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THE PREVALENCE OF PREGNANT WOMEN INFECTION WITH HIV/AIDS: ASSESSING THE DANGERS OF THE INFECTION AND THE STRATEGIC WAYS OF PROTECTING THE BABY IN THE WOMB FROM HIV/AIDS INFECTION

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ABSTRACT

The prevalence of HIV/AIDS among pregnant women continues to pose a major public health challenge, with far-reaching consequences for both maternal health and child survival. Mother-to-child transmission (MTCT) remains the most common route of pediatric HIV infection, contributing significantly to infant morbidity and mortality in affected regions. This study assesses the dangers of HIV infection during pregnancy, highlighting its adverse effects such as increased risk of opportunistic infections, complications in childbirth, and the likelihood of vertical transmission. Furthermore, it explores strategic ways of protecting the unborn child, including routine antenatal HIV screening, early initiation of antiretroviral therapy (ART), safe delivery methods, and appropriate infant feeding practices. Emphasis is also placed on the role of health education, stigma reduction, and healthcare system strengthening as critical measures for preventing MTCT. The findings underscore that with timely interventions and coordinated healthcare strategies, the transmission of HIV from mother to child can be drastically minimized, thereby advancing the global goal of an HIV-free generation. On this basis the study concluded that the prevalence of HIV infection among pregnant women poses serious health risks to both mother and unborn child. Without intervention, the danger of mother-to-child transmission remains significantly high. One of the recommendations made was that all pregnant women should be offered free and confidential HIV screening during antenatal visits to ensure early detection and timely intervention.

Keywords: Pregnant Women and Infection with Hiv/Aids.

INTRODUCTION

The dangers of HIV infection during pregnancy are multidimensional. For the mother, infection can compromise immune function, leading to increased vulnerability to opportunistic infections, poor pregnancy outcomes, and maternal mortality if not adequately managed (Kassa et al., 2021). For the fetus, HIV infection may result in intrauterine growth restriction, preterm delivery, and, most critically, vertical transmission of the virus (Kumwenda et al., 2022). Without medical interventions, the risk of MTCT ranges between 15–45%, but with appropriate preventive measures such as antiretroviral therapy (ART), safe delivery practices, and appropriate infant feeding strategies, the risk can be reduced to below 5% (WHO, 2022).

Protecting the unborn child from HIV infection requires a strategic and integrated approach. The cornerstone of prevention lies in ensuring early antenatal care attendance, routine HIV testing, and the timely initiation of lifelong ART for HIV-positive mothers (Goga et al., 2020). ART not only improves maternal health by reducing viral load but also significantly minimizes the chances of

vertical transmission. Furthermore, interventions such as elective cesarean delivery when indicated, safe breastfeeding practices, and provision of infant antiretroviral prophylaxis have proven highly effective in breaking the cycle of transmission (Kozak et al., 2021). Community sensitization, stigma reduction, and strengthening health systems to provide continuous and accessible care are also vital in ensuring that mothers and babies remain HIV-free.Over the past two decades, significant progress has been made in reducing MTCT rates globally, with some countries achieving elimination targets. However, challenges such as late diagnosis, treatment interruptions, poverty, and gender inequalities continue to hinder progress, especially in low- and middle-income countries (UNAIDS, 2023). Therefore, assessing the dangers of HIV infection in pregnancy and exploring strategic preventive interventions remain essential for safeguarding both maternal and child health.

CONCEPT OF HIV/ AIDS INFECTION

Street trading centers can occasionally turn into hotspots for petty crimes, including smuggling, harassment, and pickpocketing. Additionally, hawkers may be taken advantage of by organized gangs, dishonest officials, or touts who demand unlawful fees or "informal taxes" in return for letting them operate. Ajayi (2020) notes that this dynamic creates an environment of insecurity and vulnerability, where hawkers lose a significant portion of their already meager income to extortion.Sexual contact, tainted blood products, sharing needles, and mother-to-child transmission during childbirth or breastfeeding are the main ways that HIV infection is spread. A late stage of the disease marked by severe immunosuppression, potentially fatal infections, and cancers, acquired immunodeficiency syndrome (AIDS) is caused by the increasing loss of CD4+ T cells if treatment is not received. (UNAIDS, 2022).

