

Knowledge of HIV/AIDS Among Adolescents in Indonesia: A Systematic Review

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ABSTRACT

Background: HIV/AIDS remains a major global public health concern, with adolescents representing a high-risk group due to engagement in risky behaviors and limited access to accurate information. This lack of knowledge contributes to sustained transmission rates among youth. **Objective:** This study aimed to describe the level of knowledge regarding HIV/AIDS among adolescents in Indonesia. **Methods:** A systematic review was conducted by analyzing articles published between 2010 and 2024 that aligned with the study's objectives. Ten eligible studies were identified through database searches and were critically reviewed. **Results:** Of the ten studies analyzed, four reported that adolescents possessed a "good" level of knowledge about HIV/AIDS. Three studies indicated a "moderate" level, while the remaining three categorized adolescent knowledge as "poor." **Conclusion:** The variation in adolescent knowledge levels indicates the need for strengthened and more widespread HIV/AIDS education in Indonesia. Recommended strategies include school-based education programs, integration of reproductive health topics into curricula, and the use of diverse, youth-friendly media platforms for community outreach. Increasing access to accurate, age-appropriate information is critical to improving awareness and reducing risky behaviors among adolescents.

Introduction

HIV/AIDS is one of the major public health issues in nearly every country, including Indonesia. Globally, by the end of 2023, there were 39.9 million people living with HIV/AIDS, and 630,000 people had died from HIV/AIDS. Based on this data, it is estimated that approximately 0.6–0.7% or 38.6 million adults aged 15–49 years are infected with HIV¹. In Indonesia, in 2023, the population living with HIV was estimated to be around 570,000 people. The number of HIV cases among children aged 0–14 years was approximately 17,000, while in the adult age group (15 years and older), there were around 550,000 cases².

Adolescents are one of the groups at risk of contracting HIV/AIDS. Adolescence is a period characterized by a strong curiosity about

new things, including behaviors that may increase the risk of HIV transmission. It is also a critical phase of sexual and emotional development, which can lead to risky behaviors that put them at risk of contracting the HIV virus. Adequate knowledge about HIV/AIDS is essential for adolescents, as it is closely related to the prevention of virus transmission and risky sexual behavior.

Adolescents are a highly vulnerable age group to HIV/AIDS infection, as they often lack accurate information about the causes, transmission, prevention, and treatment of HIV/AIDS. Limited comprehensive knowledge has been reported as one of the main factors contributing to the occurrence of HIV/AIDS among adolescents³. Several studies have shown that adolescents in Indonesia still have

relatively low levels of knowledge about HIV/AIDS. A study in East Sumba revealed that the majority of adolescents had poor knowledge about HIV/AIDS⁴. Similarly, a study conducted in Mataram found that most adolescents still lacked adequate knowledge about HIV/AIDS⁵.

Limited access to accurate information, social norms, and cultural constraints that hinder open discussions about reproductive health, as well as stigma toward people living with HIV/AIDS, all contribute to the low level of knowledge among adolescents. On the other hand, mass media and social media have made significant contributions in providing knowledge about HIV/AIDS to adolescents⁶. A study in Ethiopia showed that mass media and peers were the primary sources of HIV/AIDS information for adolescents. Adolescents who were exposed to mass media and peers tended to have more comprehensive knowledge than those who obtained information from family⁷. Similarly, a study in Rwanda, Africa, found that television and mobile phones were influential factors in adequate HIV/AIDS knowledge among adolescent girls in the city⁸. However, inaccurate information about HIV/AIDS that can mislead adolescents is also easily spread online.

The rapid development of technology has increased adolescents' access to HIV/AIDS information through the internet and social media. Platforms such as YouTube and Instagram have become the main sources for adolescents to obtain information related to HIV/AIDS. However, exposure to information through these social media platforms does not always guarantee that adolescents receive accurate information. Many myths and misconceptions about HIV/AIDS still circulate in society, ultimately reinforcing the stigma against people living with HIV/AIDS and hindering efforts to prevent and control the disease.

