



The Role of Social Determinants and Risky Behaviors in HIV/AIDS Transmission: A Review

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Abstract

HIV/AIDS remains a pressing global health challenge, particularly in developing nations such as Indonesia. Transmission is strongly shaped by social determinants and high-risk behaviors. This review examines the role of these factors in HIV/AIDS spread, drawing on ten recent national and international studies, including systematic reviews, observational research, and cross-national surveys. Key populations identified are men who have sex with men (MSM), sex workers, injecting drug users (IDUs), and prisoners. The main social determinants associated with heightened vulnerability include low education, unemployment, unmarried status, and minority sexual orientation. Risky behaviors consistently linked to HIV infection involve unprotected sex, multiple partners, anal intercourse, and injecting drug use with shared needles. The intersection of these social and behavioral factors creates compounded risks, reinforcing patterns of vulnerability in key populations. Effective prevention requires strategies that address both domains simultaneously. Community-based programs should promote safer sexual practices, expand condom access, and strengthen harm reduction services for IDUs. Equally critical are educational initiatives, stigma reduction, and ensuring inclusive, non-discriminatory healthcare access. By integrating social and behavioral approaches, HIV/AIDS interventions can more effectively curb transmission and reach populations most at risk.

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Introduction

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) remain major global public health issues, particularly in developing countries. Despite significant progress in HIV prevention, diagnosis, and treatment, the number of new infections remains high, especially among key and vulnerable populations. HIV transmission is not only influenced by biological factors but is also heavily affected by social determinants and individual behaviors that increase the risk of infection (WHO, 2025).

Social determinants such as educational level, economic status, employment, marital status, and access to healthcare services indirectly contribute to an individual's vulnerability to HIV. People with low levels of education often lack adequate knowledge about HIV transmission and prevention. Additionally, poverty and unemployment can drive individuals to engage in high-risk behaviors such as transactional sex or injecting drug use (Marmot, 2005).

On the other hand, direct factors contributing to HIV transmission include risky behaviors such as unprotected sexual intercourse, multiple sexual partners, unprotected anal sex, and sharing needles among people who inject drugs (PWID). Studies have shown that men who have sex with men (MSM), commercial sex workers, and drug users are groups with significantly higher HIV infection rates compared to the general population (UNAIDS, 2025).

The interaction between social determinants and risky behaviors creates a complex cycle of vulnerability. For instance, individuals who are poor, uneducated, and socially marginalized are more

likely to engage in behaviors that increase their risk of HIV infection. Therefore, HIV/AIDS mitigation efforts must incorporate structural social interventions alongside medical and behavioral approaches (Beyrer et al., 2013)

The objective of this literature review is to identify and analyze the social factors that contribute to increased risk of HIV/AIDS transmission, such as education level, economic status, marital status, and access to healthcare. It also aims to examine key risky behaviors that contribute to HIV/AIDS transmission, including unprotected sex, multiple sexual partners, unprotected anal intercourse, and injecting drug use with shared needles. Furthermore, this review seeks to describe the interaction between social determinants and risky behaviors, and how these factors reinforce each other in creating vulnerability to HIV infection, particularly among key and vulnerable populations.

Methods

In this study, the author employed a literature review approach, also known as a library research method. Therefore, only secondary data sources were used. The secondary data were obtained from journals published on Google Scholar and PubMed within a 7-year range, from 2017 to 2024. Additional supporting data were also taken from articles published by the World Health Organization (WHO). The journals were selected based on relevant keywords related to the research topic. The keywords used to search for national articles included: Determinants, Risk Factors, HIV/AIDS, Risk Population, Men Who Have Sex with Men, and Female Sex Workers. For international journals or articles, the keywords included: "Risk Factor," "HIV/AIDS," "Men Who Have Sex with Men," "Female Sex Workers," and "Risk Population." An inclusion method was applied during the article selection process. The inclusion criteria were as follows: 1. Articles must have been published within the last 10 years (2015–2025). 2. Articles must be accessible free of charge, available in full-text format, and directly related to the chosen keywords. 3. The content of the article must clearly target populations at risk of HIV/AIDS.

