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# Knowledge and Attitudes regarding HIV-AIDS: Health Educator for Youth (HEY) in Vocational and Non-Vocational High Schools

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## Abstract

HIV-AIDS is a global issue that can affect people of all ages, but the most vulnerable are adolescents. Adolescents in Indonesia have experienced an increase in HIV cases for six years (2011-2017). This study aimed to analyze the differences in knowledge and attitudes related to HIV-AIDS between non-vocational schools and vocational schools. A cross-sectional study was conducted in a sample of 187 students (aged 15-19) in seven randomly selected general/vocational high schools that were part of the HEY (Health Educator for Youth) program in Surabaya, Indonesia. There was no difference in knowledge (p = 0.488) and attitudes (p = 0.803) between male and female students. This study also showed that there was no difference in knowledge between non-vocational schools and vocational high schools (p = 0.385), however, there were differences in attitudes between non-vocational schools and vocational high schools (p = 0.001). Chi-Square test results showed a relationship between knowledge and attitudes (p = 0.039). Optimization of existing youth health programs needs to be conducted in both general and vocational schools. HEY is an effective method of increasing adolescent knowledge and attitudes through the involvement of the roles of teachers, students, parents, and various related stakeholders.

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## Introduction

HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immune Deficiency Syndrome) emerged as global issue. HIV can cause decreased immunity due to a virus that attacks white blood cells. As many as 37.9 million people worldwide are infected with HIV and 1.7 million people newly infected with HIV in 2018 (UNAIDS, 2019). Based on a report from the SIHA (Information System for HIV-AIDS and STIs), the number of HIV cases in Indonesia increased from 30,935 cases in 2015 to 48,300 cases in 2017. Whereas, the number of AIDS cases increased from 2014-2016. There were 8,754 cases in 2014, 9,215 cases in 2015, and 10,146 cases in 2016. Then, it decreased slightly into 9,280 cases in 2017. East Java Province is the province with the highest number of HIV cases and among the top five AIDS cases reported in 2017. The proportion of HIV and AIDS patients in Indonesia is mostly experienced by men. Most HIV patients occurred in the age

range of 25-49 years, while the group of adolescents aged 15-19 years experienced an increase in cases for six years (2011-2017) with the number of HIV cases from 683 cases in 2011 to 1,729 cases in the year 2017 (Kemenkes RI, 2018).

Lack of knowledge and low awareness of HIV-AIDS causes a negative stigma that can hinder efforts to prevent and treat HIV-AIDS in Indonesia. It was reported that 75% of PLWHA who knew their HIV status, 39.6% of PLHIV who received ARV drugs and only 32.4% of PLHIV who received ARV had experienced a decrease in viral load. This low elimination target is influenced by stigma from families, health workers and the wider community towards PLHIV. The lack of support from people around them also has an impact on the low level of compliance of PLHIV with ARV treatment (Rokom, 2021).

HIV-AIDS can affect everyone, especially adolescents who are the age group most vulnerable to infection with HIV-AIDS (CIMSA, 2019). The age range for adolescents according to WHO (World Health Organization) is 10-19 years old (WHO, 2014). Meanwhile, according to the Regulation of the Minister of Health of the Renon-vocational of Indonesia number 25 of 2014 adolescents are included in the 10-18 year age group (Menteri Kesehatan RI, 2014). Non-vocational / vocational high school students in Indonesia have an average age of 16-18 years, thus they are included in the adolescents' group.

Adolescents are a risk group because of the behaviour of adolescents who have short relationships and multiple partners or friends with risky behaviour (Nurwati & Rusyidi, 2019). Adolescence is filled with unstable emotions, easily distracted, willing to try new things hence, they are prone to negative behaviour such as smoking, drinking, using drugs, and having free sex that can risk contracting HIV-AIDS. This period is the most vulnerable to contracting HIV-AIDS because adolescents have high social mobility (Pratiwi & Basuki, 2012).

There are 36% of men and 30% of women aged 15-24 years had comprehensive knowledge about HIV and HIV prevention methods spread across 37 countries for the period 2011-2016 (UNAIDS, 2017). Knowledge of HIV-AIDS can influence a person's attitude and behaviour, thus people who have less knowledge of HIV-AIDS will stay away from people with HIV-AIDS and some even think that the disease is not dangerous (Nurwati & Rusyidi, 2019).

