

The influence of social media on adolescents' perceptions of HIV/AIDS

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ABSTRACT

This study aims to analyze the dependent variable of perceptions about HIV/AIDS, influenced by the independent variables of age, gender, residence, education level, internet usage, social media usage, knowledge level, and stigma towards individuals in the community. The bivariate analysis showed that five variables significantly influenced social media usage, including place of residence with a p-value of 0.000*, education level with a p-value of 0.000*, internet use with a p-value of 0.000*, knowledge level with a p-value of 0.000*, and stigma with a p-value of 0.001*. The multivariate analysis revealed the variables influencing social media usage as follows: type of residence (Exp(B)=1.189; 95% CI=1.028-1.376; Sig=0.020*), education level (Exp(B)=4.304; 95% CI=3.819-4.852; Sig=0.000*), internet usage (Exp(B)=4.178; 95% CI=3.875-4.504; Sig=0.000*), knowledge level (Exp(B)=392.480; 95% CI=0.000-0; Sig=0.000*), and stigma (Exp(B)=0.023; 95% CI=0.894-0.978; Sig=0.000*). Adolescents in Indonesia are still vulnerable to misinformation and stigma from social media, influenced by various factors. However, the Chi-Square and logistic regression analyses showed that place of residence, education level, internet use, knowledge level, and stigma are the most significant factors. The hope is that researchers can further explore issues in adolescents' perceptions caused by social media use, beyond just misinformation and stigma. This aims to diversify the variables from the DHS data to reduce the risk of bias in comparison to previous research.

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INTRODUCTION

HIV is a sexually transmitted infection that reduces the body's ability to fight antigens by attacking the immune system. This condition causes acquired immune deficiency syndrome, or AIDS (Hamzah, 2023). AIDS is the final stage of HIV so it is susceptible to other infections. CD4 cells (cluster 4 differentiation) are destroyed by HIV in addition to attacking the immune system (Salami, Muvira, & Yualita, 2021). It is distinguished by a lower number of CD4 cells, or less than 200 cells/mm³, compared to the typical number of 500–1,500 cells/mm³ (Lela, Nay, & Maure,

2022). HIV also weakens immunity and increases susceptibility to other diseases by damaging the body's lymphocytes, or white blood cells (Hamzah, 2023). Without proper treatment, opportunistic diseases that appear with HIV can be fatal (Salami, Muvira, & Yualita, 2021).

By the end of 2023, 39.9 million people worldwide will be HIV-positive, including 1.4 million children aged 0–14 years and 38.6 million adults aged 15 years and older (*World Health Organization*, 2023). In 2020, the number of HIV infections tended to decrease to 534,100 (Ministry of Health of the Republic of Indonesia, 2022). In 2022, it also seems that the increasingly strong support of information systems can be one of the prevention and control of HIV infection, such as the use of social media that can be done by adolescents.

Adolescence is vulnerable when making decisions about risky sexual behaviors and the risk of transmission of HIV/AIDS or other sexually transmitted diseases due to information circulating on social media (Harmita, Ibrahim, & Rahayu, 2022). Social media refers to a set of technological tools that allow individuals to work together to share information and communicate through web-based messaging (Pratiwi, 2021). Social media has made it easier for people to generate and share information, choose what they like, and suggest it to others as the times change (Pratiwi, 2021). According to (Pratiwi, 2021), many social media platforms including the social networking app Tik-tok which airs short films that range in duration from 15 seconds to 10 minutes.

Tik-tok was created to blend social interaction, creativity, and fun through viral news, humor, and educational materials. Users can quickly and easily create quality short films on TikTok to upload later (Ramadhan, Ramadhani, & Utamidewi, 2022). Apart from being an entertainment medium, tik-tok also has educational accounts, one of which is through @dr accounts. Amira, SpOG which presents sexual education content, such as education about sexually transmitted diseases using plain language that is easy to understand and allows users to increase information and knowledge.

Furthermore, Instagram is an application that allows users to edit and filter photos and videos before sharing them into their profile or as stories that disappear after 24 hours. In addition, there are also facebook and youtube that allow users to upload, watch, share and interact with various types of video content, including entertainment, education, music, vlogs, tutorials and more (Pangestu, Fatah, Untsa, & Lailiyah, 2022).

The development of social media has brought a new trend for adolescents to access information related to HIV/AIDS more easily. The positive impact of social media for adolescents is that it can be a source of media to access information easily as long as it is used correctly (Sumarni, Nurhasah, & Anjani, 2023). Problems that often occur in addition to the rapid flow of information through several types of social media, namely adolescents are often confused, unable to translate, choose, sort and use the information received, thus causing hoaxes and misinformation, especially here about HIV infection (Aulia & Fitriyana, 2021).

