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Prevalence and Factors Affecting Discrimination Towards People Living With HIV/AIDS in Indonesia

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Objectives: This study aimed to identify the behaviors associated with discrimination towards people living with HIV/AIDS (PLHA) in Indonesia and to determine the factors affecting discrimination.

Methods: Secondary data from the 2017 Indonesia Demographic and Health Survey were analyzed using a cross-sectional design. Discrimination was assessed based on the questions (1) "Should children infected with HIV/AIDS be allowed to attend school with non-infected children?" and (2) "Would you buy fresh vegetables from a farmer or shopkeeper known to be infected with HIV/AIDS?" Multivariable logistic regression was used to determine the factors affecting discrimination, with adjusted odds ratio (aOR) and 95% confidence interval (CIs) used to show the strength, direction, and significance of the associations among factors.

Results: In total, 68.9% of 21 838 individuals showed discrimination towards PLHA. The odds of discrimination were lower among women (aOR, 0.63; 95% CI, 0.55 to 0.71), rural dwellers (aOR, 0.81; 95% CI, 0.75 to 0.89), those who understood how HIV is transmitted from mother to child (aOR, 0.81; 95% CI, 0.73 to 0.89), and those who felt ashamed of their own family's HIV status (aOR, 0.56; 95% CI, 0.52 to 0.61). The odds were higher among individuals who knew how to reduce the risk of getting HIV/AIDS (aOR, 1.27; 95% CI, 1.15 to 1.39), how HIV/AIDS is transmitted (aOR, 3.49; 95% CI, 3.09 to 3.95), and were willing to care for an infected relative (aOR, 2.78; 95% CI, 2.47 to 3.13). A model consisting of those variables explained 69% of the variance in discrimination.

Conclusions: Gender, residence, knowledge, and attitudes related to HIV/AIDS were explanatory factors for discrimination against PLHA. Improvements in HIV/AIDS education programs are needed to prevent discrimination.

Key words: AIDS, Discrimination, HIV, Indonesia, People living with HIV/AIDS

INTRODUCTION

HIV continues to spread globally. In 2020, the incidence of new HIV infections reached 1.5 million worldwide, with a total of 79.3 million active cases [1,2]. Without proper and consistent treatment, HIV can lead to AIDS, defined by the development of certain cancers, infections, or other severe long-term clinical manifestations [2]. Unfortunately, in 2020, approximately 6.1 million people did not know that they were living with HIV, hindering them from obtaining prompt treatment and care [1].

People living with HIV/AIDS (PLHA) face many health-related and social problems. Approximately 36.0 million adults and 1.7 million children (0-14 years) have had to live with the social stigma shown towards PLHA [1]. HIV/AIDS-related discrimination is a "process of devaluation" with consequences for the outcome of people with or associated with HIV/AIDS. This dis-

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crimination or devaluation is directed at individuals, not because they personally deserve it or for reciprocity, but simply because they happen to be members of a certain category [3-5].

Discrimination towards PLHA can come from family, friends, community, and healthcare providers [6-9]. Several studies identified various forms of discrimination towards PLHA, such as isolation and separation of personal belongings and eating utensils [7,10,11], distancing and fear of direct physical contact [6,7,10,11], reluctance or refusal to provide medical services for PLHA [6,7,11-13], and additional charges for medical services due to the patients' HIV status [11,12].

In 2019, 50 282 cases of HIV were diagnosed in Indonesia, and cases were reported in 33 of 34 provinces. East Java, Jakarta, West Java, Central Java, Papua, North Sumatra, Bali, Banten, South Sulawesi, and East Kalimantan were the 10 provinces with the highest number of reported cases of HIV [14]. The Indonesia Ministry of Health has consistently published surveillance reports on HIV/AIDS, but those reports were not descriptive and did not address the social stigma faced by the 360 000 out of 540 000 PLHA who knew their status in 2020 [15]. Previous studies about HIV/AIDS-related discrimination were generally conducted in the healthcare setting in small or specific locations and looked at general variables such as knowledge and attitude, without exploring the more specific aspects of knowledge and attitude associated with discrimination [16-19]. This study aimed to build upon the findings of those studies by describing discrimination towards PLHA in Indonesia in a general setting, using a large sample, and identifying other factors affecting discrimination.

METHODS

This cross-sectional study analyzed secondary data from the latest Indonesia Demographic and Health Survey (IDHS). The 2017 IDHS was the eighth and most recent IDHS, and it was conducted in all provinces of Indonesia. This survey was part of the Demographic and Health Survey Program, a United States Agency for International Development (USAID) program, assisted by the Inner City Fund [20]. The survey data were obtained from the USAID website by registering and justifying the request for data [21].

