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Inda Pusvitasari^a, Asmarani Harma^b, Satria Perdana^c, Surya Dharma^d

^aUniversitas Syekh Yusuf Al Makassar Gowa, Indonesia, indapusvitasari@usy.ac.id

^b Universitas Syekh Yusuf Al Makassar Gowa, Indonesia, asmaraniharma@usy.ac.id

^c Universitas Syekh Yusuf Al Makassar Gowa, Indonesia, satriaperdana@usy.ac.id

^dHEPI UKD SULSEL, Indonesia, suryadharmamat@gmail.com

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The relationship of health literacy and adolescent HIV-AIDS prevention behavior: a case study of vocational school adolescents in Gowa Regency

Inda Pusvitasari^{a*}, Asmarani Harma^b, Satria Perdana^c, Surya Dharma^d

^{a*}Universitas Syekh Yusuf Al Makassar Gowa, Indonesia, indapusvitasari@usy.ac.id

^bUniversitas Syekh Yusuf Al Makassar Gowa, Indonesia, asmaraniharma@usy.ac.id

^cUniversitas Syekh Yusuf Al Makassar Gowa, Indonesia, satriaperdana@usy.ac.id

^dHEPI UKD SULSEL, Indonesia, suryadharmamat@gmail.com

Corresponding Author: indapusvitasari@usy.ac.id

Abstract

Adolescents are the group most at risk of HIV-AIDS transmission because adolescence is the period when there is the highest social mobility and will open opportunities for them to be exposed to various physical and psychological changes. As a result, these adolescents have a high vulnerability to the transmission of multiple types of diseases, including HIV-AIDS. The results of interviews with several adolescents who are students at the high school level in Gowa Regency obtained information that adolescents view and evaluate people who have HIV-AIDS. Adolescents answer that they tend to avoid and hate them. According to the explanations of several youths, this was all due to the lack of information obtained, and the school had not yet provided a curriculum on HIV-AIDS in schools. Then, the results of interviews with several high school teachers revealed that no research had been conducted related to HIV-AIDS prevention behavior. On the other hand, the incidence of communicable and non-communicable diseases is closely related to a person's health literacy. The condition of the world of health, which is increasingly more complex than various diseases, certainly requires a skill in health literacy owned by every individual, including adolescents. Based on this, a study was conducted which aimed to reveal and find out 1) the description of health literacy and HIV-AIDS prevention behavior in high school youth in Gowa District, 2) the relationship between health literacy and HIV-AIDS prevention behavior in high school youth in Gowa District. The data collection technique uses a Likert scale questionnaire, and the data analysis technique uses chi square analysis. The results of the study showed that 1) the health literacy of SMK youth in Gowa Regency was generally low, 2) the HIV-AIDS prevention behavior of VOCATIONAL SCHOOL youth in Gowa Regency was generally low, 3) there was a relationship between health literacy and HIV-AIDS prevention behavior in SMK adolescents in Gowa Regency.

Keywords: Health literacy, HIV-AIDS, prevention behavior, adolescents

1. Introduction

Adolescence is closely related to psychological development during puberty and is accompanied by sexual development. Adolescence is an age that is experiencing increased vulnerability to various health risks, especially those related to sexual and reproductive health, including increased threats from HIV-AIDS (Darmawati et al., 2021). Adolescents are the group most at risk of HIV-AIDS transmission because adolescence is a time when individuals are at the highest social mobility and will open up opportunities for them to be exposed to various social, cultural, cultural, as well as physical and psychological changes (Ariyanti, 2020). As a result, these adolescents have a high vulnerability to the transmission of various types of diseases, including HIV-AIDS. HIV-AIDS can be caused by several factors, including sexual relations, lack of knowledge or information about how to prevent HIV-AIDS, direct contact with blood, and unsterile needles/using needles together (Sarigul et al., 2019).