It is important for adolescents to know about HIV transmission because of the prevalence of free sex at risk of contracting HIV. Culture in Indonesia is also still taboo to talk openly about topics related to sex. Therefore, it is important to have the knowledge and attitudes of young people in HIV-AIDS prevention efforts. The purpose of this study analysed the relationship and differences between knowledge, attitudes of students, and types of schools (non-vocational and vocational high schools) in Surabaya, Indonesia.

## Methods

### Design and Participants

This study was a quantitative study with a cross-sectional study design. The population in this study were students of non-vocational / vocational high schools in the city of Surabaya ~~with a cross-sectional study~~. The population of this study were high school students in Surabaya. Samples were randomly selected in August-November 2019, which were taken as many as 187 students (15-19 years) from seven non-vocational / vocational high schools in Surabaya.

### Data Collection

An online survey designed to measure students' knowledge and attitudes towards HIV-AIDS and STIs was used as a tool for data collection. The online survey consisted of 15 questions related to knowledge about various aspects of HIV-AIDS and STIs and 6 questions to test students' attitudes towards HIV-AIDS and STIs. The online survey was developed with modification by researchers from the edutainment module and BKKBN related to HIV-AIDS and STI materials.

### Data Analysis

The data that had been obtained were analysed by using ~~IBM SPSS version 21.~~computer application. The data was found not to be normally distributed. The online survey was conducted with a validity test, R correlation test, which can be seen that 15 out of 20 questions about knowledge and all questions about attitude (6 questions) showed valid after being tested. The reliability test results showed that Cronbach's alpha knowledge value was 0.687 and attitude was 0.789, which means it was reliable.

The knowledge variable was categorized into two categories, namely good and poor, while attitudes were categorized into positive and negative. The correlation test between knowledge and attitudes was conducted with gender and school type by using the Chi-Square test. P value <0.05 was considered statistically significant. Ethical clearance has been obtained from the Health Research Ethics Committee of the Faculty of Nursing Universitas Airlangga (ref: No: 1392-KEPK).

## Results

### Respondent Characteristics

Respondents in this study were 187 students from seven schools in the city of Surabaya. Out of 187 students, 71 students (38%) were male and 116 students (62%) were female. Students from vocational high schools were 86 (46%) and students from non-vocational schools were 101 (54%) (Table 1).

**Table 1.**
Distribution of the study sample according to their general characteristics

| Characteristics | n | % |
|---|---|---|
| **School code** | | |
| A1 | 19 | 10.2 |
| A2 | 17 | 9.1 |
| A3 | 12 | 6.4 |
| A4 | 32 | 17.1 |
| A5 | 21 | 11.2 |
| K1 | 33 | 17.6 |
| K2 | 53 | 28.3 |
| **Gender** | | |
| Male | 71 | 38 |
| Female | 116 | 62 |
| **School Types** | | |
| Vocational high schools | 86 | 46 |
| Non-vocational high schools | 101 | 54 |
| Total | 187 | 100 |

**Table 2.**
Distribution of the study sample according to their responses to the question about knowledge about HIV-AIDS

| Content of questions | n | % |
|---|---|---|
| Knowledge about risk faced by adolescent | | |
| Good | 48 | 25.7 |
| Poor | 139 | 74.3 |
| Total | 187 | 100 |
| Knowledge about transmission and STI disease | | |
| Good | 125 | 66.8 |
| Poor | 62 | 33.2 |
| Total | 187 | 100 |
| Knowledge about transmission and prevention of HIV-AIDS | | |
| Good | 93 | 49.7 |
| Poor | 94 | 50.3 |
| Total | 187 | 100 |

**Table 3.**
Distribution of the study sample according to their responses to the question about attitudes toward HIV-AIDS (N = 187)

| Questions | Strongly disagree n (%) | Disagree n (%) | Neither agree nor disagree n (%) | Agree n (%) | Strongly agree n (%) |
|---|---|---|---|---|---|
| I think material about sexuality is important | 4 (2.1) | 4 (2.1) | 15 (8) | 76 (40.6) | 88 (47.1) |
| I think material about HIV-AIDS is important | 5 (2.7) | 5 (2.7) | 11 (5.9) | 75 (40.1) | 91 (48.7) |

| Questions | Strongly disagree n (%) | Disagree n (%) | Neither agree nor disagree n (%) | Agree n (%) | Strongly agree n (%) |
|---|---|---|---|---|---|
| I think material about sexuality is interested | 6 (3.2) | 15 (8) | 19 (10.2) | 90 (48.1) | 57 (30.5) |
| I think material about HIV-AIDS is interested | 4 (2.1) | 14 (7.5) | 15 (8) | 96 (51.3) | 58 (31) |
| I know how to maintain reproductive health | 9 (4.8) | 5 (2.7) | 6 (3.2) | 71 (38) | 96 (51.3) |
| I am willing to prevent HIV-AIDS | 5 (2.7) | 8 (4.3) | 9 (4.8) | 68 (36.4) | 97 (51.9) |

