p-ISSN: 2089-6778
e-ISSN: 2549-5054

COMPREHENSIVE MIXED-METHODS STUDY: KNOWLEDGE, ATTITUDES, AND PRACTICES OF STREET GIRL ADOLESCENTS TOWARD HIV AND AIDS PREVENTION

Desi Nurlaela Mulyana[1)], Nahdiyatul Mukaromah[2)], Lukmi Wulandari[3)]
Email: desi88.midwifery@gmail.com[1)], nahdiyatulmukaromah@gmail.com[2)], lukmiwuland12@gmail.com[3)]
[1,2,3)]Midwifery Study Program, STIKes Prima Indonesia, Babelan Highway KM9,6 Babelan Distric, Bekasi Regency, Indonesia

Article Information

Received:
October 21, 2025

Revised:
January 06, 2026

Accepted:
January 19, 2025

Abstract

HIV and AIDS continue to represent substantial public health challenges among marginalized populations, particularly among street-connected adolescent girls who experience limited access to comprehensive reproductive health education and are exposed to adverse socio-economic conditions. This study sought to evaluate the knowledge, attitudes, and preventive actions of HIV/AIDS among female teenagers residing in the streets of Bekasi Regency. A sequential explanatory design with a mixed-methods approach was implemented. During the quantitative phase, 30 people were recruited using purposive and snowball sampling approaches. The qualitative phase comprised in-depth interviews with ten important informants to help contextualize the quantitative findings. The majority of respondents were in late adolescence (over 15 years old) (60%), had completed junior secondary education (50%), and worked in informal street jobs, mostly as street performers (57%). A mere 17% of interviewees stated that they had previously received HIV/AIDS counseling. Approximately 47% of respondents had a moderate grasp of HIV/AIDS, but more than 52.5% had negative views. Furthermore, the majority (55%) reported participating in preventative measures to a considerable extent. Qualitative findings revealed persistent misconceptions about HIV transmission channels, stigmatizing views toward HIV patients, and widespread feelings of fear and humiliation about HIV testing and participation in educational activities. In Bekasi Regency, street-involved adolescent females shown a sufficient level of awareness and participated in certain preventive actions; yet, unfavorable attitudes concerning HIV/AIDS persisted. These findings underscore the urgent need for integrated, community-based, and youth-centered HIV prevention interventions that explicitly address stigma reduction and promote the adoption of protective behaviors.

Keywords*:* *Mixed methods, HIV and AIDS, Prevention, Street adolescents.*

@2026PoliteknikHarapanBersama

Correspondence:
Desi Nurlaela Mulyana. Midwifery Study Program, STIKes Prima Indonesia, Babelan Highway KM9,6 Babelan Distric, Bekasi Regency, Indonesia
desi88.midwifery@gmail.com

p-ISSN: 2089-6778
e-ISSN: 2549-5054

1. Introduction

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) persist as critical concerns in global public health, disproportionately affecting marginalized groups, including female adolescents who live and work on the streets [1]. National surveillance data from the Indonesian Ministry of Health and the National AIDS Commission demonstrate a substantial increase in new HIV cases among individuals within the 15–24 year age group [2]. Conversely, children living in street settings especially adolescent females often experience limited access to formal health care services [3], particularly with regard to access to evidence-based information and preventive services for HIV and AIDS [1].

Adolescent girls who live and survive on the streets are especially vulnerable [1]. In addition to severe socioeconomic marginalization, female street adolescents are frequently subjected to gender-based violence, sexual exploitation, survival sex, and restricted access to family or community support systems [4]. Inadequate educational opportunities and limited access to reproductive health information, combined with permissive attitudes toward risky sexual activities, considerably raise the risk of HIV and other sexually transmitted diseases in this cohort. Given that adolescence is a vital developmental time, the presence of these risk factors has far reaching effects for health outcomes later in life.

The majority of existing HIV prevention activities and studies have focused on teens in general or inside school settings, ignoring the unique conditions and needs of street-involved female adolescents. As a result, present programs may not adequately account for the actual situations, contextual factors, and institutional barriers that impede preventative activities for street-connected girls [7]. Female adolescents connected to the street are among the most socially excluded populations and are regularly underrepresented in their access to health and educational services [8].