The results of interviews with several teenagers who were students at the high school level in Gowa Regency showed that teenagers viewed and assessed negatively people who had HIV-AIDS, and teenagers answered that they tended to avoid and hate them. According to the explanation of several teenagers, this was all due to the lack of information obtained, and the school had not yet provided a curriculum regarding HIV-AIDS at school. Information was also obtained that, generally, teenagers did not understand HIV-AIDS, and so they did not know how to prevent it. Then, the results of interviews with several high school teachers revealed that no research had ever been conducted related to HIV-AIDS prevention behavior. HIV-AIDS prevention measures can be classified as those who have not been infected, such as by understanding how HIV-AIDS is transmitted, knowing the status of friends, avoiding injection of drug users, performing circumcision, conducting regular HIV-AIDS tests, telling sex partners that you have been positively infected with HIV-AIDS, prevent donation blood and organ donation (Miah et al., 2021). The existence of knowledge about HIV-AIDS can influence adolescents to behave according to the knowledge gained (Sumartini & Maretha, 2020). Exposure to information sources affects HIV-AIDS prevention behavior (Santoso & Akbar, 2018); this proves that exposure to information sources plays a vital role in changing HIV-AIDS prevention behavior.

Previous research shows that the incidence rate of communicable and non-communicable diseases is closely related to health literacy (Xiao et al., 2020). Health literacy skills are needed to access information, especially in the health sector. The world of health conditions, which are increasingly becoming increasingly complex from various diseases, certainly requires health literacy (Kemp et al., 2021). Health literacy has become a concern for everyone involved in health promotion and protection, disease prevention, early screening, health care, and maintenance, as well as policymakers (Wang et al., 2021).

Community behavior in the health sector is determined, among other things, by the level of health literacy. However, in reality, until now, there are still many young people who need better health literacy skills. Therefore, research was carried out with the formulation of the problem, namely: 1) what is the description of health literacy and HIV-AIDS prevention behavior in high school adolescents in Gowa Regency? 2) Is there a relationship between health literacy and HIV-AIDS prevention behavior in high school adolescents in Gowa Regency?

Problem-solving approach

Behavior is an individual's actions or actions that can be observed or even studied; behavior can be controlled only concerning events or situations that can be observed (Suryaningsih, 2020), (Mahmudah et al., 2020). Health behavior refers to a person's response to stimuli or objects related to illness or disease, the health service system, food, drink, and the environment (Bourassa et al., 2020).

One of the diseases that attack many young people is HIV-AIDS. HIV is a virus that attacks the immune system and then causes AIDS. This virus attacks a type of white blood cell responsible for warding off infection (Arias et al., 2020), (Aldhalei & Bhagavathula, 2020). A reduced CD4 value in the human body indicates a reduction in white blood cells or lymphocytes, which should play a role in overcoming infections that enter the human body (He et al., 2019). The way to prevent the HIV-AIDS virus is to break the chain of transmission. Prevention of HIV-AIDS can be linked to forms of transmitting HIV. One way to avoid this is to

conduct early counseling for groups at high risk for infection with HIV-AIDS (Ernawati et al., 2021). From these various counseling processes, various knowledge is born, which will later become preventive behavior, where the knowledge or attitude of a person in the health sector is known as the concept of *health literacy*.

Health literacy appears in health education. It can be defined that *health literacy* shows the extent to which individuals can obtain, process, and understand basic health information and health services needed to be able to make appropriate health decisions (Wahl et al., 2021), (Naccarella & Horwood, 2021). *Health literacy* is based on the interaction between individual skills and the education system, health system, and socio-cultural factors (Jung et al., 2022).

Health literacy has a vital role in overcoming various health problems, including the issue of HIV-AIDS. Health literacy covers the ability to obtain, process, and understand the information and services needed to make the right health decisions. Still, health literacy is an essential resource for shaping the behavior of daily life that supports health (Muscat et al., 2022). Having health literacy skills is a need for all individuals because each individual is constantly faced with situations requiring them to make health-related decisions and apply them.

2. Method

This research uses a survey method that is a cross-sectional study, in line with the research objective, namely to understand and reveal the relationship between health literacy and HIV-AIDS prevention behavior among high school teenagers in Gowa Regency. The research design is presented in the following Figure 1.

Figure 1

Research design



Information:

X: health literacy

Y: HIV-AIDS prevention behavior

This research will be carried out at State Vocational High Schools (SMK) in Gowa Regency and will last 6 months. The population in this study was all teenagers who were students at the State Vocational School level in Gowa Regency, totaling 6,803 students. To obtain a representative sample, the researcher determines the number of samples using the Slovin formula with $e = 10\%$ according to the following formula: $n = \frac{N}{1+N.e^2} = \frac{6.803}{1+6.803 \cdot (0,10)^2} = 98,55$ rounded up to 99 students, the sampling technique will be used *proportional random sampling* to obtain research data. The variables measured in this study include the independent variable (X) is health literacy, which is measured by indicators 1) gaining access to related health information, 2) understanding and realizing the health information they have, and 3) showing confidence in using health information. Moreover, the dependent variable (Y) is HIV-AIDS prevention behavior, which is measured by indicators 1) personal experience, 2) influence of other people, 3) influence of culture, and 4) educational and religious institutions. For research data collection instruments, a questionnaire is used to obtain quantitative data. This technique uses a Likert scale, which then creates good criteria (2) if the respondent's score is \geq the mean value and

poor criteria (1) if the respondent's score is < the mean value.