Misinformation is a misunderstood understanding of information received on social media, but a person spreads the information to others because he thinks that the information is valid. This misinformation is spread because of mistakes without the intention of misleading, but it is spread because of the good faith of one person to another (Akbar & Fahlevvi, 2023). In addition, it can also cause stigma which is the act of labeling a person negatively with the aim of separating others from a group of people by giving a bad view (Fatih, Ningrum, & Shalma, 2021). The stigma in people with HIV is caused by several factors, one of which is a low level of knowledge. Providing complete and relevant information related to HIV is very important to prevent stigma (Simorangkir, Sianturi, & Supardi, 2021). Stigma in people with HIV begins with a mindset that assumes that HIV/AIDS infection occurs because someone commits deviant actions, so that others look down on them and have their own fear of people with HIV/AIDS (Utami, Prakoeswa, Lestari, & Ichsan, 2023).

Previous research has been conducted to determine the level of awareness and views of individuals who have social stigma related to ODHA. Stigma factors considered include sources of

information, job position, age, gender, religion, and last level of education (Mahardani, Merati, & Kumbara, 2022). In addition to the correlation between gender, age, religion, employment status, recent educational achievements, and sources of information about the level of awareness and perception of ODHA stigma in society, HIV/AIDS, attitudes and stigma towards ODHA are also researched from several factors above without analyzing social media factors (Mahardani, Merati, & Kumbara, 2022).

Previous research has focused on the influence of social media use on adolescents' knowledge (Aisyah, Syafar, & Amiruddin, 2020). The use of social media here is reviewed from the source of information and the length of social media use in a day, which causes bias because the use of social media is not always used by teenagers to obtain information related to HIV/AIDS. Research by (Aisyah, Syafar, & Amiruddin, 2020) It has not been explained what kind of knowledge arises from the use of social media. Thus, this study can fill the gap in previous research by further exploring the use of social media in adolescents, especially in influencing adolescents' knowledge such as the emergence of misinformation and stigma against people with HIV/AIDS.

RESEARCH METHOD

This study uses a cross-sectional technique with a quantitative approach related to the use of social media against perceptions such as misinformation and stigma. This study uses secondary data from the 2017 Indonesian Health Demographic Survey (SDKI). The researcher has obtained permission to use survey data from *the Inner City Fund (ICF) International* as part of the Indonesian Health Demographic Survey program. The researchers combined IDBR71FL (*Births Recode*), IDCR71FL (*Couples Recode*), and IDHR71FL (*Household Recode*) datasets to search for variables.

We collected population data by interviewing men and women between the ages of 15 and 49 who had obtained HIV/AIDS-related materials through social media. The total population of this study is 58,470 respondents, while the sample is determined according to the research inclusion criteria based on the number of provinces in Indonesia. A total of 8,836 respondents were the overall sample, with 4,066 women and 4,770 men. The population of each province is grouped by age, gender, type of residence, education level, frequency of internet use over the past month, use of social media as a source of HIV/AIDS knowledge, and stigma. The sampling method uses the Stratified Random Sampling technique.

In this study, independent variables include age, gender, place of residence, education level, internet use, and social media use that affect the dependent variables, namely the level of knowledge and stigma. The grouping of age variables is divided into two groups, namely based on age under 35 years old and over 35 years old. Young adults, late teens, and early teens are the three age categories under 35 years old. On the other hand, the late adulthood and early elderly categories include those over 35 years old (Amin & Juniati, 2017). The majority of <35-year-olds use the internet and social media which tend to have a risk of misinterpretation of perceptions such as misinformation and stigma in patients with HIV/AIDS (Mahardani, Merati, & Kumbara, 2022).

Male and female are two categories of gender variables, and they are biologically distinct from birth (Novitria & Khoirunnisa, 2022). Men tend to be independent, competitive, and aggressive, while women are more sensitive, gentle, and dependent on others, especially men (Novitria & Khoirunnisa, 2022). The residential variable has a binary nature, including rural value "1" and urban "2." The variable level of education is divided into low level and high level with higher education value (Septiani, 2023). This is based on Law No. 20/2003 article 1 paragraph 9.

The variable of internet usage is related to the frequency of internet use in the past month with the rare category and the almost daily category (Firdaus, Wibawa, Diharja, Mustakim, & Ramadhan, 2021). Sources of information about HIV/AIDS that are included in the variables of social media use include digital platforms including Facebook, YouTube, Instagram, and TikTok (Pangestu, Fatah, Untsa, & Lailiyah, 2022). The value of this variable is "no" with code 0 and "yes"

with code 1 from the respondent's answer results.

