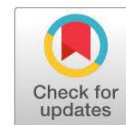


## Adolescent self-efficacy and attitude towards HIV AIDS prevention in Yogyakarta, Indonesia



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### ABSTRACT

Acquired Immunodeficiency Syndrome (AIDS) was the eighth leading cause of death among adolescents worldwide. A third of these were infected during adolescence period. HIV prevention in adolescents is particularly important. Attitude is one indicator of a person's behavior or action. This study aimed to establish the determinants of adolescents' attitudes toward the prevention of HIV AIDS among adolescents. This was a descriptive cross-sectional study conducted among 370 high school students in Yogyakarta, Indonesia. Quantitative data was analyzed using SPSS and involved univariate and multivariate analysis. The result of this study showed that the internet and television were the major sources of information on reproductive health and HIV among adolescents (98.9%) and (98.4%) respectively. The determinant factors of adolescents' attitude towards HIV/AIDS prevention were the level of knowledge ( $p=0.028$ ) and self-efficacy ( $p=0.007$ ) and multivariate analysis showed respondents with positive self-efficacy were 1.8 times more likely to have a positive attitude towards HIV/AIDS prevention. The conclusion is self-efficacy is a determinant factor in attitude. The recommendation of this study is to stakeholders on interventions that can improve adolescents' self-efficacy to achieve HIV prevention goals.

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### INTRODUCTION

Human Immunodeficiency Virus (HIV) which causes Acquired Immunodeficiency Syndrome (AIDS) was still a pandemic of global concern as envisioned in the Sustainable Development Goals (SDG).(1) Although there has been a decline of about 40% in new HIV infections globally since 1997, 37.9 million people are still living with HIV and another 1.7 million were newly infected as of 2018 according to the 2019 fact sheet on HIV/AIDS.(2) Most of this global burden of HIV is in Africa and Asia – Pacific, with 5.9 million people living with HIV in the latter region as of 2018.(3)

At the center of this spreading scourge are adolescents. Indeed, if recent statistics are anything to go by, the burden of HIV/AIDS among adolescents cannot be underestimated. Four percent (1.6 million) of people living with HIV today globally are adolescents.(4) As of 2018, there were about 510.000 adolescents aged between 10 and 24 years who were newly infected with HIV; of whom nearly 27% of them were those aged



10-19 years of age and about 75% of them were girls. This burden is most prevalent in sub-Saharan Africa (89%) and Asia (4%).(4) Notably, AIDS-related deaths, the second leading cause of death among them, tripled globally among young people while declining in all other age groups in the last decade.(2)

Adolescents make up approximately 18% (1.2 billion) of the global population.(5) The adolescence period is a challenging one. It represents a period of rapid physical, neuronal, psychological, and social development, which increases their vulnerability to health problems such as HIV and other sexually transmitted infections.(5) It's a period characterized by high curiosity making them want to adventure, explore, and try out certain things they never had a chance to. Because of this, some end up having an early sexual debut, even as early as before 15 years of age, a problem that has been reported in many parts of Indonesia including Yogyakarta city(6) and other parts of the world.(7-9)

One of the major challenges among adolescents is increasing high-risk behavior such as having multiple sexual partners and early unprotected sexual debut.(6-9) In Indonesia based on UNFPA in 2008 showed that 14.463 (4.5%) adolescents aged 15-19 years have ever had sexual intercourse, more especially for males.(6) Yogyakarta was known as the city of students, with such a huge population of adolescents, there is the likelihood of increased high-risk sexual behavior that can predispose to the spread of HIV/AIDS. The city has about 26.49 cases of HIV per 100.000 people, and it's currently ranked 8th in Indonesia in terms of HIV/AIDS prevalence.(3)

Prevention of HIV plays a vital role in reducing HIV new infections among adolescents. By 2030, new HIV infections across all age groups are envisioned to reduce from more than 1.8 million in 2016 to less than 200.000 according to the 2016 United Nations Political Declaration on Ending AIDS targets.(3) To achieve this target, it will require among other interventions, a combination of various highly effective strategies such as biomedical, behavioral, and structural methods considering that there is no single effective approach.(10-12) However, knowledge and attitudes of adolescents towards the prevention of HIV are still a challenge in Indonesia according to a recent Indonesian demographic health survey (IDHS).(13)

