DOKUMEN

FULL ARTIKEL
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TURNITIN

Jurnal Kesehatan Ibu dan Anak
Vol.16, No.1, July 2022, pp. 1~8
10.29238/kia.v16i1.1251

ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)

Adolescent's Self-Efficacy And Attitude Towards HIV AIDS Prevention In Yogyakarta, Indonesia

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ARTICLE INFO

Article history:

Received April 18th, 2022
Revised January 4th, 2023
Accepted Month 4th, 2023

Keyword:

Prevention
HIV
Adolescents
Attitudes

ABSTRACT

Acquired Immunodeficiency Syndrome (AIDS) was the eighth leading cause of death among adolescents worldwide. A third of these them were infected during the adolescence period. HIV prevention in adolescents is particularly important. Attitude is one indicator of a person's behavior or action. The aim of this study was to establish the determinants of adolescents' attitude towards 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. Result of this study showed that the internet and television were the major sources of information on reproductive health and HIV among the adolescents (98.9%) and (98.4%) respectively. The determinants 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 as a determinant factor towards attitude. Recommendation of this study is stakeholders on interventions can improve adolescent's self-efficacy so as to achieve HIV prevention goals.
Keywords: Prevention, HIV, Adolescents, Attitudes

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INTRODUCTION (ARIAL 11 BOLD)

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 another1.7 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 the 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 the adolescents. Indeed, if recent statistics are anything to go by, the burden of HIV/AIDS among adolescents cannot be underestimated. Four per cent (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 being girls. This burden is most prevalent in sub-Saharan Africa (89%) and Asia (4%).[4] Notably, among young people, 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 one decade.[2]

The 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, pyschological and social development, which increases their vulnerability to health problems such as HIV and other sexually transmitted infections.[5] It's a period characterized with 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 early sexual debut, even as early as before 15 years of age, a problem that has been reported 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, such a huge population of adolescents, there is 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 approach that is effective.[10–12] However, knowledge and attitudes of adolescents towards 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 towards prevention of HIV. There is paucity of literature on how for instance the level of knowledge, perceived self-efficacy among other factors influences an adolescent's attitudes towards HIV prevention. Understanding how these factors influence adolescent's attitudes towards their ability to adapt preventive behavior that can prevent HIV is important in designing key preventive messages and programmatic interventions that are geared towards 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 adolescent's attitudes towards HIV prevention in an Indonesian city with the highest number of adolescents and young people.[2,11]

METHOD

This was a cross-sectional study and located in Yogyakarta in July-August 2016. Subject of this research were 370 senior high school students. 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 on 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 on 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. Attitude towards HIV/AIDS prevention was measured by a scoring system based on the responses a set of positive and negative statements. A student was then considered to either have a positive or negative attitude towards 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 ability to prevent HIV/AIDS (High and low).

Data was analyzed univariate for descriptive statistics using frequencies and percentages was used to describe findings. We also used 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 the adolescents are the internet, television and school curricular (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	%
Sex		
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

ISSN: 2599-3224 (Online), ISSN: 2302-6014 (Print)

Source of information about HIV/AIDS	Yes		No		Total	
	n	%	n	%	n	%
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

Majority of respondent had good knowledge while 44.3% had poor knowledge on HIV/AIDS. The level of knowledge was categorized into good and poor and this was correlated against attitude towards HIV/AIDS Prevention as presented in table 3. 70.4% of those who had 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 towards HIV AIDS						p-value
	Positive		Negative		Total		
	n	%	n	%	N	%	
Good	145	70.4	61	29.6	206	100.0	
Poor	101	61.6	63	38.4	164	100.0	0.028
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. Majority (62.9%) of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude towards 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 in transmission HIV AIDS and adolescent attitude towards HIV AIDS prevention

Self perception about their risk in transmission 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	
No Risk	129	70.1	55	29.9	184	100	0.142
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 on 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	
Low	110	59.6	74	40.2	184	100	0.007
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 p-value of less than 0.25 and self-efficacy was the most statistically significant variable of all the 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 towards 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 adolescent's 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 on 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% participants had a high level of knowledge while only as few as 3.4% having 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 curricular 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 curricular 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 curricular 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 worthy noting that there were variations in methodologies in 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 curricular, 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 smart phones, 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 a 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 on this relatively high propensity to have high attitude towards HIV/AIDS prevention.