Dependent variables, namely the level of knowledge about HIV/AIDS, including definitions, symptoms, transmission, and prevention such as always wearing a condom when having sex with an infected person, having only 1 sex partner and not changing around, avoiding mosquito bites that cause HIV/AIDS transmission and not sharing food with people with HIV/AIDS with a value of code 0 if "no" and code 1 if "yes". There was a correlation between the stigma variable of negative statements by others about people with HIV, with code 0 if "no" and code 1 if "yes" and the variable number of awareness about HIV/AIDS.

In terms of how adolescents perceive and understand social media, the variable is classified as "not using" if the total number of respondents is 0 and as "using" if the total number of respondents is 1. In this study, IBM SPSS Statistics software version 25 was used to analyze the data. There are many steps in the analysis procedure, including univariate analysis that uses a frequency descriptive statistical approach to ascertain the frequency, mean, standard deviation, range of each variable at a significance level of 5% (p value <0.05). To determine the relationship between variables, bivariate analysis is also carried out by applying the chi-square test. Meanwhile, logistic regression is used in multivariate analysis to obtain an opportunity ratio (OR) and a 95% confidence interval. This approach guarantees precise and relevant findings in addressing the research objectives.

RESULTS AND DISCUSSIONS

Table 1. Distribution of respondent characteristics (N = 8.836)

Variable	Result n (%)
Age (Mean±SD)(Range)(Years)	(1.55±0.497)(15-49)
<35	4.863 (48.6)
>35	3.973 (39.7)
Gender (n/ %)	
Man	4.770 (47.7)
Woman	4.066 (40.6)
Residence (n/ %)	
Urban	3.355 (33.5)
Rural	5.481 (54.8)
Education Level (n/ %)	
Low	2.851 (28.5)
Tall	5.985 (59.8)
Internet usage (n/ %)	
Infrequently	6.205 (62.0)
Almost every day	2.631 (26.3)
Social Media Usage (n/ %)	
Not using	1.353 (13.5)
Using	7.483 (78.8)
Knowledge Level (n/ %)	
Bad	1.914 (19.1)
Good	6.922 (69.2)
Stigma (n/ %)	
Bad	1.460 (14.6)
Good	7.376 (73.7)

The results of the distribution of respondent characteristics in Table 1 showed that the majority of respondents were in the age range of <35 years (48.6%), had a male gender (47.7%), the majority lived in rural areas (54.8%) with a higher education level (59.8%) and rarely used the internet (62%) so that the majority used social media (78.8%) which led to a good level of knowledge (69.2%) with a good stigma against HIV/AIDS (73.7%).

Table 2. Factors related to social media use on adolescent perceptions of HIV/AIDS

Variable	Use of Social Media		p-value	OR (95% CI)
	Not Using (n%=1,354)	Using (n%=7,482)		
Age (n/ %)				
<35	622 (6.2)	3.350 (33.5)	0.431	0.620
>35	732 (7.32)	4.132 (41.3)		(0.850-1.072)
Gender (n/ %)				
Man	715 (7.15)	4.008 (40.0)	0.541	0.374
Woman	639 (6.39)	3.474 (34.7)		(0.916-1.181)
Residence (n/ %)				
Urban	447 (4.4)	2.908 (29.0)	0.000*	16.801
Rural	907 (9.7)	4.574 (45.7)		(1.143-1.460)
Education Level (n/ %)				
Low	66 (0.6)	2.785 (27.8)	0.000*	550.563
High	1.288 (12.8)	4.697 (46.9)		(9.111-15.128)
Internet Usage (n/ %)				
Infrequently	232 (2.3)	5.972 (59.7)	0.000*	2154.832
Almost every day	1.122 (11.2)	1.510 (15.1)		(16.479-22.354)
Knowledge Level (n/ %)				
Bad	0 (0)	1.914 (19.1)	0.000*	441.522
Good	1.353 (13.5)	5.569 (55.6)		(1.228-1.257)
Stigma (n/ %)				
Bad	209 (20.9)	989 (9.9)	0.001*	10.824
Good	1.863 (18.6)	5.775 (57.7)		(1.380-1.674)

The results of the chi-square test are shown in Table 2. showed the age of <35 with a p-value of 0.431 which means there is no age relationship with social media use in adolescents. Gender with a p-value of 0.541 indicates that there is no gender relationship with social media use in adolescents. Housing with a p-value of 0.000* shows that there is a relationship between housing type and social media use in adolescents. The education level with a p-value of 0.000* shows that there is a relationship between education level and social media use among adolescents.

Internet use with a p-value of 0.000* shows that there is a relationship between internet use and social media use in adolescents. The level of knowledge with a p-value of 0.000* indicates that there is a relationship between the level of knowledge and the use of social media in adolescents, so for the stigma with a p-value of 0.001* indicates that there is a relationship between stigma against people with HIV/ AIDS and the use of social media.