Research to date on adolescent HIV and AIDS has predominantly utilized quantitative designs, which provide estimates of prevalence but offer minimal insight into the social, emotional, and cultural contexts influencing adolescents' behaviors [9,5]. Conversely, qualitative research has often been limited in scope to localized contexts and has lacked standardized evaluation of adolescents' knowledge, attitudes, and preventive practices [10,1,11] Such an imbalance in research methodologies emphasizes the importance of adopting a comprehensive approach that captures both empirically measurable indicators and the contextual, lived realities of adolescents.

Therefore, the present study investigates the levels of knowledge, attitudes, and preventive behaviors regarding HIV and AIDS among street-involved female adolescents in Bekasi Regency, using a sequential explanatory mixed-methods approach. Integrating quantitative and qualitative data, the study intends to fill critical knowledge gaps and provide evidence to inform socially inclusive, youth-focused, and community-oriented HIV prevention interventions consistent with national health policies and the Sustainable Development Goals.

2. Method

A sequential explanatory mixed-methods design was utilized in this research, combining quantitative and qualitative methodologies to comprehensively address the study objectives [12]. Thirty female adolescents were enrolled using purposive and snowball sampling methods due to the challenges associated with accessing this hard-to-reach population. Participants were eligible if they were aged 10–19 years, involved in street related activities, either residing on the street or with family, and willing to provide consent for participation.

p-ISSN: 2089-6778
e-ISSN: 2549-5054

In the qualitative phase, 10 participants were selected for comprehensive interviews. Three structured instruments were employed: a Knowledge Questionnaire to evaluate understanding of HIV/AIDS definitions, transmission routes, prevention strategies, and misconceptions; an Attitude Questionnaire to assess perceptions of HIV/AIDS prevention and attitudes toward PLHIV; and a Behavior Questionnaire to document preventive practices such as condom use, HIV testing, and peer communication regarding HIV.

Selfadministered questionnaires, supported by social volunteers to facilitate understanding, were used to collect quantitative data. In-depth, face-to face interviews conducted in safe and private locations were employed to gather qualitative data. The study received ethical clearance from STIKes Prima Indonesia (No. 457/EC/KEPK/STIKES-PI/X/2025).

3. Results and Discussion

Respondent Characteristics

Table 1A. Respondent Characteristics

Characteristics	f	%
Age		
>15 years (Late adolescence)	18	60%
<15 years (Early adolescence)	12	40%
Education		
Elementary school	3	10%
Junior high school	15	50%
Senior high school	12	40%

Table 1B. Respondent Characteristics

Characteristics	f	%
Occupation		
Street performer	17	57%
Odd jobs	9	30%
Unemployed	4	13%
Living arrangement		
Street	10	33%
Family home	16	53%
Child protection shelter	4	13%

Table 1C. Respondent Characteristics

Characteristics	f	%
Ever received HIV/AIDS counseling		
Yes	5	17%
No	25	83%

Among the participants, late adolescents constituted 60%, and half had attained only a junior high school education. A majority (57%) were engaged in street-based entertainment activities, 53% still lived with family members, and 83% reported never having participated in HIV/AIDS counseling.

Knowledge of HIV/AIDS Prevention

Table 2. Knowledge of HIV/AIDS Prevention

Category	f	%
Poor	12	40%
Moderate	14	47%
Good	4	13%

Most participants possessed moderate knowledge of HIV/AIDS (47%), with 40% demonstrating poor knowledge and 13% achieving a good level. Misunderstandings about transmission, including the belief that HIV can be contracted via mosquito bites or casual interactions, remained common.

Qualitative findings revealed participants’ restricted comprehension of HIV/AIDS. One responder (R10) erroneously described it as “a disease that produces pus and malodorous discharge,” suggesting a confusion with other sexually transmitted illnesses. Although several individuals acknowledged transmission via unprotected sexual intercourse or needle sharing, their understanding of vertical transfer from mother to child was inadequate.

Participants predominantly associated HIV/AIDS transmission with "unsafe sexual practices" and "frequent changes of sexual partners" (R10, R9, R7, R8, R6, R5), as well as the utilization of "shared needles or tattoo equipment" (R9, R8, R7, R5). While these impressions indicate a degree of comprehension regarding authentic transmission methods, enduring misunderstandings

p-ISSN: 2089-6778
e-ISSN: 2549-5054

were observed, including the association of HIV/AIDS with pus and foul odor (R10) and a lack of awareness regarding vertical transmission from mother to child (R5).