Data showed that 70.4% of those who had 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 statistical 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 so as to objectively express their attitude towards it.[25] Thus, if a person has inadequate knowledge about what is being asked about, then they are likely to hesitate in making an evaluation about what's being asked and thus not able to express their attitude objectively.[21] Thus, it implies that if knowledge on HIV/AIDS is improved through educational programs using the most relevant channels such as internet , currciular and television, then attitude towards HIV/AIDS can improve significantly.

Adolescents often have different perceptions on 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 on 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 towards HIV/AIDS prevention. However, this was not statistically significant (p=0.142).

Slightly more than half of students in this study reported high levels of self-efficacy. This implies majority of respndents 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 high level of self-efficacy also had a positive attitude towards HIV/AIDS Prevention. This finding is important because it means that high self-efficacy is a strong predictor of positive attitude towards HIV/AIDS prevention. Multivariate analysis to establish how knowledge, perceived-risk and perceived self-efficacy influenced attitudes towards HIV/AIDS prevention among adolescents in Yogyakarta, Indonesia. Results showed self-efficacy was the most statistically significant variable of all the three (p = 0.008). This meant the predictor variable (self-efficacy), is a significant predictor of attitudes towards HIV prevention.

Self-efficacy is an important facet in HIV prevention and it's concerned with one's belief on 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 personal 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 curricular is one of the main sources of information of HIV/AIDS in this study, so 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).

CONCLUSION

This study has demonstrated that self-efficacy influences attitudes towards HIV/AIDS prevention. This association is important as it can be leveraged in interventions that target to increase self-efficacy for HIV/AIDS prevention among high school students. The internet and television can be used to reach the 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 on this. Further studies should be done on a large scale to test other factors associated with attitudes towards HIV/AIDS prevention.

ACKNOWLEDGMENT

Deepest gratitude to the Director of Poltekkes Kemenkes Yogyakarta for giving the chance and permission for this study. All the enumerators, head of school, teacher and all of the students for participate in this study

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KELENGKAPAN BERKAS

BUKTI KORESPONDENSI
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Judul artikel

Adolescent's Self Efficacy And Attitude Towards HIV AIDS Prevention in Yogyakarta, Indonesia

BUKTI KORESPONDENSI

BUKTI KORESPONDENSI

ARTIKEL JURNAL NASIONAL PERINGKAT 3

Judul artikel : Adolescent's Self Efficacy And Attitude Towards HIV AIDS Prevention in Yogyakarta, Indonesia
Jurnal : Jurnal Kesehatan Ibu dan Anak
Penulis : Niken Meilani (Penulis 1 dan korespondensi)

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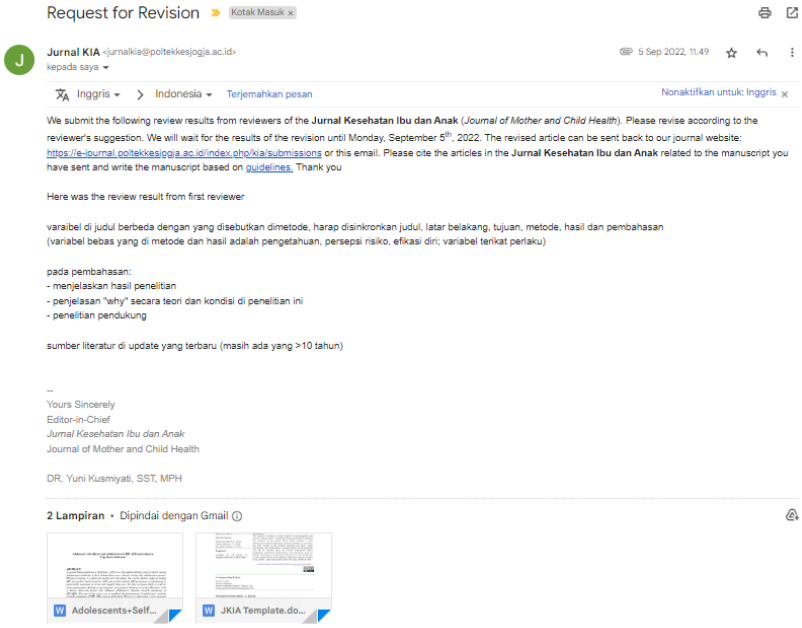	
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Adolescent's self-efficacy and attitude towards HIV AIDS prevention in Yogyakarta, Indonesia