What is often not well understood in Indonesia is what influences adolescents' attitudes toward the prevention of HIV. There is a paucity of literature on how for instance the level of knowledge, and perceived self-efficacy among other factors influence an adolescent's attitudes toward HIV prevention. Understanding how these factors influence adolescents' attitudes towards their ability to adopt preventive behavior that can prevent HIV is important in designing key preventive messages and programmatic interventions that are geared towards the achievement of the 2030 sustainable development goals target 3.3.(4) It is against this backdrop that we conducted this study to determine the factors that influenced adolescents' attitudes toward HIV prevention in an Indonesian city with the highest number of adolescents and young people.(2,11)

## METHOD

This was a cross-sectional study located in Yogyakarta in July-August 2016. The subject of this research were 370 senior high school students. A self-administered questionnaire was used in this study. Ethical clearance 01/01/KE/XXI/098/2016 granted from The Committee of Poltekkes Kemenkes Yogyakarta.

This study collected information on their socio-demographic characteristics, source of information about HIV/AIDS, knowledge of HIV/AIDS, perceptions towards prevention of HIV/AIDS, Knowledge on HIV/AIDS, perceptions about their vulnerability towards HIV/AIDS, and self-efficacy towards HIV prevention. The adolescents self-reported whether they agreed or disagreed or hesitated with various statements given to them. Each consenting adolescent was allowed 60 minutes to fill out the questionnaire. The attitude towards HIV/AIDS prevention was measured by a scoring system based on the responses to a set of positive and negative statements. A student was then considered to either have

a positive or negative attitude towards the prevention of HIV/AIDS based on the following criteria: For a positive statement, agree is scored: 2 Disagree: 1, and hesitant: 0. On the other hand, a negative statement: Disagree: 2, agree: 1 and hesitant: 0. The attitude was then categorized as positive or negative attitude based on the mean. > Mean = Positive, and < Mean = Negative. The same binary criterion was applied to categorize other independent variables: level of knowledge (Good and Poor); perceived level of risk (Risk and no risk) and perceived self-efficacy on the ability to prevent HIV/AIDS (High and low).

Data was analyzed univariate for descriptive statistics using frequencies and percentages were used to describe findings. We also used the Chi-square test to determine the relationship between the dependent variable adolescent attitude towards HIV prevention and the independent variables' level of knowledge, self-perceived risk towards HIV/AIDS, and self-perceived ability (self-efficacy in preventing HIV/AIDS) and also logistic regression was done and all explanatory variables which had an association with outcome variable at *p-value* less than 0.25.

## RESULTS

This study showed that the majority of respondents were females (68.1%) as shown in Table 1. This study found that the main sources of information on HIV/AIDS among adolescents are the internet, television, and school curriculum (99%, 98%, and 98%) respectively, whereas radio and non-governmental organizations were the least likely source of information (63% and 61% respectively as shown in table 2. Health workers formed a significant source of information (85%).

**Table 1. Respondent Characteristics**

Characteristic	n	%
<b>Sex</b>		
Male	118	31.9
Female	252	68.1
Total	370	100

**Table 2. Source of information about HIV/AIDS**

Source of information about HIV/AIDS	Yes		No		Total	
	n	%	n	%	n	%
Television	364	98.4	6	1.6	370	100
Radio	234	63.2	136	36.8	370	100
Internet	366	98.9	4	1.1	370	100
Newspaper	320	86.5	50	13.5	370	100
Brochure	241	65.1	129	34.9	370	100
Friends	336	90.8	34	9.2	370	100
Health Provider	315	85.1	55	14.9	370	100
School	361	97.6	9	2.4	370	100
NGO	227	61.4	143	38.6	370	100
Organization of students	299	80.8	71	19.2	370	100

### Level of Knowledge

The majority of the respondents had good knowledge while 44.3% had poor knowledge of HIV/AIDS. The level of knowledge was categorized as good and poor, and this was correlated against attitude towards HIV/AIDS Prevention as presented in Table 3. 70.4%

of those who had a good level of knowledge also had a positive attitude towards HIV/AIDS prevention with  $p=0.028$ .