Table 3. Results of multivariate analysis of logistic regression (N=8,836)

Variable	B	S.E	p-value	Exp(B)	95%CI (Lower - Upper)
Age	-0.046	0.077	0.554	0.955	0.822 - 1.111
Gender	0.065	0.077	0.395	1.067	0.918 - 1.240
Residence	0.177	0.080	0.028*	1.193	1.019 - 1.397
Education Level	1.384	0.149	0.000*	3.992	2.982 - 5.344
Internet Usage	2.468	0.087	0.000*	11.804	9.961 - 13.988
Level of Knowledge	19.787	918.710	0.000*	392.480	0.000 - 0
Stigma	0.366	0.121	0.002*	1.442	1.138 - 1.828

The results of the logistic regression test in Table 3, there are 5 significant variables and 2 insignificant variables. Variables of residence, level of education, internet use, level of knowledge and stigma are the most dominant factors with adolescents' perception and understanding of HIV/ AIDS in the use of social media. The most dominating add ratio (OR) is the knowledge level

factor with an exp(B) value of 391.4880. This shows that the level of knowledge has an effect on perceptions such as misinformation and stigma about HIV/AIDS in Indonesia.

Discussion

The findings of the Chi Square test between age and social media use showed a *p-value* of $0.431 > 0.05$. It can be said that H_0 is accepted and there is no statistically significant association between age and social media use that leads to misinformation and stigma among adolescents about HIV/AIDS. According to previous research, the use of social media by adolescents leads to misunderstandings, which in turn leads to HIV/AIDS transmission behavior through premarital sex (Arta, Rahmadhoni, & Primawati, 2022).

Gender on social media use showed a *p-value* of $0.541 > 0.05$. It can be argued that H_0 is accepted and there is no statistically significant association between age and social media use leading to adolescent misinformation and stigma about HIV/AIDS. In accordance with other studies that found that social media use has little impact on adolescents' perception of HIV/AIDS because, in addition to social media, family, friends, and medical facilities can also provide information (Thome, 2024).

Residence yields a *p-value* of $0.000 < 0.05$ which means that H_0 is rejected and there is a statistically significant association between residence and social media use which leads to misinformation and stigma among adolescents about HIV/AIDS. According to previous research, people, especially in rural areas, mostly rely on social media to obtain information about HIV/AIDS. Therefore, community leaders are needed to help evaluate the material found on social media (Asyari, Wahyuni, & Harmen, 2024).

The level of education produced a *p-value* of $0.000 < 0.05$ which means that H_0 was rejected and there was a statistically significant relationship between residence and social media use which led to misinformation and stigma among adolescents about HIV/AIDS. This is consistent with previous research showing that those with higher education are more likely to be interested in using social media to learn about HIV/AIDS (Budianto, Marlinda, & Silvia, 2024).

Internet use produces a *p-value* of $0.000 < 0.05$ which means that H_0 is rejected and there is a statistically significant relationship between residence and social media use that causes misinformation and stigma among adolescents about HIV/AIDS. Consistent with previous research that showed internet use depends on the time of use, short internet access does not increase the likelihood of social media use leading to sexual deviance and subsequent HIV/AIDS risk in adolescents (Bukit, Rochadi, & Keloko, 2024).

The level of knowledge resulted in a *p-value* of $0.000 < 0.05$ which means that H_0 was rejected and there was a statistically significant relationship between residence and social media use which led to misinformation and stigma among adolescents about HIV/AIDS. According to recent research, adolescents' behavior in stopping the spread of HIV/AIDS and responsible use of social media increased as their literacy levels increased (Mahardani, Merati, & Kumbara, 2022).

Stigma produced a *p-value* of $0.001 < 0.05$ which means that H_0 was rejected and there was a statistically significant association between residence and social media use that led to misinformation and stigma among adolescents about HIV/AIDS. According to previous research, students can help alleviate the negative stigma associated with HIV/AIDS by using social media to get information about the disease. They can then provide counseling to others, including advice on how to avoid the disease and how to spread it, based on the knowledge they have acquired. This is an effort to stop stigma from developing (Dewi, Kusumaningrum, Saputri, Febriyanti, & Febrianti, 2021).

CONCLUSION

Adolescents in Indonesia are still very vulnerable to exposure to information from social media that affects understanding in the form of misinformation and stigma influenced by several factors. Nonetheless, the bivariate study of the Chi-Square test and the multivariate study of logistic

regression revealed that place of residence, level of education, internet use, level of knowledge and stigma were the most significant factors.

It is hoped that researchers can further identify problems with adolescents' perception due to the use of social media other than misinformation and stigma. This aims to make the variables taken from DHS data more varied, so as to minimize the risk of bias against the results of previous research with the latest research.

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