ABSTRACT

Acquired Immunodeficiency Syndrome (AIDS) was the eighth leading cause of death among adolescents worldwide. A third of these them were infected during the adolescence period. Without investing in adolescent health and well-being, the current global target of ending HIV as a public health threat by 2030 may not be realized. HIV prevention in adolescents is particularly important as it not only benefits then now, but also as future adults as well as future generations. Attitude is one indicator of a person's behavior or action. However, little is known about the factors that influence adolescent's attitudes towards prevention of HIV/AIDS. The aim of this study was to establish the determinants of adolescents' attitude towards 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 internet and television were the major sources of information on reproductive health and HIV among the adolescents (98.9%) and (98.4%) respectively. The significant determinants of adolescents attitude towards HIV/AIDS prevention were the level of knowledge (p=0.028) and self-efficacy (p=0.007). Multivariate analysis showed that those respondents with positive self-efficacy were 1.8 times more likely to have a positive attitude towards HIV/AIDS prevention than those who had a negative self-efficacy. Programs which target mass media strategy for prevention can leverage the television and internet. Stakeholders can target on interventions that can improve adolescent's self-efficacy so as to achieve HIV prevention goals.

Keywords: *Prevention, HIV, Adolescents, Attitudes*

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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 another1.7 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 the Asia – Pacific, with 5.9 million people living with HIV in the latter region as of 2018.[2]

At the center of this spreading scourge are the adolescents. Indeed, if recent statistics are anything to go by, the burden of HIV/AIDS among adolescents cannot be underestimated. Four per cent (1.6 million) of people living with HIV today globally are adolescents.[3] 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 being girls. This burden is most prevalent in sub-Saharan Africa (89%) and Asia (4%). [3] Notably, among young people, 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 one decade.[4]

The 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, pyschological and social development, which increases their vulnerability to health problems such as HIV and other sexually transmitted infections.[5] It's a period characterized with 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 early sexual debut, even as early as before 15 years of age, a problem that has been reported 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, 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, such a huge population of adolescents, there is 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.[2]

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.[2] 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 approach that is effective.[2-12] However, knowledge and attitudes of adolescents towards 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 towards prevention of HIV. There is paucity of literature on how for instance the level of knowledge, perceived self-efficacy among other factors influences an adolescent's attitudes towards HIV prevention. Understanding how these factors influence adolescent's attitudes towards their ability to adapt preventive behavior that can prevent HIV is important in designing key preventive messages and programmatic interventions that are geared towards achievement of the 2030 sustainable development goals target 3.3.[1] It is against this backdrop that we conducted this study to determine the factors that influenced adolescent's attitudes towards HIV prevention in an Indonesian city with the highest number of adolescents and young people.

METHODS

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

Commented [DS3]: Bisa diperjelas data ini data kapan?

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Commented [DS6]: Kapan penelitian ini dilaksanakan?

This study collected information on their socio-demographic characteristics, source of information about HIV/AIDS, knowledge on 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 on 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. Attitude towards HIV/AIDS prevention was measured by a scoring system based on the responses a set of positive and negative statements. A student was then considered to either have a positive or negative attitude towards 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 ability to prevent HIV/AIDS (High and low).

Data was analyzed univariate for descriptive statistics using frequencies and percentages was used to describe findings. We also used 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.