The following is a schematic flowchart of the literature search process:

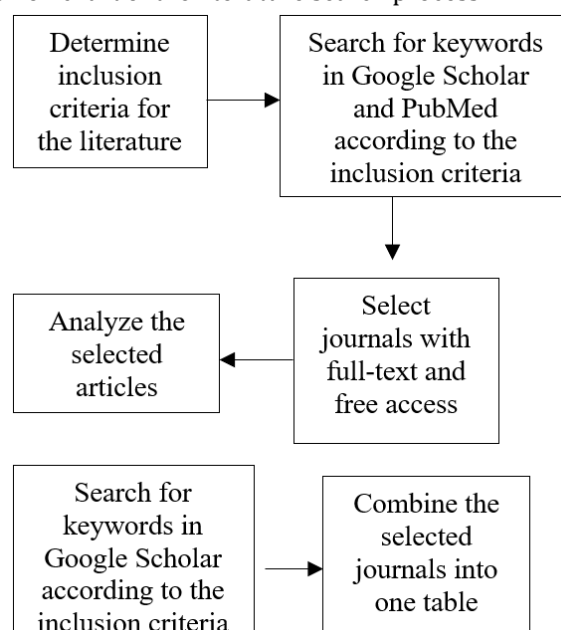


Figure 1. Search Flow Framework *Literature Review*

Results

Social Determinants in HIV/AIDS Transmission

Various studies have shown that social determinants play a crucial role in increasing the risk of HIV/AIDS transmission. *Low levels of education* are consistently associated with poor knowledge about HIV and inconsistent condom use. Individuals with only basic education or no formal schooling tend to have limited understanding of HIV prevention methods, making them more vulnerable to infection (Marmot, 2005).

Economic status and employment are also significant factors. Poverty and unemployment drive some individuals, especially women, into transactional sexual relationships as a means of survival. This increases the likelihood of engaging in unprotected sex or sex with high-risk partners (UNAIDS, 2025).

Limited access to healthcare services particularly in remote or marginalized areas remains a major barrier to early HIV detection and antiretroviral treatment (ART). People who are unaware of their HIV status are at high risk of unknowingly transmitting the virus (WHO, 2025).

Risk Behaviors in HIV/AIDS Transmission

(1) Unprotected Sexual Intercourse

Studies show that unprotected sexual intercourse remains the most common route of HIV transmission. Lack of education, cultural influences, and the false belief that a regular partner is always safe often contribute to low condom use (Beyrer et al., 2013).

(2) Multiple Sexual Partners

Research across various countries indicates that having more than one sexual partner significantly increases the risk of HIV infection, especially in the absence of condom use (He *et al.*, 2024). Men who have sex with men (MSM), sex workers, and young individuals are more frequently reported to have multiple partners.

(3) Injecting Drug Use and Needle Sharing

Injecting drug use (IDU) is a direct risk factor for HIV transmission due to the sharing of contaminated needles. In many countries, HIV prevalence is particularly high among people who inject drugs, especially those who have been using for extended periods or inject more than six times per week (Rutagwera et al., 2022).

Interaction Between Social Determinants and Risk Behaviors

HIV/AIDS transmission cannot be separated from the complex interplay between social and behavioral factors. For instance, individuals with low education levels and poor economic conditions are more likely to engage in risky sexual behavior due to lack of information and economic necessity. This situation is further exacerbated by stigma and discrimination, which discourage people from accessing healthcare services or acknowledging their sexual orientation (Culquichicón *et al.*, 2023).

Several studies also highlight that adolescents, prisoners, and MSM communities face higher levels of risk due to overlapping social and behavioral vulnerabilities. For example, young males who are out of school and live in areas with limited healthcare access tend to have low HIV-related knowledge and are more likely to engage in unprotected sex.

Implications for HIV/AIDS Mitigation

These findings suggest that efforts to combat HIV/AIDS must go beyond medical interventions. A multidimensional approach involving education, economic empowerment, improved healthcare access, and the elimination of stigma should be prioritized in public health policies. Community-based interventions that directly target key populations have been shown to be more effective in reducing new infection rates.

The following is the result of the literature search and analysis conducted by the researcher, presented in a flowchart using the PRISMA 2020 diagram.