### Aspects of Student Knowledge about HIV-AIDS

Based on the aspects of non-vocational / vocational high school students' knowledge about HIV-AIDS, the majority of students knew about STI transmission and examples of STI diseases, such as syphilis, chlamydia, and gonorrhea (66.8%). While the majority of students do not know about the risks faced by adolescents (74.3%). Regarding knowledge of HIV-AIDS, more than half of the students knew about HIV-AIDS prevention by using protective equipment and about HIV-AIDS transmission (50.3%). Even so many students do not know about the names for people who have been infected by the HIV virus and are already positive for AIDS and the names for the prevention of HIV-AIDS in a loyal partner (49.7%) (Table 2).

### Aspects of students' attitudes about HIV-AIDS

Based on the aspect of high school / vocational high school students' attitudes about HIV-AIDS, more than half of the students strongly agree about the willingness to maintain reproductive health (51.3%) and the willingness to prevent HIV-AIDS (51.9%). More than half of the students agreed that HIV-AIDS material was interesting (51.3%). Meanwhile, students had the most disagreement about sexuality material that was interesting (8%) and the disagreement attitude about HIV-AIDS material was interesting (7.5%) (Table 3).

**Table 4.**
Cross tabulation between sex and school type with knowledge and attitudes (N = 187)

| Variable | Gender | | School type | | n (%) |
|---|---|---|---|---|---|
| | Male n (%) | Female n (%) | Vocational n (%) | Non-vocational n (%) | |
| Knowledge | | | | | |
| Good | 32 (41.6%) | 45 (58.4%) | 32 (41.6%) | 45 (58.4%) | 77 (100%) |
| Poor | 39 (35.5%) | 71 (64.5%) | 54 (49.1%) | 56 (50.9%) | 110 (100%) |
| **P value[2]** | **0.488** | | **0.385** | | |
| Attitude | | | | | |
| Positive | 36 (37.1%) | 61 (62.9%) | 41 (42.3%) | 56 (57.7%) | 97 (51.9%) |
| Negative | 35 (38.9%) | 55 (61.1%) | 60 (66.7%) | 30 (33.3%) | 90 (48.1%) |
| **P value[2]** | **0.803** | | **0.001*** | | |
| **P value Attitude*knowledge[1]** | | | | | **0.039*** |

[1]Pearson Chi-square
[2]Continuity Correction
*significant level set at p<0.05

### Results of the analysis between characteristics (sex and school type) with knowledge and attitudes

The analysis showed that there was no difference in knowledge (p = 0.488) and attitudes (p = 0.803) between male and female students. This study also showed that there was no difference in knowledge between non-vocational schools and vocational schools (p = 0.385), but there were differences in attitudes between non-vocational schools and vocational schools (p = 0.001). The Chi-Square test results show a relationship between knowledge and attitude (p = 0.039) (Table 4).

## Discussion

People of all ages and sexes can be susceptible to contracting HIV, but people between 15 to 25 are more at risk. Adolescents are a group that must be considered in HIV prevention efforts because they have started to reach the age of being sexually active and can be given access to education and information through education in schools (Thanavanh et al., 2013). Adolescents can be the group most at risk for HIV-AIDS transmission because of a lack of knowledge related to HIV-AIDS and may be more exposed to or engaged in risky behaviour (Othman, 2015).

Knowledge of HIV transmission in this study among students of general / vocational high schools can be concluded as good, that is, 95.2% of students answered correctly. A similar study was conducted in Erbil City, Iraq on high school students, the majority of the students knew about HIV transmission through sexual contact (94.3%), through blood transfusion (83.5%), through needles (73.7%) (Othman, 2015). Recent study in Sekondi-Takoradi metropolis, Ghana shows similar results, the majority of senior high school students know about HIV-AIDS transmission through sexual contact (97.3%), through needles (93.2%), through blood transfusions (94.6%) (Dzah et al., 2019). However, studies in Fako Division, South West Region, Cameeron, knowledge of HIV-AIDS transmission from a list of four transmission routes (unprotected sexual intercourse, blood transfusion, transmission of infected mother to child, needles and unsterile medical equipment) only a few students (30.2 %) have a very good knowledge of correctly answering the four routes of HIV transmission (Nubed & Akoachere, 2016).

