

Socio-Demographic, Educational, and Attitudinal Factors Related to Comprehensive Knowledge about HIV/AIDS among Young Women 15-24 Years Old in Indonesia

ABSTRACT

Aims: This study aimed to determine the association of socio-demographic, educational, and attitudinal factors with knowledge about HIV/AIDS among young women aged 15-24 in Indonesia.

Methods: This study was a quantitative study with observational analytical and retrospective cohort study design. The data used was secondary data derived from the Individual Recode Dataset (IR File), 2017 Demographic Health Survey (IDHS). A total of 12,632 young women, aged 15 to 24 years, were involved in the study in Indonesia. This study utilized univariate, bivariate (chi-square), and multivariate (binary logistic regression) tests.

Findings: All variables were found to have a significant association with knowledge about HIV/AIDS. The most influential variable was the source of information about AIDS, comparing categories of no information versus more information ($p < 0.001$, aOR= 2.53, 95%CI= 2.30-2.78).

Conclusion: One way to reduce the prevalence of HIV/AIDS is by increasing comprehensive knowledge about HIV/AIDS. Therefore, it is essential to enhance knowledge about HIV/AIDS, especially among vulnerable groups such as young women residing in rural areas, with low socioeconomic status, and low levels of education. Hence, the utilization of all available information and the equitable distribution of health facilities are crucial.

Keywords: HIV/AIDS, Knowledge, Young women, Indonesia

INTRODUCTION

Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) is a significant public health concern globally. Despite substantial advancements in understanding and managing the disease, a definitive cure for HIV infection has yet to be discovered [1]. Data from UNAIDS indicate a persistent increase in the number of People Living with HIV (PLWH) over the years, rising from 27.2 million in 2000 to 32 million in 2010, reaching 36.7 million in 2017, and further increasing to 39.9 million in 2023 [2, 3].

The HIV epidemic in the Asia-Pacific region has a significant impact on key population groups, particularly younger individuals between the ages of 15 and 24, particularly young individuals aged 15-24, who account for approximately 25% of new HIV infections. In Indonesia, this trend is even more pronounced, with nearly half of all new HIV infections occurring among young people [4]. The number of PLWH in Indonesia has increased significantly over the past decade. In 2005, the estimated number of PLWH was 290,000. This number increased rapidly to reaching 510,000 in 2010 and further increased to 620,000 by 2016 [2].

There are three types of education: formal, informal, and non-formal. Formal education is conducted in formal educational institutions, such as schools, which are structured and promoted through direct teaching (by teachers, etc.). Non-formal education is similarly structured, yet occurs outside formal education (field trips, etc). Informal education is used to describe unstructured forms of learning that are not directly taught and can be accessed by anyone, in any place. In conclusion, the concept of education extends to include access to information through various channels, including other individuals, organizations, printed materials, and mass media, as parts of education [5]. Health education can be defined as an activity that aims to provide individuals with information about the nature and causes of health and disease, as well as the individual's level of risk associated with lifestyle-related behaviors, which motivate individuals to accept the necessary behavioral changes that affect their value system, beliefs, and attitudes [6]. In this context, information about HIV/AIDS can be accessed through various sources.

Stigma, a complex social phenomenon, encompasses a range of negative attitudes, beliefs, and behaviors directed towards individuals or groups perceived as different or deviant. It involves the process of labeling and marginalizing individuals based on specific characteristics, often leading to discrimination and social exclusion. In the context of HIV/AIDS, stigma manifests in various forms, including fear, prejudice, and discrimination, leading to devastating consequences such as social isolation, denial and silence, self-blame and guilt, and violence and discrimination. The factors contributing to AIDS stigma are multifaceted, encompassing the nature of transmission, the impact on individuals, societal norms and beliefs, and the accessibility of healthcare services. The stigma associated with AIDS endangers the lives of others [7].

Previous studies have indicated that socio-demographic, educational, and attitudinal factors are associated with comprehensive knowledge about HIV/AIDS [8-12]. We aimed to determine the socio-demographic factors, education, and attitudes related to comprehensive knowledge of HIV/AIDS among young women aged 15-24 years in Indonesia. It is anticipated that this research will facilitate the

Indonesian state's efforts to address the HIV/AIDS challenge, thereby enabling the realization of government initiatives within the context of the goal of achieving an HIV/AIDS-free society in 2030 [13]. This study aimed to determine the association of socio-demographic, educational, and attitudinal factors with knowledge about HIV/AIDS among young women aged 15-24 in Indonesia.