Commented [DS7]: P value yang ditetapkan terlalu besar, Apakah alasan penulis menggunakan P Value 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 the adolescents are the internet, television and school curricular (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	%
Sex		
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
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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

Majority of respondent had good knowledge while 44.3% had poor knowledge on HIV/AIDS. The level of knowledge was categorized into good and poor and this was correlated against attitude towards HIV/AIDS Prevention as presented in table 3. 70.4% of those who had 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 towards 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. Majority (62.9%) of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude towards 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 in transmission HIV AIDS and adolescent attitude towards HIV AIDS prevention

Self perception about their risk in transmission 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 on 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 p-value of less than 0.25 and self-efficacy was the most statistically significant variable of all the 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 towards 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 adolescent's attitudes towards HIV/AIDS is important, establishing the factors that influence this attitude is equally

Commented [DS8]: Apakah P Value yang digunakan benar 0.25? Dari ke tiga variable yang dianalisis sebelumnya disebutkan bahwa untuk hubungan persepsi factor resiko dengan sikap tidak signifikan (Tabel 4). Mohon di cek kembali

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important to guide intervention. In our study, 55.7% of the participants had a high level of knowledge on 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% participants had a high level of knowledge while only as few as 3.4% having 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]

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We sought to establish the source of information on HIV/AIDS among our respondents. In this study, the internet, television and school curricular 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 [15-18], the internet [16] and the school curricular [17] were found to be major sources of information. 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.[13] This is important to note especially when designing a mass media strategy to reach adolescents and also the fact that the school curricular 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 worthy noting that there were variations in methodologies in 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 curricular, 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 smart phones, 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 a behavior and behavioral intentions is important as it has been found to predict a certain behavior.[20] 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.[21] We can therefore infer that programmatic interventions targeting to modify student behavior through attitude change can leverage on this relatively high propensity to have high attitude towards HIV/AIDS prevention.

Data showed that 70.4% of those who had 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 [14] as well as an Iranian study which showed statistical significant relationship between high knowledge and positive attitude.[18]

An attitude is an organization of beliefs about a subject, object or concept that compels one to respond in some preferential fashion.[22] An attitude towards something is an evaluative response that requires one to have some knowledge about what is being asked so as to objectively express their attitude towards it.[23] Thus, if a person has inadequate knowledge about what is being asked about, then they are likely to hesitate in making an evaluation about what's being asked and thus not able to express their attitude objectively.[21] Thus, it implies that if knowledge on HIV/AIDS is improved through educational programs using the most relevant channels such as internet , currciular and television, then attitude towards HIV/AIDS can improve significantly.

Adolescents often have different perceptions on 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 on 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.[24] 62.9% of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude towards HIV/AIDS prevention. However, this was not statistically significant (p=0.142).

Slightly more than half of students in this study reported high levels of self-efficacy. This implies majority of respndents 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 high level of self-efficacy also had a positive attitude towards HIV/AIDS Prevention. This finding is important because it means that high self-efficacy is a strong predictor of positive attitude towards HIV/AIDS prevention. Multivariate analysis to establish how knowledge, perceived-risk and perceived self-efficacy influenced attitudes towards HIV/AIDS prevention among adolescents in Yogyakarta, Indonesia. Results showed self-efficacy was the most statistically significant variable of all the three (p = 0.008). This meant the predictor variable (self-efficacy), is a significant predictor of attitudes towards HIV prevention.

Self-efficacy is an important facet in HIV prevention and it's concerned with one's belief on their ability to accomplish a task.[25-26] Research has shown that high self- efficacy facilitates measures to prevent and reduce HIV/AIDS risky behaviors because it tends to influence one's personal 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.[25-26] Considering that school curricular is one of the main sources of information of HIV/AIDS in this study, so 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).

CONCLUSION

This study has demonstrated that self-efficacy influences attitudes towards HIV/AIDS prevention. This association is important as it can be leveraged in interventions that target to increase self-efficacy for HIV/AIDS prevention among high school students. The internet and television can be used to reach the 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 on this. Further studies should be

done on a large scale to test other factors associated with attitudes towards HIV/AIDS prevention.

ACKNOWLEDGMENT

Deepest gratitude to the Director of Poltekkes Kemenkes Yogyakarta for giving the chance and permission for this study. All the enumerators, head of school, teacher and all of the students for participate in this study

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HASIL REVISI DARI PENULIS

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ADOLESCENT'S SELF-EFFICACY AND ATTITUDE TOWARDS HIV AIDS PREVENTION IN YOGYAKARTA, INDONESIA

ABSTRACT

Acquired Immunodeficiency Syndrome (AIDS) was the eighth leading cause of death among adolescents worldwide. A third of these them were infected during the adolescence period. HIV prevention in adolescents is particularly important. Attitude is one indicator of a person's behavior or action. The aim of this study was to establish the determinants of adolescents' attitude towards 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. Result of this study showed that the internet and television were the major sources of information on reproductive health and HIV among the adolescents (98.9%) and (98.4%) respectively. The determinants 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 as a determinant factor towards attitude. Recommendation of this study is stakeholders on interventions can improve adolescent's self-efficacy so as to achieve HIV prevention goals.