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Clinically speaking, HIV infection describes a range of disease progression stages, starting with acute infection, going through a chronic asymptomatic state, and, if left untreated, progressing to AIDS.Symptoms like fever, exhaustion, nocturnal sweats, weight loss, lymphadenopathy, and recurring infections are typical of the clinical course.Confirmatory nucleic acid tests for viral RNA and serological testing for HIV antibodies are part of the diagnostic criteria for HIV infection.Lifelong adherence to combination antiretroviral medication, which inhibits viral replication, boosts immunity, and stops the course of the disease, is the cornerstone of management. Clinicians define HIV infection not only by laboratory evidence but also by its clinical manifestations and therapeutic response (Centers for Disease Control and Prevention [CDC], 2022).

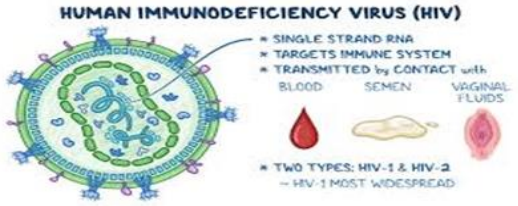

Fig.1. Picture of HIV Virus

From a sociocultural perspective, HIV infection is more than just a medical disease; it is a condition that is intricately linked to injustice, stigma, and prejudice. Males who have sex with males, sex workers, intravenous drug users, and those living in low- and middle-income nations are among the marginalized groups that are disproportionately affected by the virus. Cultural preconceptions and misconceptions about HIV infection plague many nations, preventing people from getting tested and receiving treatment. This definition highlights the societal dimensions of HIV, stressing the importance of combating stigma, ensuring equitable healthcare access, and promoting human rights as essential strategies in addressing the epidemic (Poku & McPherson, 2021).

CONCEPT OF PREGNANCY

According to Thomas (2020), pregnancy is the period in which an egg cell is fertilized by a sperm to form a new cell, called the zygote, that eventually develops into a new human organism to be born. The period of human pregnancy is 40 weeks from the date of the last menstrual period (LMP), or 38 weeks from the time of conception, on average. In this article, the former is interpreted as the start of pregnancy. One or more pregnancies are possible. Having two or more fetuses at the same time or having one zygote that splits into two or more distinct zygotes at a very early stage of development and creates two fetuses are examples of the latter.

Fig.2 A pregnant woman

As mentioned by Langaker (2023), pregnancy is a state of having implanted products of conception located either in the uterus or elsewhere in the body. Concludes with an elective or spontaneous abortion or delivery. In order to support the developing fetus, the mother's body undergoes significant changes during this time that affect every organ system. To give the mother and fetus the best care possible, all medical professionals need to be aware of various changes that occur throughout pregnancy. Pregnancy causes significant changes in the female body that affect every organ system. A pregnant woman's physiology is different from a non-pregnant woman's due to these alterations. Further issues for the mother and fetus may also result from anomalies in the development of pregnancy.

As explained by Huffman (2025), pregnancy is a process and series of changes that take place in a woman's organs and tissues as a result of a developing fetus. The typical time from conception to delivery is between 266 and 270 days, or roughly nine months. See gestation for pregnancies other

than human pregnancies. The first trimester, second trimester, and third trimester are the three distinct phases of pregnancy. A full-term pregnancy lasts approximately 40 weeks from the first day of a woman's last menstrual cycle, whereas a trimester lasts 12 to 14 weeks. In each trimester, the fetus will meet specific developmental milestones (Jackson, 2023).