MATERIALS & METHODS

Selection and Description of Participants

The total population in this study was 49,627 from the Individual recode dataset (IR File), with the unit of study being eligible women aged 15-49. The first inclusion criterion was young women aged 15-24 years, there were 14,766. After that, excluding missing data, obtained a defined population of 12,632 who were used as participants in this study. The sampling flowchart is described in Figure 1.

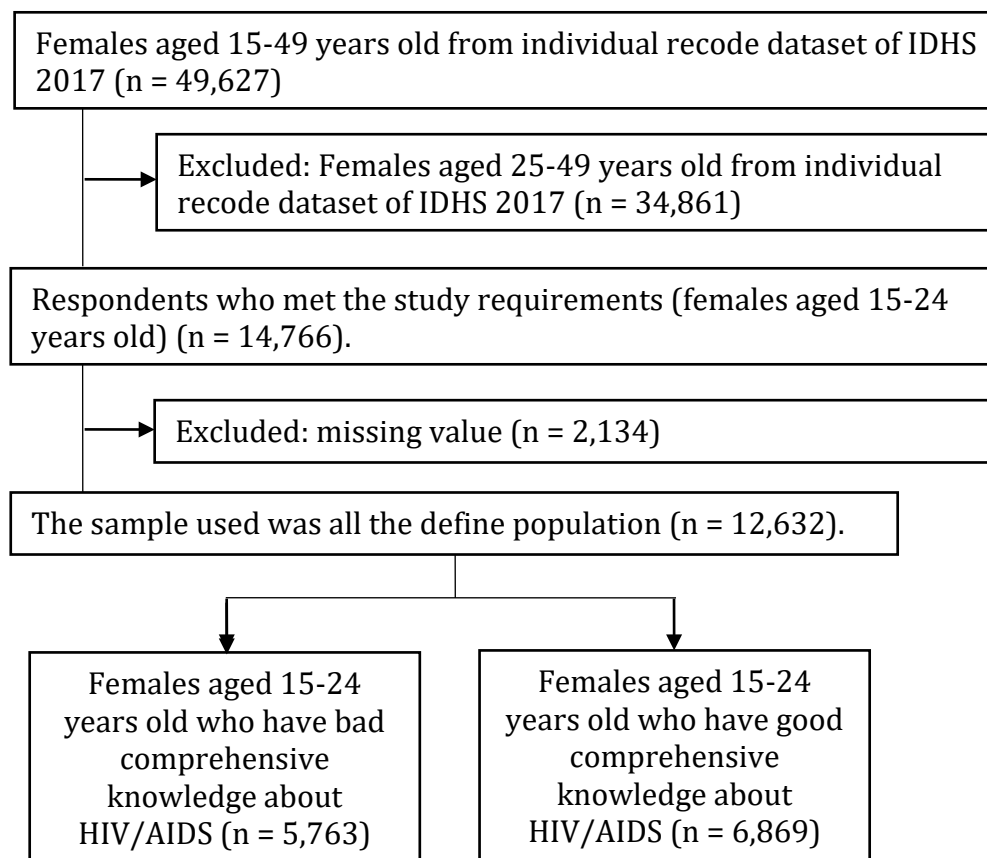


Figure 1. Sampling flowchart

Technical Information and Statistics

Study Design

This study was a quantitative study with observational analytical and retrospective cohort study design. The data used was secondary data derived from the 2017 Indonesian Demographic Health Survey (IDHS).

Instrument

The instrument used in this study was a standardized questionnaire from DHS 2017. The questionnaire used included questions about socio-demographics, education and sources of information about HIV/AIDS, Attitude towards PLWH, and knowledge about HIV/AIDS.

There were thirteen questions about sources of information about AIDS (listed in Table 2). The classification of categories was determined through the calculation of quintiles. The “no information” category means that the participant has no information from any source or has <2 sources of information. The “less information” category means that the participant has two sources of information. The more information category means that the participant has ≥ 3 sources of information.

There are nine questions regarding the stigmatization attitude towards PLWH (listed in Table 2). The determination of yes and no was calculated from the median answer. The “Yes” category means that the participant has a negative stigma and gives bad behavior to PLWH, where the score is <3 for good attitude answers. Conversely, the “no” category if the score is ≥ 3 for the good attitude answer.