Keywords: Prevention, HIV, Adolescents, Attitudes

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 another1.7 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 the 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 the adolescents. Indeed, if recent statistics are anything to go by, the burden of HIV/AIDS among adolescents cannot be underestimated. Four per cent (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 being girls. This burden is most prevalent in sub-Saharan Africa (89%) and Asia (4%).(4) Notably, among young people, 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 one decade.(2)

The 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, pyschological and social development, which increases their vulnerability to health problems such as HIV and other sexually transmitted infections.(5) It's a period characterized with 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 early sexual debut, even as early as before 15 years of age, a problem that has been reported 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, such a huge population of adolescents, there is 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)

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Organization of students	299	80.8	71	19.2	370	100

Level of Knowledge

Majority of respondent had good knowledge while 44.3% had poor knowledge on HIV/AIDS. The level of knowledge was categorized into good and poor and this was correlated against attitude towards HIV/AIDS Prevention as presented in table 3. 70.4% of those who had 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 towards 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. Majority (62.9%) of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude towards 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 in transmission HIV AIDS and adolescent attitude towards HIV AIDS prevention

Self perception about their risk in transmission 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 on 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 p-value of less than 0.25 and self-efficacy was the most statistically significant variable of all the 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 towards 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 adolescent's 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 on 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% participants had a high level of knowledge while only as few as 3.4% having 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 curricular 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 curricular 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 curricular 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 worthy noting that there were variations in methodologies in 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 curricular, 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 smart phones, 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 a 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 on this relatively high propensity to have high attitude towards HIV/AIDS prevention.

Data showed that 70.4% of those who had 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 statistical 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 so as to objectively express their attitude towards it.(25) Thus, if a person has inadequate knowledge about what is being asked about, then they are likely to hesitate in making an evaluation about what's being asked and thus not able to express their attitude objectively.(21) Thus, it implies that if knowledge on HIV/AIDS is improved through educational programs using the most relevant channels such as internet , currciular and television, then attitude towards HIV/AIDS can improve significantly.

Adolescents often have different perceptions on 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 on 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 towards HIV/AIDS prevention. However, this was not statistically significant (p=0.142).

Slightly more than half of students in this study reported high levels of self-efficacy. This implies majority of respndents 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 high level of self-efficacy also had a positive attitude towards HIV/AIDS Prevention. This finding is important because it means that high self-efficacy is a strong predictor of positive attitude towards HIV/AIDS prevention. Multivariate analysis to establish how knowledge, perceived-risk and perceived self-efficacy influenced attitudes towards HIV/AIDS prevention among adolescents in Yogyakarta, Indonesia. Results showed self-efficacy was the most statistically significant variable of all the three ($p = 0.008$). This meant the predictor variable (self-efficacy), is a significant predictor of attitudes towards HIV prevention.

Self-efficacy is an important facet in HIV prevention and it's concerned with one's belief on 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 personal 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 curricular is one of the main sources of information of HIV/AIDS in this study, so 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).

CONCLUSION

This study has demonstrated that self-efficacy influences attitudes towards HIV/AIDS prevention. This association is important as it can be leveraged in interventions that target to increase self-efficacy for HIV/AIDS prevention among high school students. The internet and television can be used to reach the 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 on this. Further studies should be done on a large scale to test other factors associated with attitudes towards HIV/AIDS prevention.

