A Major Public Health Concern in South Africa.

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Abstract
Human Immunodeficiency Virus (HIV) is a virus that targets the immune system of human being. HIV is a major public health concern across the world. This study focused on the South Africa in the Global South. The study looked at the contributory factors of HIV which includes; Socio-economic, Biological, historical and political, Sexual transmission amongst many others. The study elucidates various public health interventions by Governments and International Organisations. The study concludes that South Africa Government should provide actions that would enhancing healthcare systems, addressing societal inequalities, and fostering community empowerment.
Key words: *Human Immunodeficiency Virus (HIV), Causal agents, Public Health Interventions and policy support.*
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1.0 Introduction

Human Immunodeficiency Virus (HIV) is a virus that targets the immune system. According to the World Health Organisation (2023), "HIV is a major public health concern in South Africa, with 39.0 million individuals living with the virus by the end of 2022". It gradually eliminates CD4 cells, which normally assist the human system to remain healthy by combating sickness. If HIV continues to remain untreated, the majority of persons are likely to develop significant immunological deficiencies within a decade. HIV can proceed to Acquired Immunodeficiency Syndrome (AIDS), the most progressed stage of the illness.

HIV spreads through a carrier's bodily fluids, which include blood, breast milk, sperm, and fluids from their genitals. It is not transmitted by kisses, embraces, or sharing meals. The symptoms of HIV differ according to the phase of infection. The virus progresses quicker in the initial few months following infection, yet many people are ignorant of their condition until it has advanced (Pagán, 2023). There is no treatment for HIV infection. However, thanks to access to good HIV avoidance, screening, therapy, and support, notably for accompanying ailments, being infected with HIV can be considered a controllable chronic health condition, allowing HIV patients to live a life of wellness (Bekker et al., 2018). This report is on Human Immunodeficiency Virus (HIV), a major public health Concern in South Africa.

According to Zuma et al. (2022), "South Africa has the world's largest AIDS epidemic, accounting for 20% of all HIV-positive people and 20% of new HIV infections". According to Allinder and Fleischman (2019), approximately 60% of HIV-positive South Africans are females older than fifteen years, and HIV incidence continues to be exceedingly prevalent across critical demographics comprising female sex workers, "men who have sex with men", transgender women, and persons who use injectables. The outbreak was exacerbated by its prevalence among 15-49-year-olds, the sexually active and economically active population that serves as South Africa's core.

According to Cox et al. (2021), South Africa's outbreak of HIV is exacerbated by an elevated incidence of tuberculosis (TB), especially TB that is resistant to multiple drugs, which adds to the HIV epidemic. South Africa's government funds around eighty percent of the HIV intervention, a record-breaking effort in Sub-Saharan Africa, while offering more than four million individuals with life-saving antiretroviral therapy (ART) (Zuma et al., 2022). However, therapeutic expansion has halted, and though fresh cases of infection have decreased by 42%, the rate is insufficient to shift the trajectory of the epidemic (Allinder and Fleischman, 2019). According to a study published in BMC Public Health, over twenty-five percent of women of reproductive ages have been exposed to a minimum of one risk factor that makes them susceptible for HIV infection (Kawuki et al., 2023).

Leung Soo et al., (2023) state that the public health perspective in South Africa focuses on addressing the challenges associated with HIV transmission, treatment accessibility, and the socio-economic factors

contributing to its spread. The burden of HIV is intricately linked to inequalities, making it imperative for Public Health initiatives to address both medical and social aspects, ensuring a comprehensive approach to prevention, treatment, and support (Deng, Chen and Si, 2023).

2.0. Main Causal or Contributory Factors

The factors influencing the public health impact of HIV in South Africa are:

- Biological factors: According to a cross-sectional study by Iyemosolo, Chivese and Esterhuizen (2021), high prevalence of sexually transmitted infections (STIs), the presence of genital ulcers, and the lack of male circumcision have been identified as significant contributors to the spread of HIV.

- Socioeconomic factors: Sherafat-Kazemzadeh et al., (2021) discovered that poverty is a major factor that contributes to the spread of HIV in South Africa. People is a pre-disposing factor to HIV infection as it has been shown to prompt people to participate in unsafe sexual activities, have limited access to healthcare, and lack education about HIV prevention. Also, sexually active females are more affected by HIV in South Africa compared to males. Gender inequality, including gender-based violence, limits women's ability to negotiate safe sex and access healthcare (Naume Muyanga et al., 2023).

- Historical and political factors: Apartheid, migration, and political instability have also contributed to the spread of HIV in South Africa (Olivier and Laneke Luies, 2023). Migration patterns in South Africa contribute to the spread of HIV. Migrants are often separated from their families and communities, which can lead to increased risk-taking behaviour and limited access to healthcare. These factors have led to the breakdown of social structures, increased poverty and inequality, and limited access to healthcare and education (Baciu et al., 2019).