THE DANGER OF HIV/AIDS INFECTION IN PREGNANT WOMEN

Acquired immune deficiency syndrome (AIDS) and the human immunodeficiency virus (HIV) are still among the most harmful diseases of the twenty-first century. Millions of individuals worldwide are afflicted with HIV, with sub-Saharan Africa bearing the brunt of the epidemic. Pregnant women are among the most vulnerable, as their health is not only at risk but also has a direct impact on the life and welfare of their unborn children. HIV infection in pregnancy poses unique challenges due to the risk of maternal illness, mother-to-child transmission (MTCT), and social stigma that often worsens outcomes (UNAIDS 2021).Significant physiological and immunological changes that occur during pregnancy may increase a woman's susceptibility to opportunistic infections if she has HIV. HIV further impairs immunity, raising the risk of serious infections like sepsis, pneumonia, and tuberculosis. During pregnancy, the immune system is automatically adjusted to accommodate the fetus (Jamieson et al., 2007). The dangers are further increased by co-infections including malaria, anemia, and malnutrition, which are prevalent in low-income nations. Covid-19 significantly disrupted child delivery across the world by affecting both access to maternal healthcare and the safety of delivery environments. As noted by Arisekola, (2023) moving goods and supplies has been challenging because of the COVID-19 epidemic, especially in areas that have been classified as containment or restricted zones. This aggravated the problem of pregnant women during covid 19 pandemic.

Pregnancy-related HIV infection seriously impairs maternal health. As the virus gradually impairs immunity, women are more vulnerable to opportunistic infections and pregnancy problems. Key maternal dangers include:

Increased Risk of Maternal Morbidity and Mortality: Pregnant women with HIV have an increased risk of contracting potentially fatal illnesses such pneumonia, toxoplasmosis, and tuberculosis (Calvert &Ronsmans, 2013). HIV can hasten the development of AIDS if therapy is not received, which could result in early maternal death.

Complications during Pregnancy and Childbirth: Preterm labor, anemia, and protracted membrane rupture are among the obstetric problems that HIV-positive women are more likely to have, increasing their risk of infection (Mepham et al., 2011).

Interaction with Antiretroviral Therapy (ART): Although antiretroviral therapy (ART) is crucial for HIV management, some antiretroviral medications can cause adverse effects such nausea, liver damage, and metabolic abnormalities that make pregnancy more difficult (Zash et al., 2018). The most significant danger of HIV infection in pregnancy is the possibility of transmitting the virus to the child. MTCT can occur at three stages:

During pregnancy (in utero): The virus can cross the placenta and infect the fetus.

During delivery (intrapartum): The newborn may be exposed to maternal blood and secretions.

After birth (postpartum): HIV can be transmitted through breastfeeding.

According to the World Health Organization (WHO, 2021), without intervention, the risk of MTCT is between 15% and 45%. However, effective ART, safe delivery practices, and safe infant feeding can reduce the risk to below 5%. Children born to HIV-positive mothers face multiple health challenges:

HIV Infection in Infants: HIV-infected infants are extremely susceptible to serious infections, quick illness progression, and early death if treatment is not received. HIV in children frequently results in immunological compromise, slowed growth, and poor cerebral development. (Violari et al., 2008).

Low Birth Weight and Prematurity: According to studies, infants delivered to mothers living with HIV are more likely to be preterm or underweight, increasing the risk of neonatal death (Wedi et al., 2016).

Increased Infant Mortality: Due in significant part to exposure to maternal illness and socioeconomic limitations, even HIV-exposed but uninfected newborns (HEU) have worse death rates than infants born to HIV-negative mothers. Beyond health outcomes, HIV infection in pregnancy carries social and psychological dangers:

Stigma and Discrimination: HIV-positive Pregnant women are often ostracized, which discourages them from using ART or receiving prenatal care (Mahajan et al., 2008).

Domestic Violence and Abandonment: Pregnant women who disclose their HIV status may face economic vulnerability due to marital violence, partner rejection, or abandonment in certain areas.

Mental Health Issues: HIV-positive Because of the worry of passing the virus on to their unborn child and the expense of lifetime treatment, pregnant women are more likely to experience anxiety and melancholy. Pregnant women with HIV/AIDS put a tremendous burden on healthcare systems, particularly in nations with little resources. Significant resources are spent on opportunistic infection treatment, MTCT program prevention, and ART provision. HIV-related maternal deaths can also cause family instability, leaving children orphaned and sustaining poverty cycles (UNAIDS 2021).