Inadequate knowledge about HIV/AIDS among adolescents can lead to risky behaviors, such as engaging in unprotected sex, lack of condom use during sexual activity, or a poor understanding of the importance of HIV testing. Therefore, this literature review aims to explore and analyze the level of adolescents' knowledge about HIV/AIDS in Indonesia based on previous research findings. By understanding adolescents' level of knowledge, it is hoped that this study can provide recommendations for more effective reproductive health education policies to improve awareness and support HIV/AIDS prevention and control efforts among adolescents in Indonesia.

Materials and Methods

Research Design

This study employed a systematic review design to assess the level of HIV/AIDS knowledge among adolescents in Indonesia. The review aimed to determine whether adolescent knowledge falls into good, moderate, or poor categories, and to identify specific aspects of HIV/AIDS that adolescents are familiar with. This approach provides a comprehensive overview based on findings from previously published studies.

Sample

The data used in this study are secondary data obtained from previously published research articles available online. Inclusion criteria for article selection were: articles published between 2010 and 2024, descriptive quantitative study design, studies focusing on knowledge levels among high school adolescents, use of primary data, articles published in either Indonesian or English, and availability of full text. Exclusion criteria included qualitative studies, quantitative analytical designs, and articles without accessible full texts.

Data Collection Techniques

Literature searches were conducted using Google Scholar and PubMed with the keywords: “gambaran pengetahuan HIV/AIDS” (HIV/AIDS knowledge overview) and “remaja” (adolescents). All articles that met the inclusion criteria were compiled into a synthesis table for further analysis.

Data Analysis Techniques

The review process focused on assessing the general HIV/AIDS knowledge level among adolescent participants in each study. Researchers extracted and analyzed the percentage of adolescents classified into knowledge categories: good, moderate, and poor.

Ethical Considerations

As this study utilized secondary data from published articles and did not involve direct contact with human subjects or collection of primary data, ethical approval was not required. The systematic review adhered to ethical standards by properly citing all original sources and respecting intellectual property rights.

Results

Based on the results of literature searches on Google Scholar and Pubmed, several articles were found that were relevant to the objectives of this study. The results of the article search are presented in Table 1.

Discussion

HIV/AIDS remains a public health problem in Indonesia, and adolescents are one of the groups at risk of contracting the HIV virus. A lack of knowledge about HIV/AIDS among adolescents is one of the contributing factors that leads them to engage in various risky behaviors associated with HIV/AIDS. This study aims to explore adolescents' knowledge of HIV/AIDS and what they already know about the issue. The literature review shows that the level of HIV/AIDS knowledge among adolescents in Indonesia varies. The articles found in the literature search indicate that adolescents' knowledge falls into good, fair, and poor categories, with no significant differences in distribution.

There are four articles found which show that the majority of adolescents in Indonesia have good knowledge about HIV/AIDS⁹⁻¹². These studies have results consistent with research conducted in several other countries. A study carried out in Amrup District, India, on adolescents aged 15-19 years found that most respondents had good knowledge about HIV/AIDS¹³. Research in the city of Isfahan, Iran, involving 250 respondents from four general high schools found that the majority of adolescents in the study had good knowledge as well.

Table 1. Literature Review Results

| Researcher and Year | Title | Sample and Location | Research Results |
|--|---|---|---|
| Yuneti Octianus Nyoko, Maria Kareri Hara | Knowledge and Attitudes about HIV/AIDS on Adolescent Behavior in Senior High School | 132 students from 3 senior high schools in East Sumba Regency | 68.9% of adolescents had poor knowledge and 31.1% had good knowledge. |
| Dodoh Khadijah (2016) | HIV/AIDS Knowledge among 11th Grade Students at SMA Negeri 1 Dolok Panribuan | 60 11th-grade high school students. Location: Dolok Panribuan | Adolescents' knowledge of HIV/AIDS was still low. 8.3% had very good knowledge, 21.7% good, 31.7% moderate, and 38.3% poor knowledge. |