Furthermore, to obtain valid instruments in this study, the instruments developed will be processed through:

- a) Content validity test by 2 experts using the Gregory formula with the instrument criteria said to meet content validity if it has a content validity coefficient > 0.75.
- b) Construct validity test using confirmatory factor analysis, with a factor loading value of ≥ 0.40 , the item is declared valid.
- c) Reliability test using the Cronbach alpha formula with an alpha value > 0.7, the instrument's reliability is fulfilled (Azwar, 2019).
- d) As for statistical techniques in analyzing data to achieve research objectives, namely by using descriptive statistical analysis and chi-square (Adiputra et al., 2021), which is then tested if χ^2 count > χ^2 table or if the sig-p value < α , at a significance level of 0, 05 then the hypothesis is accepted.

3. Results and Discussion

This research aims to reveal and determine 1) the description of health literacy and HIV-AIDS prevention behavior among vocational school adolescents in Gowa Regency, 2) the relationship between health literacy and HIV-AIDS prevention behavior among vocational school adolescents in Gowa Regency. This research will take place from June – August 2023 and takes place at the Gowa Regency Vocational School.

Data Collection Techniques and Research Instruments

The data collection technique used was a Likeart scale questionnaire with alternative answer that were very appropriate (SS), appropriate (S), not suitable (TS) and very inappropriate (STS), based on the assumption that an even number of classifications was used with the aim that the scale (*dummy variable*) correctly (Retnawati, 2016) In developing the instrument for each variable, content validity testing was carried out using the Gregory formula. The criteria in the content validity test are based on an internal consistency coefficient value of > 0.75 (Gregory, 2015). The following is a summary of the results of content validity testing.

Table 1

Summary of Content Validity

Instrument	Number of Items	Internal consistency coefficient value
Health literacy	9	1
HIV-AIDS prevention behavior	8	1

Paying attention to the test summary results in the table above, it can be stated that based on the expert's assessment of the instrument that was built, it has met content validity by the expert. Then, in testing construct validity using Confirmatory Factor Analysis (CFA). Confirmatory Factor Analysis (CFA) was used to determine construct validity using the maximum likelihood method. The criteria include the results of measurements of Kaiser Meyer Olkin (KMO) > 0.5 0 and Measure of Sampling Adequacy (MSA) > 0.50. Bartlett's test obtained a sig value of 0.00 for further analysis. Then, the anti-image correlation value was >0.5 0 to be included in the factor analysis. The validity of the items was seen from the loading factor, namely $\geq 0.4 0$ (Sudaryono, 2019). Testing the construct validity of each instrument in this study used the SPSS for Windows program. The following shows the test

results.

Health literacy instrument construct validity test

Health literacy instrument was measured through 3 indicators as observed variables with a distribution of 9 items. Indicator 1 is 3 items, indicator 2 is 3, and indicator 3 is 3. The summary of the test results is presented in the following Table 2.

Table 2

Summary of KMO Test and Bartlett test

Kaiser-Meyer-Olkin Measures of Sampling Adequacy.		.860
	Approx..chi-square	1606,876
Bartlett's Test of Sphericity	Df	36
	Sig.	,000

From the results of testing the construct validity of the health literacy instrument, information was obtained that, based on the test results, Bartlett's test results showed a sig value. 0.00, which is smaller than 0.05, and the KMO and MSA coefficients are 0.86, which is greater than 0.50, then the sample adequacy for carrying out factor analysis has been fulfilled. It is supported by information on anti-image correlation values in 9 items. Have an MSA > 0.50, which can then be included in determining the factor. Further, with the Maximum Likelihood method, it was found that as many as 9 items showed their respective factor loads based on their indicators. Of the 9 items, it shows that there are 9 items from indicators 1, 2, and 3, which have a factor loading value of ≥ 0.4 . Next, 9 items were extracted and rotated again to see the suitability of the factor model with the goodness of fit test to obtain a chi-square value of 405,378 and a significance value of $0.00 < \alpha (0.05)$. Based on this process, it was concluded that the health literacy instrument 9 statement items form a factor. The results of the analysis show that all valid items are found in the 3 indicators as observed variables and have made a significant contribution to measuring the latent variables.