THE STRATEGIC WAY OF AVERTING THE INFECTION FROM ATTACKING THE BABY IN THE WOMB

Because they can result in congenital defects, stillbirth, premature birth, or long-term neonatal problems, infections during pregnancy continue to be a serious public health concern. Fetal health is at risk from diseases such as bacterial infections, Zika virus, rubella, syphilis, toxoplasmosis, HIV, and malaria. Furthermore malnutrition can cause poor fatal health by affecting growth, brain development, birth weight, immunity, and increasing the risk of complications. As noted by Kunlere, (2025) Malnutrition, which includes under nutrition, micronutrient deficiencies, and obesity, has far-reaching health and developmental implications, disproportionately affecting children, pregnant women, and elderly populations. Therefore, preventive measures are essential for ensuring the health of both the mother and the fetus.

- **Antenatal Screening and Early Diagnosis**

Routine antenatal screening helps in detecting maternal infections such as HIV, syphilis, hepatitis B, and Group B Streptococcus at an early stage. Early diagnosis ensures timely interventions that can prevent vertical transmission.

- **Maternal Vaccination**

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- **Good Maternal Nutrition and Micronutrient Supplementation**

An immune system that is properly nourished is less vulnerable to infections.Iron, zinc, vitamin D, and folate are among the nutrients that boost mother immunity and lower the chance of illnesses infecting the fetus.

- Prevention and Control of Sexually Transmitted Infections (STIs)

Preventing trans placental infection can be achieved through safe sexual practices, regular STI testing, and early treatment (such as penicillin therapy for syphilis).HIV and untreated syphilis continue to be two of the main ways that diseases are passed from mother to child.

- Use of Antiretroviral Therapy (ART) and Preventive Drugs

Consistent ART use lowers the viral load and stops mother-to-child transmission in mothers with HIV.The fetus is also protected by malaria prophylaxis, which includes intermittent preventative treatment with sulfadoxine-pyrimethamine in endemic areas.

- Hygiene and Food Safety Measures

Congenital deformities can result from illnesses like toxoplasmosis and listeriosis, which pregnant women are particularly susceptible to.Risk is decreased by avoiding undercooked meat and unpasteurized milk and making sure to wash your hands properly.

- Regular Antenatal Care and Health Education

Preventive treatment, education, and maternal health monitoring are all made possible by routine prenatal visits.This improves adherence to preventive measures and raises awareness of risk factors.

- Timely Treatment of Maternal Infections

When infections are identified during pregnancy, fetal infection and progression are avoided by promptly administering antibiotics, antivirals, or antifungals.For example, when paired with immunoprophylaxis, antiviral medication for hepatitis B lowers newborn infection.

THE STRATEGIC WAYS OF MITIGATING PREGNANT WOMEN INFECTION WITH HIV/AIDS

HIV/AIDS remains a significant public health challenge, especially among women of reproductive age, including pregnant women. Pregnant women are not only at risk of acquiring HIV but also of transmitting it to their unborn children. Therefore, strategic mitigation is essential to protect both maternal and child health. Below are the strategic ways of mitigating HIV/AIDS infection among pregnant women, each explained in detail.

Routine And Early Hiv Testing In Antenatal Care

Early diagnosis is critical to preventing HIV transmission to the unborn child and ensuring timely treatment for the mother. Routine HIV screening should be offered to all pregnant women during their first antenatal care (ANC) visit, with retesting in the third trimester in high-prevalence areas.

Strategic actions:

- Integrate HIV testing into routine ANC services.
- Implement "opt-out" testing policies where testing is standard unless declined.
- Ensure confidentiality and informed consent.

Provision of Antiretroviral Therapy (ART)

Antiretroviral therapy (ART) reduces the viral load in HIV-positive individuals, significantly lowering the risk of mother-to-child transmission. For pregnant women, lifelong ART (Option B+) is recommended regardless of clinical status or CD4 count.