| Researcher and Year | Title | Sample and Location | Research Results |
|--|---|---|--|
| Rini Febrianti and Mugi Wahidin (2018) | Description of the Level of Knowledge and Attitudes of Adolescents about HIV/AIDS at SMK Negeri 3 Jambi | 47 12th-grade students selected purposively. Location: SMK 3 Jambi | 83% had good knowledge, 12.8% moderate, and 4.3% poor knowledge. All respondents knew the cause or virus of HIV/AIDS. |
| Marthilda Suprayitna, Baiq Ruli Fatmawati, Melati Inayati AB (2020) | Description of Knowledge and Attitudes of Adolescents about HIV/AIDS at Assulami Islamic Boarding School, West Lombok | 57 students from grades 10, 11, and 12 selected randomly. Location: Assulami Islamic Boarding School, West Lombok | 77% had moderate knowledge, 23% poor knowledge, and 0% had good knowledge. This was reflected in their answers regarding definitions, causes, signs and symptoms, transmission, and prevention, which were still inadequate. |
| Dwi Edi Wibowo, Saeful Marom (2014) | Level of Adolescent Knowledge about HIV/AIDS in Pekalongan City | Students from MAN 2 Pekalongan Barat, SMK Gatra Praja Pekalongan Utara, SMAN 4 Pekalongan Selatan. Location: Pekalongan | Adolescent knowledge about HIV/AIDS in Pekalongan City was in the moderate category (56.73%). There were no respondents with good knowledge. |
| Solihati, Ida Faridah (2020) | Knowledge, Attitudes about HIV/AIDS and Efforts to Prevent HIV/AIDS | 133 respondents from SMK Yapinktek Jatiuwung, Tangerang City, selected by simple random sampling. Location: Tangerang City | 90.2% of respondents had good knowledge, 10.75% moderate, and 2.3% poor knowledge. |
| Santa Maria Pangaribuan, Nila Nabila Maulidanti, Lince Siringoringo (2021) | Adolescent Knowledge about HIV/AIDS in Menteng Subdistrict, Central Jakarta | Adolescents in Menteng RW 09, Central Jakarta (98 respondents). Location: Menteng RW 09, Central Jakarta | 61.2% had heard about HIV/AIDS; 53.1% had good knowledge and 46.9% poor knowledge about HIV transmission. Also, 62.2% had good knowledge and 37.8% poor knowledge about HIV/AIDS prevention. |
| Siti Mardiyah WD, Catur Esty Pamungkas, Rizkia Amilia (2017) | Description of Adolescent Knowledge Levels about HIV/AIDS at SMK 3 Mataram | 85 second-grade students at SMKN 3 Mataram selected by accidental sampling. Location: Mataram | 5.88% had good knowledge, 42.35% moderate, and 51.76% poor knowledge. |
| Tutik Lestari, Ridwan Yamko, Mudini Muhlis (2022) | Description of HIV/AIDS Knowledge among Adolescents in PKPR at BLUD Kalumpang Health Center Work Area | 48 PKPR adolescents participating in the AIDS Care Community (WPA) in Kalumpang Kelurahan. Total sampling. Location: BLUD Kalumpang Health Center Work Area | 60.4% had good knowledge, 10.4% moderate, and 29.2% poor knowledge. Some still believed HIV could be transmitted by mosquito or insect bites or sharing eating utensils. Some were unaware that HIV-positive mothers can transmit HIV to their children during pregnancy and breastfeeding, and that HIV risk can be reduced by avoiding anal sex. |
| Helen Try Juniasti, Asriati | Knowledge and Attitudes of Adolescents about HIV/AIDS in Urban and Rural Areas of Papua | 194 students from SMA Negeri 4 Jayapura City and SMA Negeri 1 Keerom Regency, Papua. Purposive sampling. Location: SMA Negeri 4 Jayapura and SMA Negeri 1 Keerom, Papua | Adolescents in rural areas had better knowledge than those in urban areas. In urban areas, 6.2% had good knowledge, 29.4% moderate, and 14.4% poor. In rural areas, 13.9% had good knowledge, 25.8% moderate, and 10.3% poor knowledge. |