Adolescent behaviours that can be at risk of contracting HIV such as having premarital sexual activity with friends or boyfriends, with commercial sex workers or even with fellow men, and drugs use. Adolescents tend to be more concerned with their friends, hence the wrong choice of friends lead them to fall into bad deeds or actions that are at risk of contracting HIV (Marni & Nita, 2019). A study in Trenggalek Regency, East Java, Indonesia shows that the majority of students (97.3%) support prevention of premarital sexual behaviour. Students with very good subjective norms of 97.3% have a positive attitude to prevent premarital sex behaviour. This is supported by the existence of social norms among students such as parents, schools and peers that support the prevention of premarital sexual behaviour (Nurmala et al., 2019; Nurmala, Ahiyanasari, et al., 2020).

Knowledge of mother-to-child transmission of HIV in this study was assessed as good, as many as 97.3% of students answered correctly. Similar results were found in a study in Erbil City, Iraq, the majority of students (75.3%) knew about mother-to-child transmission of HIV (Othman, 2015) and recent research in Sekondi-Takoradi metropolis, Ghana, amounting to 85.7% (Dzah et al., 2019). While according to a study in Dhaka city, only 36.7% of respondents answered that AIDS is transmitted from mother to child(Shirin & Ahmed, 1970).

Only 16.6% students in this study answer correctly about knowledge of what was not HIV transmission. Meanwhile, knowledge of fluids that cannot transmit HIV, the majority of students (89.3%) answered correctly. Another study on what is not HIV transmission found in the Samir Othman study stated that only 54.2% of students knew that shaking hands with HIV patients could not be infected and only half of students knew that wearing the same clothes and going through the swimming pool was not the route of HIV transmission (Othman, 2015). In contrast to the study of Seraphine Dzah et al, the majority of students (81.3%) knew that HIV-AIDS cannot be transmitted through handshakes, sharing clothes with HIV sufferers (69.7%), mosquito bites (70.1%), magic (73.8%), and more than a half of the students (60.5%) knew that the use of shared toilets with HIV sufferers was not a place of transmission (Dzah et al., 2019). Only 15.5% thought that being faithful by having sex with only one uninfected partner could transmit HIV (Nubed & Akoachere, 2016).

Knowledge of HIV prevention in this study showed that the majority of students (83.4%) knew the terms for HIV-AIDS prevention by providing knowledge, the majority of students (85%) knew the terms of HIV-AIDS prevention by using protective equipment, few students (44.9%) who know the terms of HIV-AIDS prevention by being faithful to one partner. Another study on knowledge of how to reduce the risk of HIV transmission, namely the majority of students (82.2%) answered by having faithful sex with one uninfected person, 85.3% of students answered by using condoms, 90.5% of students answered by abstaining from sexual intercourse as a prevention strategy (Nubed & Akoachere, 2016).

Knowledge of sexually transmitted infections in this study on average for each question more than half of the students have answered correctly. Students who answered correctly the types of sexually transmitted infections, namely gonorrhea (64.7%), syphilis (77.5%), chlamydia (59.9%). In line with research in the United States, 70.5% of students identified gonorrhea and 54.1% of students identified chlamydia as a sexually transmitted infection (Nsuami et al., 2010).

Someone who has good knowledge about HIV-AIDS will tend to have a positive attitude compared to others who have low knowledge (Nubed & Akoachere, 2016). In this study, there is a relationship between

knowledge and attitudes. The better the student's knowledge, the better the student's attitude in preventing HIV-AIDS. In line with a study in the Fako Division, South West Region, Cameeron that there is a significant relationship with a positive correlation between knowledge and attitudes about HIV-AIDS. The knowledge gained will form a better understanding of HIV transmission(Nubed & Akoachere, 2016). Adolescents with good knowledge were 1.9 times more likely to support HIV-AIDS prevention attitudes than adolescents with poor knowledge (Tiranda et al., 2018).

The results of this study indicate that there is no gender difference with knowledge and attitudes about HIV-AIDS among high school/ vocational high school students. This is in line with a study in Yogyakarta, Indonesia, showing no relationship between gender and student attitudes towards HIV-AIDS prevention (Tiranda et al., 2018). A study in Shiraz, Iran showed that there was no difference between the sexes and high school students' knowledge of HIV-AIDS. however, the comparison showed men had better knowledge about the causes of AIDS and its transmission. Boys were judged to have a higher negative attitude towards HIV patients than girls (Dehghani et al., 2017).

