

Uzomefuna Chukwuemeka Christian

Scientific supervisor: assistant at the department K. S. Seudaleva

Educational institution

“Gomel State Medical University”

Gomel, Republic of Belarus

COMPARATIVE ANALYSIS OF HIV INFECTION IN BELARUS AND NIGERIA

Introduction

The human deficiency viruses (HIV) are two species of lentivirus from the family of retrovirus that infect humans. If left untreated, they progress to a life-threatening condition called acquired immunodeficiency syndrome, popularly known as AIDS in which there is a progressive damage to the immune system, increasing the susceptibility to other life-threatening health problems like opportunistic infections and cancers. In absence of early detection and proper treatment, the average survival time after infection with HIV is approximately 9 to 11 years, depending on the HIV subtype [1].

A global study carried out in 2024 showed 40.8 million people living with the virus with a higher prevalence in females (53%) than in males (47%). The most prevalent route of transmission is via sexual contact with its leading cause being anal sex (seen in gay men). Other methods of infection can be through contaminated bodily fluids like blood, semen and vagina fluids. It also has a vertical way of transmission through the placental route from an infected mother to fetus [2]. Effective HIV antiretroviral therapy (ART) decreases patient morbidity and mortality, and prevents sexual transmission when viral load is less than 200 copies/ml. Expanding ART coverage and viral load monitoring are key components of the UNAIDS global strategy to achieve HIV epidemic control by 2030 [3].

HIV is a major public health challenge in Nigeria with HIV/AIDS among the top three causes of death in this country. The prevalence of HIV in the country has remained relatively stable over the past decade within the general population [4].

In Nigeria, 80% of new HIV infections are caused by unprotected heterosexual intercourse, with most remaining HIV infections happening in key populations such as sex workers, men who have sex with men, people who inject drugs and transgender people.

According to UNAIDS in 2024 adults and children currently living with HIV in Nigeria are 2,000,000.

According to cumulative data from 2024, there have been 36,325 registered cases of HIV infection in the Republic of Belarus, with 25,557 individuals currently living with HIV.

Goal

To give more details on the current prevalence of HIV and make a comparison of its rate in Nigeria and Belarus.

Material and methods of research

This research work was done using available data from previous reports and citations that were currently updated. The data are from trusted and reliable sources entailing its definition, etiology, routes of transmission and predispositions. The data was analyzed and conclusions about HIV in Nigeria and Belarus were made.

The results of the research and their discussion

In 2023 in Nigeria, according to the Center for Disease Control an estimated 1.9 million people were living with HIV showing a number of 74,000 new cases and an adult HIV

prevalence of approximately 1.3% for the same year. In this same year, a number of 51,000 AIDS-related deaths were recorded. In another study done by the National Agency for the Control of AIDS (NACA) in 2023, an estimated 2 million people of the total population in Nigeria were living with HIV, with 140,000 new cases recorded every week showing a 7.2% increase since the last population-based survey in 2018. Out of these cases; 210,000 adolescent girls and young women (15-24 years) acquired HIV while 160,000 children aged 0-14 were living with HIV in 2023, and 22,000 new infections in the same age group with a prevalence of 0.2%. Adults aged 15-49 are more affected with a prevalence of 1.4% with women of this same age group having twice as many of the cases than men (1.9% versus 0.9%). Out of 906,900 sex workers as of 2022, 16.7% were living with HIV and among them 69% knew their status with 23.7% undergoing antiretroviral therapy coverage. The prevalence of men who have sex with men was inconclusive while the HIV testing and status awareness was 58.5% with 26.3% undergoing antiretroviral therapy. The number of people who inject drugs were 446,000; 10.9% were living with HIV with 37.2% being aware of their status. In 2023, out of 64,200 transgender people 28.8% were living with HIV with the awareness status at 59% and 19.5% undergoing antiretroviral therapy.