Based on several articles found in this study, the information that adolescents in

Indonesia already know about HIV/AIDS is that most of them are aware that the HIV virus

is the cause of AIDS. However, some research findings also reveal that misunderstandings about HIV/AIDS still exist among adolescents. These misunderstandings lead some adolescents to believe that HIV/AIDS can be transmitted through mosquito and other insect bites, and that HIV can be spread through sharing eating utensils. In addition, some adolescents are still unaware that an HIV-positive mother can transmit the virus to her baby through breast milk. Several adolescents also do not know that HIV can be prevented by avoiding anal sex.

According to the World Health Organization (WHO), the Human Immunodeficiency Virus (HIV) is the virus that causes AIDS. HIV attacks the body's immune system by targeting white blood cells, thereby weakening the immune system. This makes individuals more vulnerable to diseases such as tuberculosis (TB), infections, and certain types of cancer. HIV spreads through bodily fluids of an infected person, including blood, breast milk, semen, and vaginal fluids. The disease does not spread through kissing, hugging, or sharing food. It can also be transmitted from mother to baby¹⁴. Therefore, AIDS cannot be transmitted through insect bites and is not contagious via sharing eating utensils. HIV can be transmitted through unsafe sexual intercourse, so avoiding risky sexual activities is one way to prevent HIV transmission. Additionally, HIV transmission can occur from mother to baby during pregnancy.

In this study, several articles were also found indicating that adolescents' knowledge about HIV/AIDS in Indonesia is still in the poor category^{5,15}. Research conducted in Kamberra District, Sumba, showed that the lack of knowledge among respondents was related to Voluntary Counseling and Testing (VCT), antiretroviral drugs given to people living with HIV/AIDS, and the period from HIV infection until the onset of HIV/AIDS symptoms⁴. Although this literature review includes more

articles reporting that Indonesian adolescents generally have good knowledge, these articles still found a percentage of adolescents with poor knowledge about HIV/AIDS.

The results of this study are similar to findings from studies in several other countries. Shiferaw et al. (2011) in Ethiopia reported that all students had heard of AIDS; however, knowledge about some aspects of the disease was quite low within the study group. Only half of the students knew that AIDS is currently incurable and that HIV infection can be acquired through sexual contact with an 'intimate' partner¹⁶. Research among adolescents in Nigeria also showed that their knowledge about HIV/AIDS remains limited. Very few respondents in that study were aware of the cause (etiology) of AIDS¹⁷. Similar results were found in Ghana, where the majority of adolescent respondents had poor knowledge about HIV/AIDS¹⁸.

Several factors influence adolescents' knowledge about HIV/AIDS. These factors include sexual education in schools, the influence of mass media and social media, as well as parental involvement. The school curriculum that covers HIV/AIDS topics greatly affects adolescents' level of knowledge. In some developing countries, the implementation of reproductive health education has not been carried out comprehensively. The reproductive health curriculum has not been specifically included in school curricula^{19,20}. In Indonesia, most schools have not incorporated comprehensive reproductive health education into their curricula. The majority of adolescents attending senior high school (SMA) only receive reproductive health material through Biology and Physical Education classes. A study in Kendari found that 95% of students had poor knowledge from both school and home regarding sex education and reproductive health. Most of these adolescents only received lessons on anatomy²¹.