In contrast to Samir Othman's study, it shows that there is a significant relationship between gender and knowledge of HIV-AIDS. Male has higher knowledge, it is because male students want to learn something taboo and have great curiosity. Therefore, they invite themselves to discuss HIV-AIDS with their friends (Othman, 2015). Studies in Bangladesh also showed male students have a higher knowledge of HIV-AIDS than female (Huda & Amanullah, 2013).

The results of this study indicate that there is no relationship between the type of school (vocational/ non-vocational) with knowledge and there is a relationship between the type of school and attitudes about HIV-AIDS. Senior High School is divided into science, social studies, and language majors. Meanwhile, Vocational High Schools have more various majors according to their talents and interests. There is no relationship between the type of school and student knowledge which can be caused by the ease of accessing information supported by facilities in senior high schools and vocational schools. School facilities that support such as libraries, computers and the internet can be used by students to access information about HIV-AIDS so as to increase students' knowledge in both general and vocational high schools

According to the researcher's analysis, there are differences between types of schools and attitudes because in vocational high schools students are more preoccupied with the number of practicum according to their vocational and vocational students are more focused on the world of pr-school work so that they have low interest in health efforts, in contrast to students in general high school who have enough free time to add knowledge in various matters including efforts to prevent HIV so that it creates a positive attitude.

Peer education is a method that can increase knowledge, attitudes, self-efficacy, and positive adolescent behaviour towards health problems in adolescents regarding disease prevention (Ghasemi et al., 2019). A study in Khartoum, Sudan shows that intervention programs using peer education methods can increase students' knowledge, among others: knowledge of AIDS-causing agents increased from 75.5% to 83.2%, knowledge about the spread of HIV through mosquitoes increased from 77.7% to 81.5%, knowledge about increased risk having multiple sex partners increased from 47.5% to 83.5%. Students' attitudes also increased regarding youth vulnerability to HIV from 70% to 83%. Positive attitudes regarding voluntary HIV testing also increased from 84.3% to 91.5%. The knowledge and attitudes of students increased after receiving information from their peers who had been trained to become peer educators. Therefore, peer education is an effective approach to increase students' knowledge and attitudes regarding HIV so as to prevent HIV risky behaviour (Hamad Mohammed Ali et al., 2015). A pilot study found that peer assisted learning is effective for facilitating learning in allied health science students (Guraya & Abdalla, 2020). The peer education method makes adolescents more aware of their role as peer educators, namely as custodians of confidential information, motivators, sources of information, and discussion partners (Nurmala, Pertiwi, et al., 2020).

## Conclusions

This study provides preliminary data from a region on the knowledge and attitudes of general and vocational high school students towards HIV-AIDS. This study highlights that many students still lack knowledge regarding the terms for the risks faced by adolescents, the prevention of HIV-AIDS by being faithful toward one partner, people who have been infected with the HIV virus and are already AIDS positive, and activities that do not transmit HIV-AIDS. In this study, students also found negative attitudes due to a lack of interest in learning HIV materials.

Based on the results of the research, there is a relationship between the type of school and student attitudes, while there is no relationship between gender and knowledge and attitudes and there is no relationship between the type of school and knowledge. Therefore, interventions are needed that are in accordance with the needs and characteristics of the two types of schools (vocational and non-vocational). Optimizing

existing youth health programs is needed for equal distribution of interventions at all school levels and all adolescents. The peer education method is considered quite effective by combining two types of schools (vocational and non-vocational) so that the intervention is appropriate, according to the needs and characteristics of adolescents. Therefore, the intervention through this method can improve knowledge, attitudes and behavior of HIV-AIDS prevention both for adolescents who attend public schools and vocational schools.

## Author Contributions

Conceptualization, I.N., L.A.S. and M.; Methodology, I.N., Y.P.D. and M.; Supervision and validation, I.N., and M.; Formal Analysis, N.R. and Y.P.D.; Writing – Original Draft Preparation, N.R. and Y.P.D.; Writing – Review & Editing, I.N, L.A.S. and M. All authors have read and agreed to the published version of the manuscript.

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## Institutional Review Board Statement

Approval was obtained from teacher representatives from each school and the Education Office. The entire online survey was explained to students to be filled in themselves by first filling out the informed consent. Ethical clearance has been obtained from the Health Research Ethics Committee of the Faculty of Nursing Universitas Airlangga (ref: No: 1392-KEPK).

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## Conflicts of Interest:

The authors declare no conflict of interest.

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