- Sexual transmission: It is the primary mode of HIV transmission in South Africa. Unhealthy sexual practices including unprotected sex, having more than one partner, and sexual activity that is transactional are among those recognised as major drivers to HIV transmission (Gong, de Walque, and Dow, 2019).

- Ineffective healthcare system: It also contributed to the spread of HIV in South Africa. The healthcare system in South Africa is majorly under-resourced, understaffed, and poorly managed, which limits access to HIV prevention, testing, and treatment services (Maphumulo and Bhengu, 2019).

3.0. Framework for Public health

Nuffield ladder is a framework for public health interventions developed by Nuffield Council on Bioethics. It is used in evaluating the ethical implications of public health. The ladder has seven levels, each of which represents a different level of intervention interventions (Kongats et al., 2019). They are;

- The first level of the ladder is monitoring the situation. This stage involves monitoring the situation to know the extent of the problem and the possible impact of different interventions (Eriksen et al., 2021). This involves monitoring the prevalence of HIV in South Africa and the effectiveness of existing interventions. This includes collecting and analysing data on the extent of HIV, tracking transmission rates, and examining the outcomes of existing public health strategies. This will help in having a thorough understanding of the current state of HIV in South Africa (Zuma et al., 2022).
- The second stage is on enabling choice. Here, interventions are set up already. The interventions are structured to empower individuals in making informed decisions about their health. This involves

providing detailed information on prevention methods like the correct and consistent use of condoms. It is to ensure that individuals have the knowledge and resources to make choices in respect to their health interests, contributing to the prevention of HIV transmission. This stage is on commitment to autonomy and informed decision-making, acknowledging the significance of individuals in public health interventions (Karamagi et al., 2018).

- Guiding choice involves influencing individuals' decisions by providing incentives or disincentives. For Human Immunodeficiency Virus (HIV) in South Africa, this may include giving free HIV testing as an incentive to encourage people to undergo testing. However, the ethical consideration arises on how this incentive is designed and implemented. This would be on the potential impact on individual autonomy, ensuring that the provision of incentives aligns with public health goals without unnecessary coercing or pressuring individuals into choices that might compromise their autonomy or well-being. Ethical considerations also extend to avoiding practices that could contribute to victim blaming or disproportionately affect certain groups, with the understanding of the importance of fair and equitable implementation of interventions in addressing a major public health concern like HIV (Tulchinsky, 2019).
- Incentivizing choice is the fourth stage on the ladder. At this stage, individuals are incentivized to make certain choices. For example, giving financial rewards for participating in an HIV prevention programme. This intervention is less intrusive. Incentivizing choice is an effective way to encourage individuals to participate in HIV prevention programmes. Giving financial rewards for participating in such programmes will help to increase participation rates and reduce the spread of HIV. However, it is important to make sure that such incentives do not lead to victim blaming or coercion (Galárraga and Sosa-Rubí, 2019).
- The fifth stage of the ladder is disincentivize choice. This stage involves disincentivizing individuals from making certain choices by imposing fines for engaging in high-risk behaviours (Tariq and Gupta, 2020). Disincentivizing high-risk behaviours can be an effective public health intervention. For example, in South Africa, where HIV is a major public health concern, the government has implemented a number of interventions to reduce the spread of the virus. These include providing free antiretroviral therapy, promoting condom use, and implementing programmes to reduce mother-to-child transmission. However, disincentivizing high-risk behaviours can also be problematic if it leads to victim blaming. If individuals who engage in high-risk behaviours are fined, they may feel stigmatized and blamed for their behaviour, which could discourage them from seeking medical care or engaging in other health-promoting behaviours.
- Restrict choice is the sixth stage which involves limiting the choices available to individuals in order to prevent them from engaging in high-risk behaviours. It could involve making it illegal to engage in certain high-risk behaviours, like an unprotected sex or sharing needles (Tariq and Gupta, 2020). However, this is controversial and may be seen as victim-blaming, as it puts the responsibility for preventing HIV transmission solely on the individual.The ethical implications of such interventions can have significant consequences for individuals and communities. A public health approach to HIV

prevention should prioritize education, access to healthcare, and harm reduction strategies that empower individuals to make informed choices about their health (Gamarel, King and Operario, 2022).