Mass media and social media also play a role in providing knowledge about HIV/AIDS to adolescents. Mass media helps disseminate information to a wide audience through public campaigns and educational programs, while social media allows for rapid interaction, access, and sharing of information. Proper utilization of both media can significantly contribute to increasing adolescents' awareness and knowledge about HIV/AIDS. However, both media also face challenges in information dissemination. False information, including myths and hoaxes about HIV/AIDS, can spread quickly through mass media and social media.

A study on adolescents in Bongas, Indramayu, found that exposure to social media has a significant influence on HIV/AIDS knowledge. In this study, the majority of adolescents used social media as their primary source for seeking information²². Research on female adolescents in Nigeria found that mass media exposure was not a predictor of behavior, but mass media had a significant impact on HIV/AIDS knowledge²³. Another study found that most adolescents (94.6%) use social media. However, from this high percentage, only a small portion (3.5%) of respondents used social media to seek health information²⁴.

Another factor influencing adolescents' knowledge is the role of parents. It is important for parents to provide accurate understanding about HIV/AIDS. Parents should be more open with their adolescent children to discuss HIV/AIDS issues so that adolescents are not exposed to misinformation. Parents who create a supportive environment for adolescents to discuss reproductive health issues, including HIV/AIDS, can reduce the risk of adolescents engaging in risky behaviors. Many parents, especially those living in rural areas, avoid discussing these topics at home or in the community because they consider reproductive health matters to be sensitive and taboo²⁵. In fact, some parents believe that reproductive

health is not important and that adolescents will understand these issues after marriage^{26,27}. A cross-sectional study in Indonesia showed that one of the factors influencing adolescents' reproductive health literacy is the family²⁸.

In addition, health education programs and campaigns conducted by the government and non-governmental organizations (NGOs) also contribute to improving adolescents' knowledge and awareness about HIV/AIDS. For example, educational programs in schools, media campaigns, and counseling provided by health workers at community health centers (Puskesmas). These programs play an important role in enhancing adolescents' understanding of HIV/AIDS, although there are still challenges in terms of coverage and effectiveness.

In Indonesia, HIV/AIDS education and campaign programs aimed at providing knowledge to adolescents are currently implemented through various approaches by both the government and non-governmental organizations (NGOs). One common form of these programs is reproductive health education delivered in schools, either by healthcare professionals or NGOs. These programs aim to provide adolescents with an understanding of reproductive health, including HIV/AIDS. Several NGOs have also partnered with schools to implement regular reproductive health programs through ongoing guidance and mentoring of students as an effort to equip them with knowledge and prevent risky behaviors that could negatively impact their reproductive health.

Another program commonly implemented among adolescents in Indonesia is the peer educator initiative. This program is considered one of the most effective approaches for reaching young people. In this initiative, adolescents are trained to become educators for their peers. The goal is to foster more open and comfortable communication, as adolescents often feel more at ease and trustful when

discussing sensitive topics with fellow peers. Trained peer educators provide education and outreach on HIV/AIDS in schools, youth clubs, or their communities.

Based on the results of this systematic review, several limitations were identified: the articles analyzed only used a descriptive quantitative approach, and the literature sources were limited to just two databases. However, this study still provides a valuable overview of adolescents' knowledge about HIV/AIDS in Indonesia and can serve as a reference for future research directions as well as for the development of programs aimed at improving HIV/AIDS knowledge among Indonesian adolescents.

Conclusion

The results of this systematic review indicate that the majority of research articles found in this study show that adolescents in Indonesia generally have a good level of knowledge about HIV/AIDS. However, the percentage of adolescents with poor knowledge reported in those studies remains high. Moreover, several studies also revealed that a significant number of adolescents still have limited knowledge about HIV/AIDS.

Therefore, further comprehensive efforts are still needed to improve adolescents' knowledge about HIV/AIDS in Indonesia. These efforts include enhancing sexual education in schools, maximizing HIV/AIDS campaigns through mass media and social media with a focus on accurate and up-to-date information, and involving communities in disseminating HIV-related information to help reduce stigma among adolescents.

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