Although there is some comprehension of HIV transmission, misconceptions persist, particularly concerning mosquito bites and routine social interactions. HIV is transmitted solely through unprotected sexual contact, exposure to contaminated blood, and from mother to child during gestation, birth, or nursing [13].

The qualitative findings highlight that participants relied primarily on peers, social media, and word-of-mouth for HIV/AIDS information, rather than official health institutions or educational initiatives, implying that street adolescents are still largely excluded from formal reproductive health promotion programs [14].

A variety of issues, including low educational achievement, limited access to reliable health information, and a lack of specialized educational programs for at-risk populations such as street children, can all contribute to inadequate comprehension. According to Notoatmodjo (2018), knowledge is an important factor in developing health attitudes and behaviors, and a better understanding of a health problem is related with a stronger tendency to take preventative measures [15]. Similarly, [16] evidence suggests that limited financial resources and educational possibilities among teenagers are connected with insufficient HIV/AIDS knowledge, raising their risk of engaging in risky behaviors.

According to prior research, marginalized youth, particularly street-connected adolescents, frequently lack access to accurate HIV/AIDS information and services (Rudgard et al., 2023). This highlights the critical need for interventions suited to this population, such as peer education programs, community health outreach, and adolescent-friendly communication tactics, to increase awareness and preventative efforts [17].

.

Attitudes toward HIV/AIDS Prevention

Table 3. Attitudes toward HIV/AIDS Prevention

Category	f	%
Poor	21	52.5%
Moderate	9	47.5%

Over half of the respondents (52.5%) exhibited unfavorable attitudes, including a lack of acknowledgment of their own risk and discomfort in addressing HIV prevention practices.

Respondents' perceptions of PLHIV were predominantly unfavorable, describing them as "dirty" or "naughty," with accompanying fear of close contact and social avoidance. A subset of participants expressed conditional willingness to form friendships, contingent upon avoiding physical contact.

Negative judgments characterized participants' attitudes toward PLWHA. Respondents commonly labeled them as "dirty" (R10, R8, R7) or "immoral" (R5) and attributed HIV/AIDS infection to behaviors such as "frequent partner changes" (R8). Emotional reactions to the mention of HIV or AIDS were mainly expressions of fear (R10, R6, R5), disgust (R8), and social avoidance (R7).

Participants' readiness to engage socially with PLWHA highlighted clear patterns of discriminatory attitudes:

a. R9 and R6 declined the possibility of befriending PLWHA, citing concerns about potential HIV transmission (R9: "I don't want to, what if it's contagious…," R6: "Better not, we might get infected").
b. While some participants (R10, R8, R7, R5) indicated a willingness to befriend PLWHA, they imposed limitations on the relationship, such as avoiding sexual contact (R10) or maintaining physical distance due to perceived risk of transmission through touch (R5).

p-ISSN: 2089-6778
e-ISSN: 2549-5054

Results suggest that certain respondents maintain unfavorable perceptions, such as reluctance to use condoms, underestimating the need for HIV testing, or perceiving themselves as not vulnerable to infection, indicating low perceived susceptibility in line with the Health Belief Model (HBM)[18]. As noted by Azwar (2015), attitudes are affected by knowledge, individual experiences, opinions of important social figures, cultural context, and media exposure. Adolescents living on the streets are frequently exposed to environments that hinder healthy behaviors, characterized by stigma, sexual taboos, and high-risk peer influences, which may contribute to their unfavorable attitudes toward HIV/AIDS prevention [19].

The Health Belief Model (Rosenstock, 1974) further suggests that attitudes toward preventive actions are determined by perceived susceptibility, severity, benefits, and barriers. In the context of street adolescents, limited perceived susceptibility and significant barriers, including discomfort with HIV testing and taboos surrounding condom use, can exacerbate negative attitudes toward HIV prevention [20].

Preventive Behavior

Table 4. Preventive Behavior

Category	f	%
Poor	18	45%
Moderate	22	55%

A majority of respondents (55%) demonstrated moderate preventive practices, while 45% fell into the poor category. Importantly, none reported having undergone HIV testing or proactively obtaining information on HIV/AIDS.