**Table 3. Correlation between knowledge level about HIV AIDS and attitude towards HIV AIDS Prevention**

Knowledge level about HIV	Attitude toward HIV AIDS						p-value
	Positive		Negative		Total		
	n	%	n	%	n	%	
Good	145	70.4	61	29.6	206	100.0	0.028
Poor	101	61.6	63	38.4	164	100.0	
Total	246	66.5	124	33.5	370	100.0	

#### Perceived level of risk

This study showed that 50.3% of the adolescents had high risk while 49.7% had low risk as seen in Table 4. The majority (62.9%) of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude toward HIV/AIDS prevention. However, this was not statistically significant ( $p=0.142$ ) as shown in Table 4.

**Table 4. Correlation between self-perception about their risk of transmitting HIV AIDS and adolescent attitude toward HIV AIDS prevention**

Self-perception about their risk of transmission of HIV AIDS	Adolescent attitude towards HIV AIDS prevention						p-value
	Positive		Negative		Total		
	n	%	n	%	n	%	
Risk	117	62.9	69	37.1	186	100	0.142
No Risk	129	70.1	55	29.9	184	100	
Total	246	66.5	124	33.5	370	100.0	

#### Perceived Self-Efficacy

Table 5 shows the correlation between self-perception on the ability to prevent HIV AIDS and adolescent attitude towards HIV AIDS prevention. 50.3% of the adolescents had a high self-efficacy whereas almost an equal proportion had a low self-efficacy in their ability to prevent HIV/AIDS. 73.1% of those who had perceived high self-efficacy in their ability to prevent themselves from acquiring HIV/AIDS also had a positive attitude towards HIV/AIDS prevention. This was found to be statistically significant at ( $p=0.007$ ).

**Table 5. Correlation between self efficacy to prevent HIV AIDS and adolescents' attitude towards HIV AIDS prevention**

Self-efficacy to prevent HIV AIDS	Adolescent attitude towards HIV AIDS prevention						p-value
	Positive		Negative		Total		
	n	%	n	%	n	%	
High	136	73.1	50	26.9	186	100	0.007
Low	110	59.6	74	40.2	184	100	
Total	246	66.5	124	33.5	370	100.0	

As seen in Table 6, we subjected the three variables to multivariate analysis since they all had a p-value of less than 0.25 and self-efficacy was the most statistically significant variable of all three ( $p = 0.008$ ) and Exp B 1.820.

**Table 6. Multivariate Analysis**

Variable	p-value	Exp-B	CI
Self-efficacy to prevent HIV AIDS	0.008	1.820	1.172-2.826

## DISCUSSION

This study is the first to establish factors influencing adolescent attitudes toward HIV/AIDS prevention in Indonesia as far as we are concerned. Studies that establish knowledge, attitudes, and practices are necessary as they help assess the degree to which individuals are prepared to take on risk-free behavior.(14) Although understanding adolescents' attitudes towards HIV/AIDS is important, establishing the factors that influence this attitude is equally important to guide intervention. In our study, 55.7% of the participants had a high level of knowledge of HIV/AIDS while 44.3% had poor knowledge. The participants of this study were less informed about HIV/AIDS compared to a study in Cameroon where 62.1% of participants had a high level of knowledge while only as few as 3.4% had poor knowledge.(14) However, our participants were better informed than those in a study at Lao People's Democratic Republic where those with high knowledge were 46.3% whereas those with poor knowledge were 22.4%.(15)

We sought to establish the source of information on HIV/AIDS among our respondents. In this study, the internet, television, and school curriculum are the main sources of information on HIV/AIDS. This is similar to studies done elsewhere in China, Iran, Korea, Cameroon, and India where television.(16–18), the internet and the school curriculum were found to be major sources of information.(17,18) This finding is also similar to the findings by the Indonesian Demographic Health whereby the internet and television were the main media used by Indonesian adolescents.(14) This is important to note especially when designing a mass media strategy to reach adolescents and also the fact that the school curriculum is one of the major sources of information augurs well with school-based HIV/AIDS programs in Indonesia. Notably though, often the internet and television are not the most credible sources of information for HIV/AIDS unless the messages are packaged in a very specific way.(18) It is worth noting that there were variations in methodologies in the above studies and conclusive comparisons may not be assured. For instance, the Korean and Chinese studies were large interventional studies with larger sample sizes than our study, and therefore conclusive comparisons may not be drawn.(16,17)