- The last stage is eliminate choice, which is about removing the possibility of making certain choices altogether. For example, mandating HIV testing for all individuals. It is a controversial intervention that has been implemented in some countries. The goal is to increase the number of people who know their HIV status and to reduce the spread of the virus (Sundararajan et al., 2022). However, it raises ethical concerns about autonomy and privacy. Mandatory testing violates an individual's right to choose whether or not to be tested for HIV, though it is necessary to protect public health and prevent the spread of the virus.

4.0. Public Health Interventions

- Implementation of new policies: According to United Nations, this involves establishing new policies or amending existing ones to address issues, promote equality, and enhance overall well-being. Some policy/societal changes include, implementing sex education, promoting gender equality through economic empowerment, legal reforms, and awareness campaigns, improving access to affordable healthcare, including family planning and Antiretroviral Therapy (ART), and addressing the human rights of marginalized groups by decriminalizing sex work (Bekker et al., 2018). The National Strategic Plan for HIV, TB and STIs 2017-2022 is an example of policy interventions. It is an expert-led intervention, 4where experts and professionals design and implement interventions to improve health outcomes. It was developed by the South African National AIDS Council (SANAC). It is based on the latest research and data on HIV, TB, and STIs, structured to address the specific needs and challenges of South Africa (SANAC, 2017). However, it has some limitations. It does not involve the active participation of communities and individuals in the structure and implementation of interventions. It does not focus on societal change or improving the existing social order. The major challenges of this intervention are funding constraints due to governmental financial challenges, persistent stigma and discrimination affecting service uptake, and health system issues like inadequate staffing and poor infrastructure that affect the delivery. It relates closely with Biomedical Model of Public Health as it is based on latest scientific research and best practices. Ottawa model and the implementation of new policies share the common goal of addressing public health issues and promoting overall well-being. However, there are differences in their approaches and focus. Ottawa model encourages collaboration among various sectors to create supportive environments and promote health (Alderwick et al., 2021). In contrast, the implementation of new policies, as per the United Nations, involves establishing or amending policies to address issues and promote equality (Pollack Porter, Rutkow and McGinty, 2018). Furthermore, Ottawa model emphasizes community participation and societal change, whereas the policy interventions are more expert-led and may not prioritize societal change or the active involvement of communities and individuals.
- Community Action: It is about collective efforts by members of the community in eradicating and preventing a disease. An example is Kheth'Impilo. In South Africa, community-led initiatives have been implemented to address the HIV epidemic. For example, the Kheth'Impilo programme is a community-based HIV treatment and care programme that has been implemented in several provinces in South

Africa (Fatti et al., 2018). The programme provides HIV testing, counselling, and treatment services to people living with HIV. The programme also gives support to people living with HIV, including adherence support, psychosocial support, and support for the prevention of mother-to-child transmission of HIV. Community based intervention are majorly participatory. It was always designed to meet specific needs for a long period of time but it is capital-intensive to implement well, requires more time and effort. It aligns well with social ecological model. It emphasizes the influence on health as individual factors to interpersonal relationships, community dynamics, and broader societal and environmental conditions. Ottawa Model and Community Action intervention both emphasize on the collective efforts of the community in promoting health and preventing health issues. Ottawa model advocates for the creation of supportive environments, the development of personal skills, and the reorientation of health services to promote health and prevent diseases (Peimani, Nasli-Esfahani and Shakibazadeh, 2019). Similarly, the Community Action intervention involves community-led initiatives aimed at addressing specific health concerns, involving participatory interventions designed to meet the specific needs of the community over an extended period (Haldane et al., 2019). While both approaches advocate for community involvement and address health from a comprehensive perspective, Ottawa Model emphasizes the need for coordinated action by various sectors, including governments, social and economic sectors, and non-governmental organizations, to create favourable conditions for health (Alderwick et al., 2021). In contrast, the Community Action intervention focuses on community-led initiatives that may require significant resources, time, and effort to implement effectively (Castillo et al., 2019).

- Client-Centered Intervention: This intervention aims to improve the quality of care for people living with HIV. It focuses on improving the quality of personal care and health outcomes rather than societal change or restructuring the existing social order. For example, the South African government has implemented a programme called "Test and Treat" which provided immediate ART to people who test positive for HIV (Mnyaka et al., 2021). This programme helped in improving the health outcomes of people living with HIV and has reduced the number of new HIV infections. It relates well with biopsychosocial model, emphasize individual experiences, preferences, and psychosocial aspects. Client-centered intervention is well designed to meet individual needs and preferences, give good quality care, client satisfaction, promote treatment adherence, reduce complications, and create a supportive environment that reduces HIV-related stigma. It is basically participatory. However, it is time-consuming and resource-intensive, hindering a larger implementation. Effectiveness varies especially for clients who lack motivation for behaviour change or those with complex medical needs. Unavailability of adequately trained healthcare providers also limit these interventions. The Ottawa Model and the Client-Centered Intervention represent two distinct approaches in addressing public health issues. The Ottawa Model emphasizes the importance of community participation, societal change, and intersectoral collaboration in addressing public health challenges. It recognizes the influence of various factors, including individual behaviours, social relationships, community dynamics, and broader environmental conditions on health outcomes (Alderwick et al., 2021). In contrast, the Client-Centered Intervention focuses on improving the quality of care for individuals living with HIV,

prioritizing personalized care, and health outcomes over societal change or restructuring the existing social order (Lazarus et al., 2023).