Participants' preventive measures largely involved reducing sexual partner numbers and refraining from sharing tattoo instruments, while regular condom use was infrequent. Factors impeding these behaviors included shame, concern about judgment, and insufficient support from sexual partners for safer practices.

Most respondents' engagement in preventive behaviors was primarily restricted to the following actions:

a. Practicing monogamy or reducing the number of sexual partners, as reported by respondents R10, R9, and R7.
b. Judicious sexual partner selection (R6, R5).
c. Adopting safe tattoo practices by avoiding tattoos or employing sterile needles (R9, R8).

Nevertheless, discrepancies between intended and actual behaviors were observed:

a. R5 reported never using condoms, as her partner never proposed it, which contradicts recommended safe sexual practices in high-risk contexts.
b. The majority of participants had not undergone HIV testing or counseling (R10–R5), reporting barriers such as embarrassment, fear of stigmatization (R5), or anxiety about the test itself (R6).

Health behavior, as defined by Notoatmodjo (2018), is influenced by predisposing, enabling, and reinforcing factors. In street adolescent girls, sufficient knowledge is offset by negative attitudes, access to adolescent-friendly services is limited, and family support is weak, resulting in low engagement in preventive behaviors such as information seeking and health examinations.

Limited access to adolescent-focused information, education, and health services increases engagement in HIV/AIDS risk behaviors among marginalized youth, including street adolescents [21]. The results indicate that preventive behaviors require enhancement, and that youth-focused, community-based HIV interventions are necessary to reduce stigma and strengthen protective measures.

4. Acknowledgment

Financial support for this study was provided by the Ministry of Education, Science, and Technology

through the national research grant program, for which the authors are grateful.

5. References

[1] S. Nyumayo *et al.*, *Prevalence of HIV and associated risk factors among street-connected children in Mwanza city*, *PLoS One*, vol. 17, no. 11, pp. 1–12, 2022, doi: 10.1371/journal.pone.0271042.

[2] Kementerian Kesehatan RI, *Estimasi & Proyeksi HIV/AIDS di Indonesia 2015-2020*. Direktorat Jendral Pencegahan dan Pengendalian Penyakit P2PML, 2017.

[3] S. L. Macleod, P. MacRae, and J. Pimenta, *Children in street situations' access to healthcare: qualitative findings from the Street Child World Cup 2022*, *BMJ Paediatr Open*, vol. 7, no. 1, p. e002101, 2023, doi: 10.1136/bmjpo-2023-002101.

[4] O. O. Ikuteyijo, N. Zepro, A. I. Akinyemi, N. Probst-Hensch, and S. Merten, *Socio-Economic Factors Influencing Intimate Partner Violence Among Adolescents and Young Women in Sub-Saharan Africa: A Scoping Review*, *Public Heal. Rev*, vol. 3, no. 45, p. 1607041, 2025, doi: 10.3389/phrs.2024.1607041.

[5] A. J. Y. Achachagua, van Á. E. Díaz, J. W. E. Silupu, A. A. S. Mateo, S. D. I. Alcoser, and B. S. S. Tiza, *Knowledge about HIV/AIDS and Attitudes towards Sexuality of Undergraduate Students at a Peruvian University*, *Open Public Health J.*, vol. 15, pp. 1–8, 2022, doi: • 22 Jun 202210.2174/18749445-v15-e2204210.

[6] E. P. Backes and R. J. Bonnie, *The Promise of Adolescence: Realizing Opportunity for All Youth*. Washington (DC): National Academies Press (US), 2019. [Online]. Available: https://www.ncbi.nlm.nih.gov/books/NBK545476/

[7] T. Thomas, M. Tan, Y. Ahmed, and E. L. Grigorenko, *A Systematic Review and Meta-Analysis of Interventions for Orphans and Vulnerable Children Affected by HIV/AIDS Worldwide*, *Ann Behav Med*, vol. 54, no. 11, pp. 853–866, 2020, doi: 10.1093/abm/kaaa022.

[8] M. S. Sohel *et al.*, Exploring the multifaceted vulnerabilities of female street child labor in the capital city of Bangladesh, *Heliyon*, vol. 10, no. 18, pp. 1–12, 2022, doi: 10.1016/j.heliyon.2024.e37302.