While on knowledge about HIV/AIDS, there were ten questions (listed in Table 2). This category classification was determined by calculating the median. The “bad” category means that the participants have poor knowledge about HIV/AIDS, with <8 questions answered correctly. On the other hand, the “good” category means that the participant answered ≥ 8 questions correctly.

In addition, there are more modified variables, i.e. internet use and contraceptive use. In this study, the categories for the internet use variable were yes and no. The “no” category was derived from the categories: 1) “never,” 2) “yes, before last 12 months”, and 3) “yes, can't establish when”. The category “yes” was derived from the category “yes, last 12 months”. The categories for the variable contraceptive use in this study were yes and no. The category “no” was derived from the category “not using”, while the category “yes” was derived from categories other than “not using”.

Data analysis

This study utilized univariate, bivariate, and multivariate tests. The bivariate test used Chi-square, and the multivariate test used binary logistic regression to find the most influential variable.

Ethical consideration

The data obtained is free data from the DHS Program by registering and submitting a data request. Approved data received an authorization letter from email. In addition, this study has obtained ethical clearance from Health Research Ethics Commission, Faculty of Medicine, Universitas Negeri Semarang Number 422/KEPK/FK/KLE/2024.

FINDINGS

Table 1 describes the characteristics of participants with a total of 12,632 young women aged 15-24 years. Based on the results of univariate tests, it is known that

participants with poor knowledge about HIV/AIDS account for almost half (45.6%) of the total participants. the number of age groups were almost balanced, where the age group of 15-19 years was 53.1%. The majority of respondents lived in urban areas at 58.8%, with the richest economic level dominating at 21.7%, followed by richer at 20.6%. The education level is dominated by the secondary level with 71.5%. Participants were 77.3% unmarried and 65.6% not currently working. Most participants owned a mobile phone and used the internet, 90.9%, and 84.45% respectively. A total of 87.3% did not use contraception. For information sources, participants had many sources of information with more than 3 sources of information (more information) as much as 36.8%. In terms of stigmatization attitude towards PLWH, the majority of participants had a good attitude towards PLWH (61.9%).

Table 1. Univariate analysis

Variables	Frequency	Percentage (%)
Comprehensive knowledge about HIV/AIDS	5763	45.6
Bad	6869	54.4
Good		
Age		
15-19	6713	53.1
20-24	5919	46.9
Residence		
Rural	5209	41.2
Urban	7423	58.8
Working status		
No	8286	65.6
Yes	4346	34.4
Education level		
No education	13	1
Primary	494	3.9
Secondary	9038	71.5
Higher	3087	24.4
Wealth index		
Poorest	2262	17.9
Poorer	2493	19.7
Middle	2530	20.0
Richer	2604	20.6
Richest	2743	21.7
Marital status		
Unmarried	9762	77.3
Married	2870	22.7
Own mobile phone		
No	1144	9.1
Yes	11488	90.9
Internet use		
No	1975	15.6

Yes	10657	84.4
Contraceptive use		
No	11024	87.3
Yes	1608	12.7
Information sources about AIDS		
No information	3821	30.2
Less information	4167	33.0
More information	4644	36.8
Stigmatization attitude		
Yes	4816	38.1
No	7816	61.9

Table 2 illustrates the percentage of correct answers from participants on each question point regarding comprehensive knowledge about HIV/AIDS, sources of information about AIDS, and stigmatization attitudes among females aged 15-24 years in Indonesia. In comprehensive knowledge about HIV/AIDS, the question with the lowest correct answer was the question about can get HIV by sharing food with a person who has AIDS, where only 43.9% of participants answered correctly. All participants (100%) had heard about AIDS. Regarding the source of information, most participants got AIDS-related information from school/teacher, television, and the internet, by 62.2%, 53.9%, and 35.8% respectively. Meanwhile, the least sources of information were from religious institutions, books, and seminars/counseling, by 1%, 1.2%, and 1.3% respectively. For stigmatization attitude towards PLWH, 72.9% of participants were willing to care for relatives with AIDS. However, only very few people dare or do not hesitate to take HIV tests because of the reaction of other people if positive (7.5%), the rest were hesitate (92.5%). A total of six out of nine questions were answered with a positive attitude in less than 50%.