ACKNOWLEDGMENT

Deepest gratitude to the Director of Poltekkes Kemenkes Yogyakarta for giving the chance and permission for this study. All the enumerators, head of school, teacher and all of the students for participate in this study

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ETHICAL CLEARANCE

KOMISI ETIK PENELITIAN KESEHATAN
POLITEKNIK KESEHATAN KEMENKES YOGYAKARTA
Jl. Tatabumi No.3 Banyuraden, Gamping, Sleman, D.I.Yogyakarta Telp/Fax. 0274-617601
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PERSETUJUAN KOMISI ETIK
No. LB.01.01/KE/XXI/ 098 /2016

Judul	:	**Faktor-Faktor yang Mempengaruhi Sikap Remaja terhadap Pencegahan HIV dan AIDS di Yogyakarta**
Dokumen	:	1. Protokol 2. Persetujuan Setelah Penjelasan (PSP) 3. *Informed consent*
Nama Peneliti	:	**Niken Meilani, S.Si.T, S.Pd, M.Kes**
Dokter/ Ahli medis yang bertanggungjawab	:	-
Tanggal Kelaikan Etik	:	2 Mei 2016
Instsitusi peneliti	:	Poltekkes Kemenkes Yogyakarta

Komisi Etik Penelitian Kesehatan (KEPK) Politeknik Kesehatan Kementerian Kesehatan Yogyakarta menyatakan bahwa protokol diatas telah memenuhi prinsip etis berdasarkan pada Deklarasi Helsinki 1975 dan oleh karena itu penelitian tersebut dapat dilaksanakan.

Surat Kelaikan Etik ini berlaku 1 (satu) tahun sejak tanggal terbit.

Komisi Etik Penelitian Kesehatan (KEPK) Politeknik Kesehatan Kementerian Kesehatan Yogyakarta memiliki hak untuk memantau kegiatan penelitian setiap saat. Peneliti wajib menyampaikan laporan akhir setelah penelitian selesai atau laporan kemajuan penelitian jika dibutuhkan.

Demikian, surat ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Ketua .,

KESEHATAN YOG
KOMISI ETIK
ELITIAN KESEHATAN

Joko Susilo, SKM.,M.Kes
Ketua KEPK Poltekkes Kemenkes Yogyakarta

TURNITIN

JKIA 2022_revisi2

by Niken Meilani

Submission date: 26-Apr-2023 12:16PM (UTC+0700)
Submission ID: 2075860426
File name: 22_Juli_JKIA_Efficacy.pdf (230.48K)
Word count: 3928
Character count: 21277

Jurnal Kesehatan Ibu dan Anak
Vol.16, No.1, July 2022, pp. 1~8
10.29238/kia.v16i1.1251

ISSN: 2599-3224 (Online)
ISSN: 2302-6014 (Print)

Adolescent's Self-Efficacy And Attitude Towards HIV AIDS Prevention In Yogyakarta, Indonesia

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ARTICLE INFO

Article history:

Received April 18th, 2022
Revised January 4th, 2023
Accepted Month 4th, 2023

Keyword:

Prevention
HIV
Adolescents
Attitudes

ABSTRACT

Acquired Immunodeficiency Syndrome (AIDS) was the eighth leading cause of death among adolescents worldwide. A third of these them were infected during the adolescence period. HIV prevention in adolescents is particularly important. Attitude is one indicator of a person's behavior or action. The aim of this study was to establish the determinants of adolescents' attitude towards 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. Result of this study showed that the internet and television were the major sources of information on reproductive health and HIV among the adolescents (98.9%) and (9[illegible]%) respectively. The determinants 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 as a determinant factor towards attitude. Recommendation of this study is stakeholders on interventions can improve adolescent's self-efficacy so as to achieve HIV prevention goals.
Keywords: Prevention, HIV, Adolescents, Attitudes

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INTRODUCTION (ARIAL 11 BOLD)

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 another1.7 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 the 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 the adolescents. Indeed, if recent statistics are anything to go by, the burden of HIV/AIDS among adolescents cannot be underestimated. Four per cent (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 being girls. This burden is most prevalent in sub-Saharan Africa (89%) and Asia (4%).[4] Notably, among young people, 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 one decade.[2]

The 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, pyschological and social development, which increases their vulnerability to health problems such as HIV and other sexually transmitted infections.[5] It's a period characterized with 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 early sexual debut, even as early as before 15 years of age, a problem that has been reported 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, such a huge population of adolescents, there is 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 approach that is effective.[10–12] However, knowledge and attitudes of adolescents towards 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 towards prevention of HIV. There is paucity of literature on how for instance the level of knowledge, perceived self-efficacy among other factors influences an adolescent's attitudes towards HIV prevention. Understanding how these factors influence adolescent's attitudes towards their ability to adapt preventive behavior that can prevent HIV is important in designing key preventive messages and programmatic interventions that are geared towards 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 adolescent's attitudes towards HIV prevention in an Indonesian city with the highest number of adolescents and young people.[2,11]