- Behaviour Change Intervention: This intervention aims at changing individual behaviours to reduce the spread of HIV. It is more of ecological model, recognizes personal, social, and environmental factors that influence behaviour. It aims at individual-level changes in behaviour and not societal change or restructuring the existing social order. It is in between expert-led and participatory approach. For example, the South African government has implemented a programme called "Khomanani" which aims to promote condom use and other safe sex practices (Ntshiqa et al., 2018). This programme helped to increase the usage of condom and has reduced the number of new HIV infections. It is effective in targeting specific behaviours, fosters healthier habits, and addresses individual-level factors. It uses evidence-based strategies to promote sustained positive changes in behaviour. However, it is difficult in maintaining a long-term impact. The Ottawa Model and the Behaviour Change Intervention are two distinct approaches in addressing public health concerns. The Ottawa Model emphasizes community participation and societal change, aiming to create supportive environments and address broader social determinants of health through intersectoral collaboration (Amri, Chatur and O'Campo, 2022). In contrast, the Behaviour Change Intervention focuses on individual-level changes in behaviour, recognizing personal, social, and environmental factors that influence behaviours related to HIV prevention (Bose et al., 2022). Both approaches recognize the importance of addressing individual, interpersonal, and environmental determinants of health.

5.0. Policy Support

The South African government has taken various actions in addressing HIV prevalence. In 2007, the South African government started the National Strategic Plan for HIV, TB and STIs 2007-2011. This plan was to reduce the number of new HIV infections by 50% and to provide antiretroviral therapy to 80% of people living with HIV by 2011 (Hopkins, Doherty and Gray, 2018). In 2012, the government established the National Strategic Plan for HIV, TB and STIs 2012-2016. This was to reduce the number of new HIV infections by 50% and to give antiretroviral therapy to 80% of people living with HIV by 2016. In 2017, the government launched another National Strategic Plan for HIV, TB and STIs 2017-2022 (Mnyaka et al., 2021). This plan aimed at reducing the number of new HIV infections by 60% and to give antiretroviral therapy to 90% of people living with HIV by 2022.

The WHO has always been actively involved in addressing the HIV epidemic in South Africa. The WHO's Global Health Sector Strategy on HIV 2016-2021 aimed at eradicating the AIDS epidemic by 2030. The approach aimed to provide global opportunity for HIV prevention, therapeutic, care, and support services while additionally focusing on HIV's socioeconomic and structural factors (Bekker et al., 2018).

The policy focus of the South African government's National Strategic Plan for HIV, TB and STIs 2017-2022 was to address the social and structural determinants of HIV, such as poverty, gender inequality, and stigma (Chimoyi et al., 2022). The plan also promoted human rights, gender equality, and social justice. The WHO's Global Health Sector Strategy on HIV 2016-2021 also emphasized the importance of addressing the social and structural determinants of HIV, such as poverty, gender inequality, and stigma. The strategy promoted human rights, gender equality, and social justice.

At the beginning, there was denial and resistance in South Africa against actions taken in eradicating HIV, but now there is more proactive response (Allinder and Fleischman, 2019). Current policy is now on focusing on the need for societal change and creating a health-enhancing environment. Efforts are being made to address root causes and promote all- encompassing approaches beyond individual behaviour change (Anugwom, 2020).

6.0. Conclusion

In conclusion, this study assessed the background, main causal contributors, policy support, public health interventions, and ethical considerations on Human Immunodeficiency Virus (HIV), a major public health concern in South Africa. While sexual transmission and socioeconomic factors are the main contributors of HIV in South Africa. Policies were examined, public health interventions like community-led and client-centered approaches had their strengths and limitations. Ethically, step like eliminating choice in mandatory testing raise concerns about autonomy.

There is an alignment between interventions and identified causal factors. Prevalence of HIV in South Africa requires comprehensive strategies that address both biomedical and sociostructural aspects. Actions should be on enhancing healthcare systems, addressing societal inequalities, and fostering community empowerment. Ethical considerations demand a balance between public health goals and individual rights, emphasizing the importance of voluntary and informed approaches in combating the HIV epidemic.

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