Table 2. Description of comprehensive knowledge about HIV/AIDS, sources of information about AIDS, and stigmatization attitude among females aged 15–24 years in Indonesia

Indicators	Correct answer	
	n	%
Comprehensive knowledge about HIV/AIDS		
1. Ever heard of AIDS	12832	100.0
2. Can get HIV by witchcraft or supernatural means	10778	85.3
3. Reduce the risk of getting HIV: always use condoms during sex	7152	56.6
	10112	80.1
4. Reduce the risk of getting HIV: have 1 sex partner only	6064	48.0
	5540	43.9
5. Can get HIV from mosquito bites	10591	83.8
6. Can get HIV by sharing food with a person who has AIDS	10353	82.0
	9130	72.3
7. A healthy-looking person can have HIV	10301	81.5
8. HIV transmitted during pregnancy		
9. HIV transmitted during delivery		

10.	HIV transmitted by breastfeeding		
Comprehensive knowledge about HIV/AIDS			
	Bad	5763	45.6
	Good	6869	54.4
Information sources about AIDS			
1.	Information from radio	845	6.7
2.	Information from television	6813	53.9
3.	Information from newspaper/magazine	1399	11.1
4.	Information from poster	816	6.5
5.	Information from health professional	1996	15.8
6.	Information from religious institution	125	1.0
7.	Information from school/teacher	7863	62.2
8.	Information from community meeting	587	4.6
9.	Information from friend/relative	3166	25.1
10.	Information from work place	388	3.1
11.	Information from internet	4522	35.8
12.	Information from book	152	1.2
13.	Information from seminar/counselling	169	1.3
Information sources about AIDS			
	No information	3821	30.2
	Some information	4167	33.0
	More information	4644	36.8
Stigmatization attitude			
1.	Would be ashamed if someone in the family had HIV	6554	51.9
2.	Would want HIV infection in family to remain secret	5374	42.5
3.	People talk badly about people with or believed to have HIV	1671	13.2
4.	Would be afraid to get HIV from contact with saliva from infected person	1568	12.4
5.	People hesitate to take HIV test because reaction of other people if positive	950	7.5
6.	Willing to care for relative with AIDS	9209	72.9
7.	Would buy vegetables from vendor with HIV	3366	26.6
8.	Would buy vegetables from vendor with HIV	7271	57.6
9.	Children with HIV should be allowed to attend school with children without HIV	3054	24.2
9.	People with or believed to have HIV lose respect from other people		
Stigmatization attitude			
	Yes	4816	38.1
	No	7816	61.9

Table 3 shows the results of a bivariate test between independent variables, including socio-demographic, educational, and attitudinal factors with the dependent variable on comprehensive knowledge about HIV/AIDS among young women age 15-24 in Indonesia. All independent variables were associated with comprehensive knowledge about HIV/AIDS. Young women aged 15-19 were 1.13 times more likely to have bad knowledge about HIV/AIDS than those aged 20-24.

Young women living in villages were 1.24 times more likely to have bad knowledge about HIV/AIDS. Young women who are not working are also 1.09 times more likely to have bad knowledge about HIV/AIDS.

At the education level, no education, primary, and secondary tend to have bad knowledge about HIV/AIDS than higher education level by 2.22, 1.94, and 1.59 times greater, respectively. Young women with the poorest wealth index have more bad knowledge about HIV/AIDS by 1.51 times than those with the richest wealth index. Young women who were unmarried and did not use contraceptives had worse knowledge by 1.06 and 1.07 times, respectively. Not having a mobile phone and not using the internet also increased the tendency to have poor knowledge about HIV/AIDS by 1.31 and 1.32 times.

In the term information source about AIDS, young women who had less than two sources of information (no information) were more likely to have bad knowledge about HIV/AIDS by 1.83 than those with more information, while those with two sources of information (some information) were 1.34 times. Negative stigma towards PLWH has an influence on knowledge about HIV/AIDS by 1.24 times worse.