[9] Y. Wassihun, Z. Hunegnaw, T. F. Anagaw, Z. A. Yigzaw, and E. K. Bogale, *HIV preventive practice and its associated factors among street dwellers in Ethiopia: Application of health belief model*, *PLOS Glob. Public Heal.*, vol. 4, no. 5 May, pp. 1–14, 2024, doi: 10.1371/journal.pgph.0003199.

[10] E. Suminar, W. L. Fitrianur, and ..., *Sosialisasi Tindakan Preventif HIV/AIDS Pada Remaja di SMP Muhammadiyah 4 Gresik, J. ...*, vol. 6, no. 2, pp. 88–95, 2023.

[11] C. Shannon and J. Klausner, *The Growing Epidemic of Sexually Transmitted Infections in Adolescents: A Neglected Population, Curr Opin Pediatr*, vol. 30, no. 1, pp. 137–143, 2018, doi: 10.1097/MOP.0000000000000578.

[12] J. W. Creswell and J. David Creswell, *Qualitative, Quantitative, and Mixed Methods Approaches*, Fifth Edit. Los Angeles: SAGE, 2018. doi: 10.4324/9781315707181-60.

[13] WHO, *Strenghtened surveillance and prevention of mother-to-child transmission of HIV, syphilis and hepatitis B towards triple elimination by 2030*. Indonesia: World Health Organization, 2022. [Online]. Available: https://www.who.int/indonesia/ne

p-ISSN: 2089-6778
e-ISSN: 2549-5054

ws/detail/30-08-2022-strengthened-surveillance-and-prevention-of-mother-to-child-transmission-of-hiv--syphilis-and-hepatitis-b-towards-triple-elimination-by-2030

[14] M. Archary, A. E. Pettifor, and E. Toska, *Adolescents and young people at the centre: global perspectives and approaches to transform HIV testing, treatment and care*, *J Int AIDS Soc*, vol. 31, no. 23, 2020, doi: 10.1002/jia2.25581.

[15] A. Irfan *et al.*, *Knowledge and attitude of pregnant women regarding HIV transmission, prevention and associated factors in Karachi, Pakistan – A cross-sectional study*, *Sex. Reprod. Healthc.*, vol. 21, pp. 46–50, Oct. 2019, doi: 10.1016/j.srhc.2019.06.001.

[16] UNAIDS, *CONFRONTING INEQUALITIES Lessons for pandemic responses from 40 years of AIDS*. 2021.

[17] W. E. Rudgard, M. G. Saminathen, M. Orkin, B. H. Banougnin, Y. Shenderovich, and E. Toska, *Protective factors for adolescent sexual risk behaviours and experiences linked to HIV infection in South Africa: a three-wave longitudinal analysis of caregiving, education, food security, and social protection*, *BMC Public Health*, vol. 23, no. 1, pp. 1–18, 2023, doi: 10.1186/s12889-023-16373-5.

[18] M. A. A. F.-K. J. M. M. Mirghafourvand, *Predictors of preventive behaviors of AIDS/HIV based on Health Belief Model constructs in women with high-risk sexual behaviors: A cross-sectional survey*, *J Educ Heal. Promot*, vol. 20, no. 1046, 2021, doi: 10.4103/jehp.jehp_1046_20.

[19] H. Wang *et al.*, *Information-Motivation-Behavioral Skills model of consistent condom use among transgender women in Shenyang, China*, *BMC Public Health*, vol. 20, no. 1, pp. 1–9, 2020, doi: 10.1186/s12889-020-08494-y.

[20] M. K. K. M. R. K. A. V. B. A. O. D. O. A. E. A. E. O. J. Lee and A. A. S.-A. M. P. B. K. K. M. R. K. A. V. B. A. O. D. O. A. E. A. E. O. J. L. A. A. S.-A. M. P. *Braitstein, Barriers to and facilitators of accessing HIV services for street-involved youth in Canada and Kenya*, *BMC Public Health*, vol. 1901, no. 10, 2022, doi: 10.1186/s12889-022-14290-7.

[21] H. N. W. Indriatmi, Y. Irawan, S. E. Budiono, A. Silviana, and W. Waworuntu, T*he prevalence of sexually transmitted infections and their association with knowledge, attitudes, and practice in male street children in Indonesia*, *Int J STD AIDS*, vol. 35, no. 2, pp. 112–121, 2023, doi: 10.1177/09564624231202058.