Results of the construct validity test of the HIV-AIDS prevention behavior instrument HIV-AIDS prevention behavior instrument was measured through 4 indicators as observed variables with a distribution of 8 items. Indicator 1 is 2 items, indicator 2 is 2 items, indicator 3 is 2 items, and indicator 4 is 2 items. The summary of the test results is presented in the following Table 3.

Table 3

Summary of KMO Test and Bartlett test

Kaiser-Meyer-Olkin Measures of Sampling Adequacy.		.839
	Approx..chi-square	1270,863
Bartlett's Test of Sphericity	Df	28
	Sig.	,000

The results of testing the construct validity of the city image instrument obtained information that, based on Bartlett's test results, showed a sig. 0.00, which is smaller than 0.05, and the KMO and MSA coefficients are 0.83, which is more significant than 0.50 then the adequacy of the sample to carry out factor analysis has been fulfilled, then obtained by information on the value of anti-image correlation on 8 items have an MSA > 0.50 which can then be included in determining the factor. Further, using the Maximum likelihood method, it was found that as many as 8 items showed their respective factor loads based on their indicators. Of the 8 items it shows that there are 10 items from indicators 1, 2, 3, and 4 have a factor loading

value ≥ 0.4 . Then, 8 items were extracted and rotated again to see the suitability of the factor model with the goodness of fit test so that a chi-square value of 189,118 was obtained and a significance value of $0.00 < \alpha$ (0.05). The results of the analysis show that all valid items are found in the 4 indicators as observed variables and have made a significant contribution to measuring the latent variables.

Reliability test

The reliability test for each instrument in this study used Cronbach's alpha formula with the help of the SPSS 20 program. The criteria for an instrument to meet the reliability requirements is if the reliability coefficient value based on the calculation results is > 0.70 (Azwar, 2019). The following is a summary of the reliability test results for each instrument in this study.

Table 4

Reliability test

Instrument	Reliability Value	Information
health literacy	0.97	Reliable
HIV-AIDS prevention behavior	0.96	Reliable

Based on the table above, the reliability coefficient value of the health literacy instrument was 0.97, the HIV-AID prevention behavior instrument was 0.96, and the reliability value of the instrument was more significant than 0.70, so the three instruments met the reliability requirements.

Overview of health literacy

Presentation and calculation of research results related to health literacy variables are data processing with the help of the SPSS for windows program to find out and interpret a picture of health literacy in general. The results of the descriptive analysis are presented in Table 5.

Table 5

Descriptive statistical results of health literacy

Category	Frequency	Percentage (%)
Low	57	57.60
Tall	42	42.40
Total	99	100

Based on the table above, it can be seen that the subjects in this study from the data processing carried out stated that the respondents in the low category regarding health literacy were 57 people or 57.60%. In comparison, the respondents who were in the high category in terms of health literacy were 42 people or 42.40%. Based on this description, it can be concluded that students' health literacy is generally low. This can be seen from 57 people out of 99 respondents who were the research sample. There were 57.60% who were in the low category in terms of health literacy.

Overview of HIV-AIDS prevention behavior

Presentation and calculation of research results relating to HIV-AIDS prevention behavior variables is data processing with the help of the SPSS for Windows program to determine and interpret the picture of HIV-AIDS prevention behavior in general. The results of the descriptive analysis are presented in Table 6.

Table 6

Descriptive statistical results of HIV-AIDS prevention behavior

Category	Frequency	Percentage (%)
Low	52	52.50
Tall	47	47.50
Total	99	100

Based on the table above, it can be seen that the subjects in this study from the data processing carried out can be stated that the respondents were in the low category in terms of HIV-AIDS prevention behavior. as many as 52 people or 52.50%, while respondents who are in the high category in terms of HIV-AIDS prevention behavior as many as 47 people or 42.50%. Based on these descriptions, it can be concluded that HIV-AIDS prevention behavior for students in general is low. This can be seen from the 52 people out of the 99 respondents who became the research sample; there were 57.60% who were in the low category in terms of HIV-AIDS prevention behavior. Data analysis used to determine the relationship between health literacy and HIV-AIDS prevention behavior was chi-square analysis with the help of the SPSS for Windows program. The following is a summary of the results of the chi-square analysis.