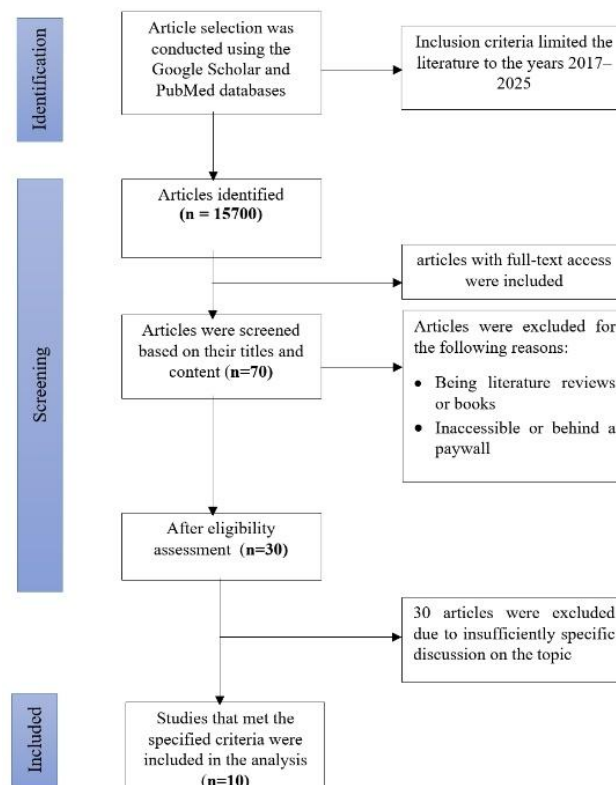


Figure 2. PRISMA 2020 Flow Diagram

The article selection process was conducted using the PRISMA 2020 method. At the identification stage, a total of 15,700 articles were retrieved from Google Scholar and PubMed databases, limited to publications from 2017 to 2025. After the initial screening, 15,630 articles were excluded due to duplication, being outside the publication year range, or irrelevance to the research topic. A total of 70 articles were then screened based on titles and abstracts. Of these, 40 articles were excluded because they were literature reviews, books, or inaccessible (behind a paywall). Subsequently, 30 articles were assessed for eligibility. At this stage, 20 articles were excluded as their content did not sufficiently meet the specific inclusion criteria. Ultimately, only 10 articles met all the inclusion requirements and were included in the final analysis. This result indicates that, although thousands of publications were initially identified, only a small proportion substantially aligned with the research focus, thereby strengthening the validity of the data used in the analysis.

Table 1. List of Literature or References Used in the Study

No	Researcher, Title, Year	Design	Subjects	Variables	Findings
1	Rahma et al., 2024. Determinants of HIV/AIDS among Key Populations in Indonesia	Systematic Review	MSM, transgender women, FSWs, IDUs	Age, education, marital status, risky behavior, STI, needle sharing	Significant associations with multiple variables including education and risky behavior
2	Prameswari, 2024. Risk Factors Associated with HIV/AIDS in Indonesia	Literature Review (PRISMA)	MSM, FSWs, IDUs, serodiscordant couples	Age, gender, knowledge, behavior, orientation, drug use	Highest prevalence in males 15–24; risky behavior and orientation key risks
3	Afrityani & Zebua, 2021. Causes of HIV Transmission in PLWHA	Quantitative Descriptive	PLWHA in Limapuluh Health Center	Sexual behavior, condom use	Risk linked to multiple partners, no condom use
4	Sumini <i>et al.</i> , 2017. Risk Factors among IDUs in Pontianak	Case-Control	IDUs in Pontianak	Sexual partners, injecting frequency, employment	Unemployment and high injection frequency related to HIV
5	Oktavia et al., 2024. Risk in MSM in Bukittinggi	Cross-Sectional	MSM in Bukittinggi	Age, education, job, condom use	Most HIV-negative; high condom use rate
6	Inggariwati & Rooatmodjo, 2018. HIV Risk in IDUs, Jakarta	Cross-Sectional	IDUs in Jakarta	Needle sharing, drug use duration	Needle sharing & long use linked to HIV
7	Riyatin <i>et al.</i> , 2019. HIV Transmission in Women, Sragen	Analytical Survey	Women with HIV	Partners, condom use, anal sex	Significant links with all three behaviors
8	He <i>et al.</i> , 2024. Secondary HIV in ART Patients, China	Longitudinal Cross-Sectional	3,177 recipients ART	Age, gender, ART adherence, VL	Older males, poor ART adherence, high VL = high transmission
9	Culquichicón <i>et al.</i> , 2023. HIV in Peruvian Inmates	Cross-Sectional	71,087 inmates male	Sexual identity, STI, drug use	HIV linked to bisexuality, STI, no stable partner
10	Hawa <i>et al.</i> , 2022. HIV Risk in MENA Youth	Scoping Review	Youth 16–29 in MENA	Unprotected sex, IDU, transactional sex	High risk due to overlapping behaviors