Table 3. Bivariate analysis

Variables	Comprehensive knowledge about HIV/AIDS		RR (95% CI)	p-value
	Bad, n (%)	Good, n (%)		
Age				
15-19	3449 (51.4)	3264 (48.6)	1.31 (1.26-1.37)	<0.001*
20-24	2314 (39.1)	3605 (60.9)		
Residence				
Rural	2682 (51.5)	2527 (48.5)	1.24 (1.19-1.29)	<0.001*
Urban	3081 (41.5)	4342 (58.5)		
Working status				
No	3889 (46.9)	4397 (53.1)	1.09 (1.05-1.13)	<0.001*
Yes	1874 (43.1)	2472 (56.9)		
Education level				
No education	9 (69.2)	4 (30.8)	2.22 (1.54-3.20)	0.005*
Primary	299 (60.5)	195 (39.5)	1.94 (1.78-2.12)	<0.001*
Secondary	4493 (49.7)	4545 (50.3)	1.59 (1.51-1.69)	<0.001*
Higher	962 (31.2)	2125 (68.8)		
Wealth index				
Poorest	1254 (55.4)	1008 (44.6)	1.51 (1.42-1.61)	<0.001*
Poorer	1250 (50.1)	1243 (49.9)	1.37 (1.28-1.45)	<0.001*
Middle	1166 (46.1)	1364 (53.9)	1.26 (1.18-1.34)	<0.001*
Richer	1086 (41.7)	1518 (58.3)	1.14 (1.06-1.22)	<0.001*
Richest	1007 (36.7)	1736 (63.3)		
Marital status				
Unmarried	4508 (46.2)	5254 (53.8)	1.06 (1.01-1.11)	0.02*
Married	1255 (43.7)	1615 (56.3)		
Own mobile phone				
No	663 (58.0)	481 (42.0)	1.31 (1.24-1.38)	<0.001*
Yes	5100 (44.4)	6388 (55.6)		
Internet use				

No	1135 (57.5)	840 (42.5)	1.32 (1.27-1.38)	<0.001*
Yes	4628 (43.3)	6029 (56.6)		
Contraceptive use				
No	5073 (46.0)	5951 (54.0)	1.07 (1.01-1.14)	0.02*
Yes	690 (42.9)	918 (57.1)		
Information sources about AIDS				
No information	2342 (61.3)	1479 (38.7)	1.83 (1.75-1.92)	<0.001*
Some information	1866 (44.8)	2301 (55.2)	1.34 (1.27-1.41)	<0.001*
More information	1555 (33.5)	3089 (66.5)		
Stigmatization attitude				
Yes	2490 (51.7)	2326 (48.3)	1.24 (1.19-1.28)	<0.001*
No	3273 (41.9)	4543 (58.1)		

*p-value \leq 0.05

Table 4 is a multivariate analysis of the variables associated to show the most influential variables. Based on the multivariate test results, sources of information about AIDS (no information vs more information) was the most influential variable on bad knowledge about HIV/AIDS among young women in Indonesia.

Table 4. Multivariate analysis

Variable	Beta	S.E.	Wald	aOR (95% CI)	P-value
Age	0.26	0.05	32.51	1.29 (1.19-1.42)	<0.001
Residence	0.30	0.04	59.28	1.35 (1.25-1.46)	<0.001
Education level (no education vs higher)	1.17	0.62	3.58	3.22 (0.96-10.84)	0.06
Education level (primary vs higher)	0.79	0.11	52.18	2.21 (1.78-2.74)	<0.001
Education level (secondary vs higher)	0.46	0.05	82.14	1.58 (1.43-1.75)	<0.001
Marital status	0.17	0.07	6.47	1.18 (1.04-1.35)	0.01
Internet use	0.21	0.06	13.67	1.23 (1.10-1.38)	<0.001
Contraceptive use	0.19	0.08	6.68	1.22 (1.05-1.42)	0.01
Information sources about AIDS (no information vs more information)	0.93	0.05	367.08	2.53 (2.30-2.78)	<0.001
Information sources about AIDS (some information vs more information)	0.37	0.05	65.60	1.45 (1.32-1.58)	<0.001
Stigmatization attitude	0.38	0.04	97.68	1.46 (1.36-1.58)	<0.001

DISCUSSION

The findings of this study show that socio-demographic, educational, and attitudinal factors are associated with young women's knowledge about HIV/AIDS in Indonesia. However, concerning knowledge about HIV/AIDS, nearly half (45.5%) demonstrated a lack of knowledge. This indicates that a significant proportion of young women remain uninformed about HIV/AIDS. Adolescents, particularly those aged 15-19, are especially vulnerable to HIV infection due to the transitional nature of this period, which can lead to increased risky sexual behavior [14, 15]. It is therefore important to be informed about HIV/AIDS and the means of preventing it.