Table 7

Summary of chi-square analysis results

Health literacy	HIV-AIDS preventive behavior		Total	χ^2 count	Sig-P
	Low	Tall			
	(n)	(%)	(n)	(%)	(%)
Low	40	70.20	17	29.80	57
Tall	12	28.60	30	71.40	42
Total	52	52.50	47	47.50	99

Based on Table 7, the calculation results show that in terms of low health literacy with low HIV-AIDS prevention behavior there were 40 respondents (70.20%), in terms of low health literacy with high HIV-AIDS prevention behavior there were 17 respondents (29.80), while in terms of high health literacy with low HIV-AIDS prevention behavior there were 12 respondents (28.60), then in terms of high health literacy with high HIV-AIDS prevention behavior there were 30 respondents (71, 40). Furthermore, to test the hypothesis and the significance or significance is continued by using the chi square test. Looking at table 7, the results of the calculation of χ^2 count are 16.78 and $sig P (0.00) < sig \alpha (0.05)$. Based on the results of these calculations, it can be revealed that H_0 in this test is rejected and H_1 is accepted, so it is concluded that there is a significant relationship between health literacy and HIV-AIDS prevention behavior in vocational youth in Gowa Regency. Based on the results of this analysis, it can be stated that there is a tendency where the lower the health literacy of adolescents, the behavior of HIV AIDS prevention will decrease, and vice versa where the higher the health literacy of adolescents, the behavior of HIV AIDS prevention will be higher or better.

Discussion

One of the primary interventions to understand appropriate and suitable health information is through health information literacy. Health information literacy interventions are useful in increasing public awareness of obtaining the health services and information they need to make informed decisions (Shipman et al.,

2009). Health literacy refers to the personal characteristics and social resources necessary to access, understand, and use information to make decisions about their behavior and health (Brabers et al., 2017).

In connection with efforts to improve HIV-AIDS prevention behavior in adolescents, one strategy is to increase adolescent health literacy. Through this research, it can be stated that health literacy has a significant relationship with HIV-AIDS prevention behavior among vocational school teenagers in Gowa Regency. The suspicion that there is a relationship between health literacy and HIV-AIDS prevention behavior in adolescents is proven in this research. Then, it can also be stated that the better the health literacy of teenagers, the better the HIV-AIDS prevention behavior in teenagers will be.

Good health literacy can help teenagers understand better about HIV-AIDS, including how this virus is transmitted, its impact on health, and ways to prevent transmission. Adolescents who have a good understanding of HIV-AIDS will tend to be more likely to adopt preventive behavior (Batubara et al., 2020). Good health literacy enables adolescents to analyze complex health information, evaluate risks, and make wise decisions regarding HIV-AIDS prevention behaviors. They will be able to consider the consequences of their actions and choose to take appropriate preventive measures (Purnama & Witdiawati, 2018). Good health literacy enables youth to seek and obtain accurate information about HIV-AIDS. They can access trusted sources, such as official government sources or health agencies that provide the knowledge necessary to make informed decisions regarding preventive behavior (Fuady et al., 2016). Paying attention to the results of the analysis and study above, it can be concluded: 1) health literacy of vocational school teenagers in Gowa Regency is generally low 2) HIV-AIDS prevention behavior Vocational school teenagers in Gowa Regency are generally low, 3) there is a relationship between health literacy and HIV-AIDS prevention behavior among vocational school teenagers in Gowa Regency.

4. Conclusion

HIV-AIDS is a disease that can cause death for sufferers and can attack all age groups, including school-aged children. In the Ottawa Charter strategy, it is stated that one of the efforts to promote health is through individual skills. Public health is the aggregate health consisting of individuals, families, and groups. Therefore, public health will be realized if the health of individuals, families and groups is realized. As a basis for skill, of course individuals and society need to be equipped with various health knowledge regarding healthy ways and patterns of living. One of these efforts is to increase health information literacy. Where campaigns and outreach are quite effective activities for increasing community knowledge and literacy. Campaigns and outreach are activities that need to be carried out continuously in order to increase public knowledge and literacy (Fuady, et.al. 2018; Damayani, et.al. 2015). Based on the results of the analysis and discussion that has been carried out, it can be concluded that there is a significant relationship between Health Literacy and Adolescent HIV-AIDS Prevention Behavior in Gowa Regency.

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