The reviewed literature demonstrates that HIV/AIDS is primarily driven by risky sexual behaviors such as inconsistent condom use, multiple partners, anal sex, and transactional sex, as well as injection drug use with non-sterile needles. A history of sexually transmitted infections (STIs) further increases susceptibility. Sociodemographic factors, including young age, male gender, low education, unmarried status, and minority sexual orientation, consistently appear as determinants of higher risk. Socioeconomic challenges such as unemployment, incarceration, and poor access to healthcare also exacerbate

vulnerability. These findings highlight the need for HIV prevention strategies that integrate behavioral interventions, condom promotion, harm reduction for people who inject drugs, and early STI detection. Efforts should particularly target key populations, including MSM, sex workers, drug users, adolescents, and prison inmates.

Discussion

Social determinants such as education level, marital status, employment, and sexual orientation play a significant role in either increasing or reducing the risk of HIV/AIDS transmission.

Several studies have identified that low education levels correlate with a lack of knowledge regarding HIV prevention. As explained by Prameswari (2024), individuals with lower educational attainment are more vulnerable to HIV infection due to insufficient understanding of preventive behaviors such as condom use and avoiding risky sexual practices. This finding is reinforced by research from Gusni Rahma et al. (2024), which found a strong association between lower education levels and HIV incidence among key populations in Indonesia.

Marital status is also a critical factor. A study by Sumini *et al.* (2017) revealed that individuals who are unmarried or have more than two sexual partners are at a higher risk of HIV infection. Prameswari (2024) adds that unmarried men-particularly men who have sex with men (MSM)-are more likely to contract HIV. Employment status also plays an important role as a social determinant. Sumini *et al.* (2017) highlighted that unemployment is associated with needle-sharing practices due to economic hardship, ultimately increasing the risk of HIV transmission.

Risky sexual behaviors remain dominant factors in HIV transmission, including not using condoms, having multiple sexual partners, engaging in anal sex, and having sex with partners whose HIV status is unknown. Studies by Gusni Rahma et al. (2024) and Afritayeni & Zebua (2021) found a significant relationship between having multiple partners, not using condoms, and combined sexual practices with HIV/AIDS incidence. This is supported by Riyatin *et al.* (2019), who statistically demonstrated that unprotected sex and anal intercourse significantly increase the risk of HIV transmission.

Injecting drug use and needle sharing consistently emerge as major risk factors in several studies, including those by Inggariwati & Roatmodjo (2018) and Sumini *et al.* (2017). These behaviors lead to direct HIV transmission through contaminated blood. In the international context, a study by He *et al.* (2024) in Guangxi, China, showed that poor adherence to antiretroviral therapy (ART), high viral loads, and unprotected sex contribute to secondary HIV transmission. Certain HIV subtypes, such as CRF08_BC, are also noted to be more infectious.

Several population groups face heightened vulnerability due to overlapping social determinants and risk behaviors. MSM, sex workers, injecting drug users, and incarcerated individuals represent key populations most affected by the epidemic.

For example, a study by Oktavia et al. (2024) on MSM in Bukittinggi showed that consistent condom use contributed to a lower HIV prevalence within this group. However, an international study by Culquichicón *et al.* (2023) in Peru found that incarcerated individuals who identified as homosexual or bisexual and had a history of STIs and drug abuse exhibited a higher prevalence of HIV. A scoping review conducted by Hawa *et al.* (2022) also found that youth in the MENA (Middle East and North Africa) region are at high risk of HIV infection due to overlapping behaviors, including injecting drug use, unprotected sex, and transactional sex.

Conclusion

Based on a review of various national and international studies, it can be concluded that HIV/AIDS transmission is influenced by a combination of social determinants and interrelated risk behaviors. Social determinants such as low educational attainment, marital status, unemployment, and minority sexual orientation significantly increase individual vulnerability to HIV infection. Meanwhile, risk behaviors such as inconsistent condom use, having multiple sexual partners, engaging in anal intercourse, injecting drug use, and needle sharing represent the main transmission pathways, particularly among key populations such as men who have sex with men (MSM), sex workers, people who inject drugs, and prisoners. The findings also indicate that HIV/AIDS prevention and control efforts must take into account the social contexts underlying risk behaviors. Interventions should not only focus on behavior change but also address structural barriers such as poverty, stigma, and limited access to healthcare services. Therefore, HIV/AIDS management must be multidimensional, integrative, and evidence-based in order to effectively reach the most vulnerable populations and reduce transmission rates.

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