Young women aged 15-19 years has a relationship with knowledge about HIV/AIDS, this aligning with research conducted in Indonesia using IDHS 2012. Individuals aged 20 and older, especially those between 25 and 39, demonstrated

superior knowledge compared to the 15-19 age group. This disparity may be attributed to the ongoing education of adolescents aged 15-19, placing them at a lower educational level compared to older individuals. Additionally, limited access to information and educational resources, particularly for those who have dropped out of school, may contribute to this knowledge gap [16]. This finding was also in line with the research conducted in Malawi in 2021 with p-value <0.001 [11].

The present study explores the relationship between rural residence and young women's knowledge of HIV/AIDS. Research conducted in low- and middle-income Asian countries has reported similar findings, with individuals residing in rural areas exhibiting lower levels of HIV/AIDS knowledge [9]. This disparity may be attributed to limited access to healthcare services, education, and mass media in rural regions [9, 17, 18].

This study reveals a significant association between working status and marital status and knowledge about HIV/AIDS. As has been demonstrated in several previous studies, there is a significant association between respondents' working status and marital status and their knowledge about HIV/AIDS [10, 16].

Previous studies have indicated that social factors, including higher education level and wealth, are associated with increased knowledge about HIV/AIDS [12, 19]. These findings are in alignment with the results of the present study. This social condition facilitates better access to health information [20]. In the Indonesian formal education system, the curriculum introduced in 2020 at the senior high school level (grade XI) includes instruction on HIV/AIDS [21]. In lower grade levels, typically starting from elementary school, the curriculum typically only encompasses an introduction to reproductive health [22]. At the junior high school level 2018, an introduction to the anatomy of reproductive organs is typically introduced, as students are entering adolescence and experiencing puberty [23].

In this study, the lack of mobile phone ownership and internet usage was found to be associated with poor knowledge about HIV/AIDS. A study conducted in Ethiopia and Indonesia revealed a statistically significant association between mobile phone ownership and increased knowledge about HIV/AIDS. This is related to the use of the internet, where the ownership of a mobile phone increases the likelihood of exposure to media that can be accessed from the internet [8, 12, 24]. Prior research has demonstrated a significant association between health literacy and internet usage. The findings of this research indicate that many people utilize the internet for health-related reasons [25]. Mobile technology can facilitate improved communication, easier access to healthcare professionals, enhanced confidentiality, and increased access to information, including reminders [26].

The findings of this study indicate that the lack of contraceptive use is associated with poor knowledge about HIV/AIDS. This is consistent with the results of several previous studies conducted in Sub-Saharan Africa, East Africa, Ethiopia, and Bangladesh, which have demonstrated that individuals who use contraceptives tend to have more comprehensive knowledge about HIV/AIDS [8, 18, 27, 28]. Women who use contraceptives are often perceived to have a better understanding of contraceptive methods and their associated health benefits, particularly those with a history of healthcare utilization [27]. Another study indicated that women who utilize contraceptives may possess a higher level of

literacy and, consequently, demonstrate a greater receptivity to information than non-users [8].

Media information also plays a crucial role in shaping comprehensive knowledge about HIV/AIDS. The more exposure individuals have to HIV/AIDS-related information, the greater their understanding of the disease becomes. This study reveals that 61.3% of young women with less than two sources of information about HIV/AIDS have inadequate knowledge. This aligns with previous research demonstrating that exposure to a wider range of information sources enhances young women's knowledge of HIV/AIDS [29-31].

Negative stigma towards PLWH influences knowledge about HIV/AIDS in this study. Negative stigma towards people living with HIV/AIDS has been found to impact the level of knowledge held by individuals regarding HIV transmission, prevention methods, and treatment pathways [32-34]. Previous studies have indicated that negative perceptions and attitudes, which may be shaped by inaccurate knowledge about HIV transmission, can contribute to stigmatization [34].

CONCLUSION

The study revealed a number of factors associated with knowledge about HIV/AIDS among young women in Indonesia that require further attention. Any form of education about HIV/AIDS is significant for increasing the knowledge of young women, who are particularly vulnerable to HIV/AIDS infection. This is particularly the case for individuals with specific sociodemographic characteristics, such as those residing in rural areas, experiencing economic disadvantage, and having limited educational attainment. It is essential to utilise a range of information sources, both online and offline, and to utilise the increasingly sophisticated technology available in the present era, in order to reach all groups. The distribution of health facilities must also be considered in order to facilitate the delivery of health education. It is also necessary to address the negative stigma associated with HIV/AIDS and to provide information about how this can be eliminated.