According to UNAIDS in 2024, adults and children living with HIV are 2,000,000 with adults aged 15 and over living with HIV being 1,800,000 (90%) and children aged 0 to 14 living with HIV were approximately 200,000 (10%). Women aged 15 and over living with HIV were estimated to be 1,200,000 (~70%) while men aged 15 and over living with HIV were estimated to be 600 000 (~30%). Adults aged 15 to 49 HIV prevalence rate was 1.2 among which the women aged 15 to 49 HIV prevalence rate as 1.5 and men aged 15 to 49 HIV prevalence rate as 0.8. HIV prevalence among young women was 0.4 and in young men it was 0.3. Adults and children newly infected with HIV are 48 000, among these the adults aged 15 and over that were newly infected with HIV are 31 000 (~65%) with the children aged 0 to 14 newly infected with HIV being 17,000 (~35%). Women aged 15 and over newly infected with HIV were 20 000 (~65%) and men aged 15 and over newly infected with HIV were 11 000 (~35%). The HIV incidence per 1000 population (all ages) is 0.21 with the incidence per 1000 population in adults 15-49 being 0.26. Out of 2,000,000 people living with HIV, 1,600,000 knew their status (80%) with the rest 400,000 (20%) not aware. The number of adults and children receiving ART were 1,629,359 with adults aged 15 and over receiving ART having a number of 1,579,539 (97%) and children aged 0 to 14 receiving ART with a lesser number of 49 820 (3%). Women aged 15 and over receiving ART were 1,035,613(66%) and men aged 15 and over receiving ART were 543 926 (34%). Adult and child deaths due to AIDS were 42,000 which among adults aged 15 and over were 31,000(~74%) and in children aged 0 to 14 were 11,000 (~26%). Deaths due to AIDS among women aged 15 and over were 16 000 (~52%) and deaths due to AIDS among men aged 15 and over were 15 000 (~48%).

Comparatively in Belarus in the year 2023, 1,463 cases of HIV infection were registered, the incidence rate is 10.7% lower than the same period in 2022 and amounts to 15.9 cases per 100,000 population (2022 – 17.8 cases per 100,000 population). According to cumulative data as of January 1, 2024, 35,104 cases of HIV infection have been registered in the Republic of Belarus; 25,038 people are living with HIV. All age groups of the population are involved in the epidemic process; however, the majority of citizens who are newly diagnosed with HIV infection are people over 30 years of age. 87.8% of the HIV cases registered in 2023 were among people over 30 years of age. In 2023, the proportion of people infected sexually was 83.3%, while the proportion of parenteral transmission (through injection drug use) was 14.4%. The proportion of women involved in the HIV epidemic in 2023 was 39.4%, and men 60.6%. Of the social structure of HIV-infected individuals first identified in 2023, 45.9% were blue-collar workers and employees.

In 2024 in Belarus, 1,228 cases of HIV infection were registered, a 15.7% decrease compared to the previous period in 2023, amounting to 13.4 cases per 100,000 population (compared to 15.9 cases per 100,000 population in 2023). All age groups are included in the epidemic process, but the majority of citizens were newly diagnosed with HIV infection — people over 30 years of age made up 89.1% of the total number of HIV cases registered in 2024. In the same year, the proportion of people infected sexually is 84.4%, while the proportion of parenteral transmission (through injection drug use) is 12.7%. The proportion of women involved in the HIV epidemic in 2024 was 39.0%, while men accounted for 61.0%. Among people living with HIV newly diagnosed in 2024, 47.6% were blue-collar workers and employees.

Conclusion

In conclusion, our study highlights the urgent need for more frequent HIV screening in Nigeria, particularly given the significant increases in infection rates observed over the years. In contrast, Belarus has seen a progressive decline in these rates, underscoring the importance of tailored public health strategies. It is crucial for the Nigerian government to enhance awareness campaigns regarding the dangers of drug abuse and the harmful effects of self-injection practices. Additionally, ongoing research and public education are essential to address the gaps in awareness about living with HIV. By implementing these measures, we can work towards reducing transmission rates and improving the overall health of affected populations.

LITERATURE

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Yalla Lekhana, Sakiri Nomika

Scientific supervisor: Ph.D., Associate Professor T. A. Petrovskaya

Educational institution

“Gomel State Medical University”

Gomel, Republic of Belarus

RESEARCH ABOUT ENTEROHEMORRHAGIC E. COLI

Introduction

Enterohemorrhagic *Escherichia coli* (EHEC) is a highly pathogenic strain of *E. coli* bacteria that produces Shiga toxins, causing severe gastrointestinal illness including hemorrhagic colitis (bloody diarrhea) and potentially life-threatening hemolytic uremic syndrome (HUS) characterized by anemia, thrombocytopenia, and acute kidney failure. EHEC colonizes the intestinal tract and triggers inflammation and tissue injury through its virulence factors and the