Strategic Actions:

- Start ART immediately after diagnosis during pregnancy.
- Provide continuous monitoring and counseling to improve adherence.
- Ensure availability and accessibility of ART drugs.

Prevention of Mother-to-Child Transmission (PMTCT)

PMTCT is a specialized program aimed at preventing the transmission of HIV from an HIV-positive mother to her baby during pregnancy, labor, delivery, or breastfeeding.

Strategic Actions:

- Provide ART to both mother and baby.
- Offer infant feeding counseling (e.g., exclusive breastfeeding with ART cover).
- Implement safe obstetric practices (e.g., skilled birth attendance, appropriate delivery method based on viral load).

Health Education and Behavior Change Communication (BCC)

Education plays a vital role in preventing HIV by empowering women with knowledge about transmission, prevention, and healthy practices. Behavior change interventions can help reduce risky sexual behaviors.

Strategic Actions:

- Conduct community outreach programs targeting women of reproductive age.
- Use mass media, peer education, and facility-based health talks.
- Focus on consistent condom use, delaying sexual debut, and reducing multiple sexual partners.

Family Planning and Reproductive Health Services

Preventing unintended pregnancies among women living with HIV reduces the number of HIV-exposed infants and improves maternal health outcomes.

Strategic Actions:

- Integrate family planning into HIV care and ANC services.
- Provide counseling on contraceptive options suitable for HIV-positive women.
- Offer dual protection (condoms plus another contraceptive method).

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Elimination of Stigma and Discrimination

Stigma can prevent women from accessing HIV testing and care. Reducing stigma encourages open discussions about HIV and improves service uptake.

Strategic Actions:

- Train healthcare providers to offer non-judgmental and respectful care.
- Conduct community campaigns to normalize HIV testing and treatment.
- Empower HIV-positive women to advocate for their rights.

Monitoring, Evaluation, and Research

Ongoing data collection and research help assess the effectiveness of interventions and guide policy and program adjustments.

Strategic Actions:

- Track key indicators such as HIV testing rates, ART initiation, and MTCT rates.
- Conduct operational research on barriers to HIV prevention in pregnancy.
- Use data for evidence-based decision-making.

Policy Support and Sustainable Financing

Effective mitigation requires strong health policies and adequate funding to support service delivery.

Strategic Actions:

- Enact national policies supporting universal access to HIV services for pregnant women.
- Allocate government funding for HIV programs.
- Partner with international donors and NGOs to sustain programs.

The Cost Implication of Managing Pregnant /Nursing Women Having HIV/AIDS Infection

For women living with HIV, pregnancy and lactation provide a concentrated set of clinical needs that contribute to direct and indirect expenditures. Health systems must pay for or subsidize the procurement, laboratory, workforce, and facility costs associated with routine prenatal HIV screening and repeat testing when necessary, lifelong combination antiretroviral therapy (ART) for the mother, prenatal viral load monitoring, specialized obstetric care (including potential planned cesarean delivery for unsuppressed viral load), neonatal post-exposure prophylaxis, and early infant diagnostic testing (EID) for exposed infants. Economic evaluations of PMTCT programs reveal that while ART is cost-effective in and of itself, the additional costs of monitoring and infant testing are not negligible when projected across national cohorts of pregnant women. In many low- and middle-income settings, the unit cost of viral-load testing, supply chain logistics for ARVs, and scale-up of molecular EID platforms represent significant upfront and ongoing expenditures (Qu et al., 2022).Furthermore, program budgets have changed due to the introduction of new preventive products and clinical visits that need to be paid for as a result of policy recommendations that have surfaced since 2020 (such as increased eligibility for PrEP in high-risk pregnant women and intensified infant prophylaxis for high-risk dyads) (Fairlie et al., 2023).

