Factors influencing Adolescent Attitudes towards HIV/AIDS Prevention In Yogyakarta, Indonesia.

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Factors influencing Adolescent Attitudes towards HIV/AIDS Prevention In Yogyakarta, Indonesia.

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ABSTRACT

Background and objective: In 2015, 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.

Methods: 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.

Results: 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 ($p = 0.034$). Multivariate analysis showed that those respondents with positive self-efficacy were 1.6 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: Self-efficacy, Prevention of HIV/AIDS, Adolescents, Attitudes, Yogyakarta, Indonesia.

Background

Human Immunodeficiency Virus (HIV) which causes Acquired Immunodeficiency Syndrome (AIDS) is 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]. Early sexual debut exposes them to unplanned pregnancies and sexually transmitted diseases including HIV.

The burden of HIV/AIDS in the Asia Pacific region is still being felt and poses a huge challenge for the future. Four per cent of the global HIV burden is in Asia Pacific region. Indonesia, the largest Muslim country in the world with a population of over 250 million people, has not only one of the fastest growing HIV epidemics in Asia, with about 640,000 people living with the virus but is also home to nearly 48 million adolescents, one of the highest globally [10]. Although it has HIV prevalence rate of 0.4%, Indonesia is one the 70 countries globally lagging behind in ending HIV/AIDS as it has one of the highest incidence: prevalence ratio of 7%, way above the global benchmark of 3%, [10, 11]. This burden has been compounded further by a 60% increase in AIDS-related deaths since 2010, despite reduction of new HIV infections as of 2018 [10]. This trend poses a great challenge ahead in the fight against HIV/AIDS especially in a country where there is such a high number of adolescents and young people.

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]. Ranked the 19th largest city in Indonesia with over half a million people, Yogyakarta is one of the cities in Indonesia for students and it's famously often referred to as the city of students. With 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]. According to the survey, nearly 10% and 17% of females and males Indonesians respectively aged between 15-19 years have never heard about HIV/AIDS. Further, the IDHS survey showed that only about 45 and 53 per cent of female and male adolescents respectively are aware that using a condom correctly and consistently when having sex is beneficial in HIV prevention with 30% feeling it's acceptable to have more than one sexual partner; a clear indication of an unmet need in HIV prevention in Indonesia among adolescents.

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.

Method

Study setting and design

We conducted this study in the Special Region of Yogykarta, a province in the Island of Java, in the Republic of Indonesia. It is located near the Southern coast of Java bordering the Indian Ocean on the south side and the province of Java. The region has four Regencies and 1 City: Yogyakarta City (the administrative capital of the region), Bantul Regency, Gudung Kidul Regency, Kulon Progo Regency and Sleman Regency. Each Regency comprises of districts which some double up as capital cities for the Regencies. The study was conducted in five of these districts drawn from all the Regencies except Bantul Regency. The districts include: Yogyakarta City, Wonosari (in Gunung Kidul regency), Wates and Sentolo (in Kulon Progo Regency) and Sleman (Sleman Regency). The capital city of the region is home to over 100 institutions of higher learning and

several high schools and has the highest number of student population in the country, hence its nickname, “the city of students”.

We conducted this cross-sectional study among 370 senior high school students aged 17-18 years between April and September, 2016.

Sampling and Study Procedures

Multi-stage sampling was used. First, the three regencies and one city were selected randomly: Gudung Kidul Regency, Kulon Progo Regency and Sleman Regency and the City of Yogyakarta. From these regencies, we purposively identified five districts: Yogyakarta City, Wonosari, Wates, Sentolo and Sleman. Each district has a number of senior high schools. We randomly selected one high school from each district and two high schools from the City of Yogyakarta due to its high population of students compared to other districts. We then selected from each of the six senior high schools, a senior class, class X, which is for adolescents aged 17-18. Students coming from far often rent out hostels/houses near the school; however, majority stay with parents after school day. Although legally at 17 years the students are considered adults and they can give consent, we only selected students who stayed with parents after school, thus able to obtain verbal permission from the parents a day prior to the study. Those who had permission from parents were then issued with a consent form which they signed on the material day. Students who did not have permission from parents were excluded as well

those staying outside on rented hostels and those who did not consent. In total, 370 students took part in the study.

Data collection method, tools and procedure

A total of four enumerators and two supervisors, all of them midwives, were recruited for data collection. Both enumerators and supervisors were trained for a day on the data collection procedure. A pretested, structured, self-administered questionnaire was used. We administered the questionnaires to the adolescents and 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 individual self-efficacy towards HIV prevention. The adolescents self-reported on whether they agreed or disagreed or hesitated with various statements given to them. The questionnaire was both in English and Indonesian and the respondents were free to select the preferred language. Each consenting adolescent was allowed 60 minutes to fill out the questionnaire.