In this study, radios and non-governmental organizations were the least likely source of information (63% and 61% respectively as shown in Table 2) whereas health workers formed a significant source of information (85%). This implies that educational messages targeted towards high school students may be channeled through the school curriculum, the internet, television broadcasts, and health facilities rather than through the radio or NGOs. This study has revealed how the internet, which is easily accessible via smartphones, is an important source of HIV/AIDS information. Although the internet often contains unverified information, adolescents are increasingly using it as a source of health information.(19)

This study did not measure how this predicts behavior, past research has shown that measuring attitudes towards behavior and behavioral intentions is important as it has been found to predict a certain behavior.(20,21) As observed by Ajzen and Fishbein in their article on the influence of attitude towards behavior, whether implicitly or explicitly measured, attitudes tend to predict positive behavior outcomes.(22,23) We can therefore infer that programmatic interventions targeting to modify student behavior through attitude change can leverage this relatively high propensity to have a high attitude towards HIV/AIDS prevention.

Data showed that 70.4% of those who had a good level of knowledge also had a positive attitude towards HIV/AIDS prevention with  $p=0.028$ . This is consistent with a recent study in Fako, Cameroon among senior secondary school students on knowledge, attitudes, and practices towards HIV/AIDS where medium to high knowledge was found to predict positive attitudes as well as an Iranian study which showed a statistically significant relationship between high knowledge and positive attitude.(6,19,21)

An attitude is an organization of beliefs about a subject, object, or concept that compels one to respond in some preferential fashion.(24) An attitude towards something is an evaluative response that requires one to have some knowledge about what is being asked to objectively express their attitude towards it.(25) Thus, if a person has inadequate knowledge about what is being asked, then they are likely to hesitate in evaluating what's being asked and thus not able to express their attitude objectively.(21) Thus, it implies that if knowledge of HIV/AIDS is improved through educational programs using the most relevant channels such as the internet, school curriculum, and television, then attitude towards HIV/AIDS can improve significantly.

Adolescents often have different perceptions of their vulnerability to contracting HIV/AIDS. In this study, we found nearly half (50.3%) of the adolescents were at risk of contracting HIV/AIDS. One systematic review of knowledge and attitudes among Nigerian young people showed that many young people do not perceive themselves as being vulnerable to contracting HIV/AIDS despite being sexually active.(23) 62.9% of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude toward HIV/AIDS prevention. However, this was not statistically significant ( $p=0.142$ ).

Slightly more than half of the students in this study reported high levels of self-efficacy. This implies the majority of respondents felt confident that they could protect themselves from HIV/AIDS, an important finding in our view. Our study has also shown that nearly three-quarters of the students who had a high level of self-efficacy also had a positive attitude toward HIV/AIDS Prevention. This finding is important because it means that high self-efficacy is a strong predictor of a positive attitude toward HIV/AIDS prevention. Multivariate analysis to establish how knowledge, perceived risk, and perceived self-efficacy influenced attitudes toward HIV/AIDS prevention among adolescents in Yogyakarta, Indonesia. Results showed self-efficacy was the most statistically significant variable of all three ( $p = 0.008$ ). This means the predictor variable (self-efficacy), is a significant predictor of attitudes towards HIV prevention.

Self-efficacy is an important facet of HIV prevention and it's concerned with one's belief in their ability to accomplish a task.(23,26) Research has shown that high self-efficacy facilitates measures to prevent and reduce HIV/AIDS risky behaviors because it tends to influence one's efforts to modify behavior to prevent HIV/AIDS.(26,27) Some studies have also shown that high HIV knowledge is associated with high self-efficacy.(22,23,26) Considering that school curriculum are one of the main sources of information on HIV/AIDS in this study, the interventions that target to increase positive attitudes, level of awareness, and knowledge through programs such as school-based health programs may be informed by this predictor variable (self-efficacy).

This study has demonstrated that self-efficacy influences attitudes toward HIV/AIDS prevention. This association is important as it can be leveraged in interventions that target increasing self-efficacy for HIV/AIDS prevention among high school students. The Internet and television can be used to reach adolescents. Considering self-efficacy is a core element in HIV/AIDS prevention interventions, this finding underscores the role it plays, and stakeholders targeting high school students need to leverage this. Further studies should be done on a large scale to test other factors associated with attitudes toward HIV/AIDS prevention.

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