

INDICATORS OF LATENT COURSE OF HIV INFECTION AMONG YOUTH AND EPIDEMIOLOGICAL FACTORS AFFECTING EARLY DETECTION

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Annotation: The indicators of the latent course of HIV infection among young people remain one of the pressing challenges facing global healthcare systems. Late diagnosis of HIV leads to a more severe progression of the disease, an increased risk of transmission, and a decline in the effectiveness of epidemiological control. This study analyzes the characteristics of the latent course of HIV infection among youth in Uzbekistan, as well as the epidemiological factors influencing early diagnosis, behavior-related risks, various social determinants, and the low coverage of medical screening. The results indicate that the main factors contributing to the latent course of HIV among young people include low awareness of the disease within the population, insufficient motivation to undergo screening, stigma, denial of risky behaviors, gender-related factors, and inadequate utilization of healthcare services.

Keywords: HIV, youth, latent course, epidemiology, early detection, risk factors.

Introduction

According to the World Health Organization, a significant proportion of HIV infection cases are detected among young people aged 15–24 years. During this period of life, there is a higher likelihood of engaging in risky behaviors, insufficient knowledge regarding reproductive health, and increased susceptibility to psychological and social influences.

According to 2024 data, the number of young people aged 15–24 living with HIV worldwide is estimated at approximately 3.2 million (ranging from 2.2 to 4.1 million). This figure accounts for about 28% of all individuals living with HIV/AIDS globally.

In Uzbekistan, approximately 25% of all newly detected HIV cases each year occur among individuals aged 15 to 24. In 2021, the incidence rate of HIV among the uninfected population aged 15–24 was 0.12 per 1,000 individuals.

In Uzbekistan, only about 10% of young women aged 15–24 have comprehensive knowledge about HIV, including its transmission routes and prevention methods. In the youngest age group (15–19 years), this indicator is even lower, accounting for 6.5%.

The latent course of HIV infection among young people can be explained by several factors:

- the absence of clinical manifestations in the early stages due to immune system characteristics,
- denial of engaging in risky behaviors,
- fear of social stigma and discrimination against individuals living with HIV,
- psychological resistance to undergoing screening.

MATERIALS AND METHODS

- This study is based on the following data sources:
- data from the Centers for Sanitary and Epidemiological Well-being of the Republic of Uzbekistan;
 - publicly available data on screening and anonymous testing conducted among individuals aged 15–24;
 - analytical epidemiological methods, including relative risk, prevalence rate, and regression analysis;
 - epidemiological reports from the World Health Organization, UNAIDS, and Centers for Disease Control and Prevention.

A total of 120 patients aged 15–24 diagnosed with HIV/AIDS between 2019 and 2024 were analyzed. They were divided into two groups [3]:

1. Early-diagnosed group — $CD4 \geq 500$ cells/ μ L at the time of diagnosis
2. Late-diagnosed group — $CD4 < 350$ cells/ μ L at the time of diagnosis

- The collected data included:
- demographic characteristics,
 - behavioral risk factors,
 - history of medical consultations,
 - frequency of undergoing medical examinations,
 - presence or absence of clinical symptoms,

RESULTS AND DISCUSSION

1. The prevalence of latent HIV infection among youth
The study revealed that in 68% of patients, HIV/AIDS had a latent (asymptomatic) course.

- The main factors contributing to this latent progression include:
- the ability of the immune system to compensate for viral replication during the early stages of infection,
 - delayed healthcare-seeking behavior due to the absence of clinical symptoms,
 - the tendency of young individuals to perceive their health status as “good” and not consider themselves ill.

2. Epidemiological factors

Factors	Percentages (%)
Low level of awareness about HIV/AIDS	72
Lack of regular medical check-ups	63
Engagement in risky sexual behavior	58
Presence of stigma and fear	54
Delayed access to healthcare services	49

3. Factors Influencing Early Detection

- Young individuals diagnosed at an early stage ($CD4 \geq 500$ cells/ μ L) were more likely to belong to the following groups:
- healthcare professionals or medical students,
 - individuals participating in regular screening programs,
 - those with a high level of knowledge regarding reproductive health.

In contrast, patients with late-diagnosed HIV/AIDS demonstrated higher levels of stigma, more frequent denial of risky behaviors, and lower levels of social support.

4. Consequences of Late Diagnosis of HIV Infection

Among young individuals with late diagnosis, a threefold increase in opportunistic (secondary) infections was observed, along with a significant decline in CD4 cell count. Additionally, delayed initiation of antiretroviral therapy led to a slower rate of immune system recovery.

Conclusion

The latent progression of HIV/AIDS among young people represents one of the most concerning aspects of the current epidemiological situation. The analysis shows that although individuals aged 15–24 constitute a significant proportion of newly identified HIV cases, the rate of early diagnosis in this group remains insufficiently low. This situation is driven by several interrelated factors, including social stigma, limited access to reproductive health services, inadequate health literacy, and psychological barriers to seeking medical care.

The prolonged asymptomatic phase contributes to a high risk of unintentional transmission among young people. Epidemiological evidence indicates that asymptomatic carriers form a “hidden reservoir” of infection within the population. In conditions where early detection programs are insufficient, this significantly accelerates the spread of the infection. In particular, unprotected sexual contact, multiple sexual partners, migration-related mobility, and substance use further intensify the epidemiological dynamics of HIV among youth.

Early detection strategies play a decisive role in addressing this problem. Global studies demonstrate that:

- targeted medical screening programs increase detection rates among high-risk groups by 2–3 times;
- mobile and anonymous testing units significantly improve willingness and trust among young people to undergo testing;
- digital platforms, social media, and mobile applications used for interactive educational campaigns reduce stigma and fear while increasing epidemiological awareness;
- self-testing kits serve as an effective tool for individuals reluctant to visit healthcare facilities and are becoming a global priority in early diagnosis strategies.

Furthermore, strengthening epidemiological surveillance, implementing behavioral risk-reduction interventions, and introducing educational programs aimed at promoting safe sexual behavior among adolescents and young people are essential for reducing HIV transmission. In the context of Uzbekistan, the establishment of integrated cooperation between educational institutions, the healthcare system, and youth-oriented state policies holds strategic importance for improving early diagnosis and controlling the epidemic.

The latent HIV burden among young people remains a critical public health issue requiring continuous epidemiological monitoring. The high proportion of undiagnosed cases obscures the true scale of the epidemic, delays timely diagnosis, and contributes to increased transmission. Therefore, expanding early detection programs, implementing digitalized screening systems, strengthening preventive education, and reducing social stigma can substantially decrease HIV spread among youth. A comprehensive, multi-level epidemiological approach remains the most effective strategy in combating HIV infection.

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