

The Biological Impacts on Acquired Immuno Deficiency Syndrome in Society

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DESCRIPTION

Acquired Immunodeficiency Syndrome (AIDS) is a complex and devastating condition caused by the Human Immunodeficiency Virus (HIV), which attacks the body's immune system, leaving individuals vulnerable to a wide range of infections and diseases. Since its emergence in the early 1980s, AIDS has become a global health crisis, with millions of people affected worldwide. Understanding the history, biology, epidemiology, transmission, prevention, treatment, and social impact of AIDS is crucial in addressing this ongoing challenge. The history of AIDS dates back to the early 20th century, although it wasn't identified until the 1980s. The virus likely originated from Simian Immunodeficiency Viruses (SIVs) found in primates in Central and West Africa. It is believed that the transmission of SIVs to humans occurred through the hunting or butchering of these animals, leading to the emergence of HIV. The first recognized cases of AIDS were reported in the United States in the early 1980s among homosexual men in Los Angeles and New York City. Initially, the disease was referred to as Gay-Related Immune Deficiency (GRID). However, it soon became evident that AIDS affected various populations regardless of sexual orientation. By 1983, scientists identified HIV as the causative agent of AIDS, leading to a better understanding of its transmission and pathogenesis.

HIV belongs to the retrovirus family and primarily targets CD4 T lymphocytes, a type of white blood cell crucial for coordinating the immune response. The virus enters the bloodstream and attaches to CD4 receptors on the surface of these cells. Once inside, HIV replicates and destroys CD4 cells, weakening the immune system's ability to fight off infections and diseases. As the immune system deteriorates, individuals with HIV/AIDS become susceptible to opportunistic infections and certain types of cancer. HIV-1 and HIV-2. HIV-1 is the most common and virulent strain globally, while HIV-2 is predominantly found in West Africa and is less transmissible and pathogenic. AIDS has had a profound impact globally, with an estimated 38 million people living with HIV/AIDS worldwide. Sub-Saharan Africa remains the most affected region, accounting for approximately two-thirds of all HIV infections. However, the epidemic has also

spread to other parts of the world, including Asia, Eastern Europe, and Latin America. Key populations at higher risk of HIV infection include men who have sex with men, people who inject drugs, sex workers, transgender individuals, and prisoners. Factors such as poverty, stigma, discrimination, and limited access to healthcare contribute to the continued transmission and prevalence of HIV/AIDS in these communities.

HIV is primarily transmitted through unprotected sexual intercourse, sharing contaminated needles or syringes among people who inject drugs, mother-to-child transmission during pregnancy, childbirth, or breastfeeding, and through blood transfusions or organ transplants from infected donors (though this is rare in regions with strict screening protocols). Additionally, other bodily fluids such as blood, semen, vaginal secretions, and breast milk can carry the virus. The risk of HIV transmission can be reduced through various preventive measures, including the use of condoms during sexual activity, access to clean needles and syringes for people who inject drugs, HIV testing and counselling, Anti-Retroviral Therapy (ART) for those living with HIV to suppress viral load and prevent transmission, and pre-exposure prophylaxis (PrEP) for individuals at high risk of acquiring HIV.

Preventing HIV transmission requires a comprehensive approach that addresses biological, behavioral, and structural factors. Promoting safer sexual practices, providing access to HIV testing and counseling, ensuring availability of condoms and sterile needles, promoting harm reduction strategies, such as opioid substitution therapy for people who inject drugs, and addressing social determinants of health, including poverty and gender inequality, are essential components of HIV prevention efforts. Treatment for HIV/AIDS has evolved significantly since the early days of the epidemic. ART, consisting of a combination of antiretroviral drugs, is the cornerstone of HIV treatment. ART suppresses viral replication, preserves immune function, and reduces the risk of HIV-related complications and transmission. With proper adherence to treatment, many individuals living with HIV can lead long and healthy lives.

The social impact of AIDS extends beyond its biomedical aspects, encompassing stigma, discrimination, and human rights

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violations against affected individuals and communities. HIV-related stigma and discrimination can lead to social isolation, unemployment, loss of housing, and denial of healthcare services, exacerbating the burden of the disease. Efforts to combat HIV-related stigma and discrimination require a multi-sectoral approach involving governments, civil society organizations, healthcare providers, and affected communities. Promoting education and awareness, advocating for the rights of people living with HIV, and encouraging inclusive and supportive environments are essential strategies in addressing the social dimensions of AIDS.

CONCLUSION

Acquired Immunodeficiency Syndrome (AIDS) remains a significant global health challenge, affecting millions of people

worldwide. Despite advances in prevention, treatment, and care, disparities in access to healthcare and persistent social inequalities continue to fuel the HIV epidemic. Addressing the multifaceted aspects of AIDS requires a coordinated and holistic approach that prioritizes scientific innovation, human rights, and social justice. Only through concerted efforts at the local, national, and global levels can we hope to achieve the goal of an AIDS-free generation.