Data analysis

Data was analyzed using SPSS statistics version 20.0. Descriptive statistics using frequencies and percentages was used to describe findings. We used Chi square test to

determine the relationship between the dependent variable (adolescent attitude towards HIV prevention) and the key independent variables (level of knowledge, self-perceived risk towards HIV/AIDS and self-perceived ability [self-efficacy] in preventing HIV/AIDS). Bivariate analysis using logistic regression was done and all explanatory variables which had an association with outcome variable at *p-value* less than 0.25 were analyzed further in multivariate analysis. *p*-value < 0.05 was considered to be statistically significant.

Measurements

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 or Poor); perceived level of risk (Risk vs no risk) and perceived self-efficacy on ability to prevent HIV/AIDS (High vs low).

Results

Socio-demographic characteristics of the respondents

We approached a total of 373 adolescents at the six schools. Of these, three were excluded because they were not staying with their parents. Of those who were staying with parents, all the 370 did get permission to participate and none declined. Each gave a written consent to participate. Of the 370 respondents, majority were females (68.1%) while the rest were males (Table 1). Overall, 66.5% of the respondents had a positive attitude towards HIV prevention while 33.5% had a negative attitude.

Table 1: Respondent Characteristics

Characteristic	n	%
Sex		
Male	118	31.9

Female	252	68.1
Total	370	100

We wanted to find out their main sources of information with regard to HIV/AIDS information. 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 2: Source of information about HIV/AIDS

Source information about HIV AIDS	N	%
Television		
Yes	364	100
No	6	100
Radio		

Yes	234	100
No	136	100
Internet		
Yes	366	100
No	4	100
Newspaper		
Yes	320	100
No	50	100
Friend		
Yes	336	100
No	34	100
Health Provider		
Yes	315	100
No	55	100
School		
Yes	361	100
No	9	100
NGO		
Yes	227	100

No	143	100

The influence of knowledge, perceived risk and perceived self-efficacy on attitudes towards HI/AIDS prevention among adolescents in Yogykaryta, Indonesia.

Level of Knowledge

With regard to knowledge, 55.7% 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 2 below. 70.4% of those who had good level of knowledge also had a positive attitude towards HIV/AIDS prevention. However, this was not statistically significant (p=0.075).

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	0.075

Poor	101	61.6	63	38.4	164	100.0
Total	246	66.5	124	33.5	370	100.0

Perceived level of risk

50.3% of the adolescents had high risk while 49.7% had low risk as seen in table 4 below. 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 3 below.

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	%	
Risky	117	62.9	69	37.1	186	100	0.142
Not Risky	129	70.1	55	29.9	184	100	

Total	246	66.5	124	33.5	370	100.0	

Perceived Self-Efficacy

Table 5 below 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-perception on the ability to prevent HIV AIDS and adolescent attitude towards HIV AIDS prevention

Self-perception ability in 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	59.8	74	40.2	184	100	
Total	246	66.5	124	33.5	370	100.0	

As seen in table 6 below, 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).

Table 6: Multivariate Analysis

Variable	p-value	Exp-B	CI
Self-perception ability in 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. Our participants 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 [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 [16, 17] were large interventional studies with larger sample sizes than our study and therefore conclusive comparisons may not be drawn.

In our 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]. Indonesia has one of the highest number of internet users in the World and this implies that this medium can be leveraged to deliver specific health education content such as on HIV/AIDS prevention to high school students.

Our study shows that overall; nearly 7 in every 10 secondary school students who participated had a positive attitude towards HIV/AIDS prevention, which is an

encouraging finding. Although we 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.

Although not statistically significant, (p=0.075), we found that 70.4% of those who had good level of knowledge also had a positive attitude towards HIV/AIDS prevention. 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 Indonesian high school students in our study 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. We performed a 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, we think that 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).

Despite the insightful findings this study has revealed, there are some limitations we wish to highlight. First, this was a cross-sectional study, which has the limitation of not measuring causality and effect at the same time. We propose that future studies should consider longitudinal design in order to establish the interplay between various variables and attitudes towards HIV/AID to get a better understanding. Secondly, almost all the students were staying with their parents after school and this could affect the generalizability of findings to other students who were staying on campus throughout in boarding schools or rented hostels around school. Lastly, we relied on the student's self-reporting as we waited on them as they filled out questionnaires in their classroom. This, in our view, may have influenced the results of the study if the students had given the perceived desirable responses and/or influenced by their fellow students as they filled.

Conclusion

Our 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.

List of abbreviations

HIV – Human Immunodeficiency Virus

AIDS - Acquired Immunodeficiency Syndrome

UNICEF – United Nations International Children's Emergency Fund

SPSS – Statistical Package for Social Sciences

IDHS – Indonesian Demographic Health Survey

SDG – Sustainable Development Goals

Declarations

Ethical approval and consent to participate

Ethical clearance was obtained from Polytechnic Yogyakarta Ethics Review Committee (Ref. No. LB.01.01/KE/XXI/098/2016). A formal letter of permission to conduct the study was obtained from the school heads. Students were asked to obtain verbal consent form their parents and we also obtained written consent the participating students; they were informed that the data will be treated with utmost confidentiality.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available due confidentiality issues but are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

NM, conceptualized, designed and supervised data collection. NM, SB and NS were involved in data analysis. All authors were involved in drafting and reviewing of the

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