METHOD

This was a cross-sectional study and located in Yogyakarta in July-August 2016. Subject of this research were 370 senior high school students. 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 on 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 on 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. Attitude towards HIV/AIDS prevention was measured by a scoring system based on the responses a set of positive and negative statements. A student was then considered to either have a positive or negative attitude towards 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 ability to prevent HIV/AIDS (High and low).

Data was analyzed univariate for descriptive statistics using frequencies and percentages was used to describe findings. We also used 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 the adolescents are the internet, television and school curricular (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	%
Sex		
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

Source of information about HIV/AIDS	Yes		No		Total	
	n	%	n	%	n	%
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

Majority of respondent had good knowledge while 44.3% had poor knowledge on HIV/AIDS. The level of knowledge was categorized into good and poor and this was correlated against attitude towards HIV/AIDS Prevention as presented in table 3. 70.4% of those who had 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 towards HIV AIDS						p-value
	Positive		Negative		Total		
	n	%	n	%	N	%	
Good	145	70.4	61	29.6	206	100.0	
Poor	101	61.6	63	38.4	164	100.0	0.028
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. Majority (62.9%) of those who perceived themselves to be at higher risk of HIV transmission had a positive attitude towards 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 in transmission HIV AIDS and adolescent attitude towards HIV AIDS prevention

Self perception about their risk in transmission 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	
No Risk	129	70.1	55	29.9	184	100	0.142
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 on 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	
Low	110	59.6	74	40.2	184	100	0.007
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 p-value of less than 0.25 and self-efficacy was the most statistically significant variable of all the 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 towards 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 adolescent's 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 on 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% participants had a high level of knowledge while only as few as 3.4% having 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 curricular 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 curricular 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 curricular 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 worthy noting that there were variations in methodologies in 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 curricular, 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 smart phones, 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 a 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 on this relatively high propensity to have high attitude towards HIV/AIDS prevention.

Data showed that 70.4% of those who had 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 statistical 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 so as to objectively express their attitude towards it.[25] Thus, if a person has inadequate knowledge about what is being asked about, then they are likely to hesitate in making an evaluation about what's being asked and thus not able to express their attitude objectively.[21] Thus, it implies that if knowledge on HIV/AIDS is improved through educational programs using the most relevant channels such as internet , currciular and television, then attitude towards HIV/AIDS can improve significantly.

Adolescents often have different perceptions on 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 on 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 towards HIV/AIDS prevention. However, this was not statistically significant (p=0.142).

Slightly more than half of students in this study reported high levels of self-efficacy. This implies majority of respndents 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 high level of self-efficacy also had a positive attitude towards HIV/AIDS Prevention. This finding is important because it means that high self-efficacy is a strong predictor of positive attitude towards HIV/AIDS prevention. Multivariate analysis to establish how knowledge, perceived-risk and perceived self-efficacy influenced attitudes towards HIV/AIDS prevention among adolescents in Yogyakarta, Indonesia. Results showed self-efficacy was the most statistically significant variable of all the three (p = 0.008). This meant the predictor variable (self-efficacy), is a significant predictor of attitudes towards HIV prevention.

Self-efficacy is an important facet in HIV prevention and it's concerned with one's belief on 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 personal 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 curricular is one of the main sources of information of HIV/AIDS in this study, so 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).

CONCLUSION

This study has demonstrated that self-efficacy influences attitudes towards HIV/AIDS prevention. This association is important as it can be leveraged in interventions that target to increase self-efficacy for HIV/AIDS prevention among high school students. The internet and television can be used to reach the 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 on this. Further studies should be done on a large scale to test other factors associated with attitudes towards HIV/AIDS prevention.

ACKNOWLEDGMENT

Deepest gratitude to the Director of Poltekkes Kemenkes Yogyakarta for giving the chance and permission for this study. All the enumerators, head of school, teacher and all of the students for participate in this study

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