Even while many PMTCT services are ostensibly free at the point of care, indirect and household-level expenditures increase the financial burden. Transportation to several clinic visits, time off work or lost income, childcare for other children during clinic appointments, and, in certain situations, the cost of formula or safer feeding alternatives when breastfeeding is not advised are all examples of indirect costs borne by pregnant and nursing women. These expenses can be disastrous for low-income households (UNAIDS/other costing reviews, 2022).If mitigation measures (transport stipends, decentralized care, or telemedicine) are not in place, programs that demand frequent clinic attendance for viral-load monitoring or intensive adherence support increase these opportunity costs and decrease retention. Recent analyses indicate that interventions like community ART delivery or telehealth lower patient costs and improve retention, but they also require an initial investment from health systems (Chevalier et al., 2024).Investments in effective PMTCT can prevent much higher downstream costs because, from a societal perspective, untreated or unsuccessfully prevented

vertical transmission also produces long-term economic consequences—lifelong pediatric ART, more frequent hospitalizations, developmental support services, and lost productivity (Qu et al., 2022).

Programmatic and health-system cost consequences depend on cost-effectiveness decisions, supply-chain resilience, and finance approaches. When budgets are limited, policymakers must choose between offering basic but widespread ART coverage and incorporating more expensive components like routine viral-load monitoring, universal maternal PrEP, or point-of-care EID machines. The national PMTCT scale-up necessitates ongoing funding for commodities (ARVs, test kits), laboratory capacity (PCR and viral-load platforms), and human resources (UNAIDS costing methods review, 2023; Chevalier et al., 2024).Combinations of interventions (early testing, universal ART, targeted PrEP, and timely EID) frequently provide the best value for money by preventing costly pediatric infections, according to cost-effectiveness modeling from a variety of settings since 2020. However, the ideal package varies by HIV incidence, service costs, and local capacity (Qu et al., 2022).Vulnerability is increased by donor dependence and fragmented funding streams; stockouts, interrupted lab services, or shortages of human resources raise the risk of treatment interruptions and increase the short-term emergency costs as well as the long-term expenses related to managing treatment failure or HIV in children (Ogbuabor et al., 2023).

Targeted investments and policy decisions can improve results while lowering the overall cost burden. Economically advantageous strategies include the use of decentralized or community delivery models to reduce patient and programmatic expenses, the integration of PMTCT into routine maternal and child health visits to reduce duplicate costs, the rapid initiation and retention of effective ART to achieve viral suppression (thereby lowering the need for higher-cost obstetric interventions), and the use of earlier and repeated antenatal testing to identify infections sooner (Pollock et al., 2023).When compared to failing to prevent pediatric infections, modeling studies show that improving adherence and retention through the implementation of patient-support measures (transport vouchers, differentiated service delivery), strengthening supply chains, and investing in point-of-care diagnostics when practical will result in lower lifetime costs (Qu et al., 2022).In summary, targeted, evidence-based investments in testing, ART, monitoring, and service delivery models are both clinically effective and economically sound when weighed against the high long-term costs of untreated maternal and pediatric HIV, even though managing pregnant and nursing women with HIV imposes quantifiable direct and indirect costs on households and health systems (Chevalier et al., 2024).

CONCLUSION

The prevalence of HIV infection among pregnant women poses serious health risks to both mother and unborn child. Without intervention, the danger of mother-to-child transmission remains significantly high.However, early testing, consistent antenatal care, and effective use of antiretroviral therapy greatly reduce this risk.Safe delivery practices and proper infant feeding strategies also serve as protective measures. Community education, stigma reduction, and healthcare access are crucial in sustaining these efforts. Ultimately, coordinated strategies can safeguard the unborn child and promote an HIV-free generation.

RECOMMENDATIONS

1. All pregnant women should be offered free and confidential HIV screening during antenatal visits to ensure early detection and timely intervention.

2. Governments and health institutions should guarantee the consistent availability of ART for all HIV-positive pregnant women to minimize the risk of mother-to-child transmission.

3. Health workers should adopt delivery methods and infant feeding options that reduce transmission risks, guided by WHO protocols.

4. Community-based education programs should focus on reducing stigma, increasing awareness of prevention of mother-to-child transmission (PMTCT), and encouraging male partner involvement.

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