Our analysis included data on people who reported that they had heard about HIV/AIDS. As the primary focus of this study, discrimination towards PLHA was assessed by 2 survey questions: (1) "Should children infected with HIV/AIDS be allowed to attend school with non-infected children?" and (2) "Would you buy fresh vegetables from a farmer or shopkeeper known to be infected with HIV/AIDS?" These variables were dichotomized (yes/no) and people who answered "yes" to both questions were defined as not demonstrating discrimination towards PLHA, and all others were defined as demonstrating discrimination towards PLHA.

Socio-demographic characteristics, HIV/AIDS-related stereotypes, knowledge, and attitudes were the potential explanatory factors for discrimination towards PLHA. HIV/AIDS-related stereotypes were assessed by the responses to 2 situations: (1) "People talk badly about people with or believed to have HIV/AIDS" and (2) "People with or believed to have HIV/AIDS lose respect from other people." People who agreed with both situations were considered to have negative stereotypes.

There were 3 variables for HIV/AIDS-related knowledge. First, knowledge about ways to reduce the risk of HIV infection was measured by the answers to the following questions (1) "Should you always use condoms during sex?" and (2) "Should you have 1 sex partner only, who also has no other partner?" People answering "yes" to these questions were considered knowledgeable about HIV/AIDS. Second, knowledge about how infection occurs was measured by the accuracy of answers to the following questions: (1) "Can a person get HIV/AIDS from mosquito bites?", (2) "Can a person get HIV/AIDS by sharing food with an infected person?", (3) "Can a person get HIV/AIDS by witchcraft or supernatural means?", and (4) "Can a person get HIV/AIDS by contact with saliva from an infected person?" People answering "no" to these questions were considered knowledgeable. Third, knowledge about how HIV/AIDS is transmitted from mother to child was measured by the accuracy of answers to questions about the possibility of transmission during pregnancy, delivery, or while breastfeeding. People answering "yes" to these questions were considered knowledgeable.

In preparing the dataset, sample weights were developed to compensate for the unequal probability of selection bias, non-coverage, non-responses, and other types of bias [21,22]. Comparison of proportions between variables was assessed using the chi-square test, and a *p*-value less than 0.05 was considered to indicate statistical significance. Multivariable logistic regression was used to measure the association between an explanatory factor and an outcome, with adjusted odds ratio (aOR) and 95% confidence interval (CI) used to determine the significance of associations. The predictive model of discrimination was generated using the backward method. The initial

model consisted of all variables with a *p*-value less than 0.25 and was mutually adjusted. In contrast, the final model consisted of statistically significant variables after adjustment with other covariate variables with a *p*-value less than 0.05. Multicollinearity testing was performed among the covariates used in the final model to avoid interaction bias, which could affect the results.

Advanced tests of the final model were run to assess the fit and calibration of the model. For goodness-of-fit, the Hosmer-Lemeshow test and receiver operating characteristic (ROC) curve analysis were run to assess the fit of the model. Calibration was assessed using the calibration belt test.

Ethics Statement

The 2017 IDHS study protocol was approved by the Institutional Review Board of ICF International (ICF IRB FW A00000845).

RESULTS

Among a sample of 21 838 people in Indonesia (aged 15-54 years) who had heard about HIV/AIDS, 68.9% demonstrated potential discrimination towards PLHA. More than half (87.3%) were women, 73.7% were married or cohabitating, 62.1% had a secondary education, 57.7% lived in an urban area, and 72.5% lived in a province with a high rate of HIV infection. Among

Table 1. Distribution of socio-demographic characteristics, stereotypes, knowledge and attitudes related to HIV/AIDS, and discrimination towards people living with HIV/AIDS (PLHA) in Indonesia

Characteristics	Discrimination towards PLHA		Total	*p*-value
	Yes	No		
Sociodemographic				
Gender				<0.001
Men	1934 (12.7)	1077 (16.9)	3011 (14.1)	
Women	13 453 (87.3)	5374 (83.1)	18 827 (85.9)	
Age (y)				<0.001
15-19	2340 (14.2)	803 (11.4)	3143 (13.3)	
20-24	2378 (15.0)	812 (12.2)	3190 (14.1)	
25-29	2212 (14.2)	928 (13.9)	3140 (14.1)	
30-34	2351 (15.3)	984 (15.3)	3335 (15.3)	
35-39	2253 (15.3)	1165 (18.7)	3418 (16.3)	
40-44	1985 (13.3)	955 (15.2)	2940 (14.0)	
45-49	1689 (11.4)	715 (11.9)	2404 (11.6)	
50-54	179 (1.3)	89 (1.4)	268 (1.3)	
Marital status				0.353
Never married	3811 (22.4)	1600 (21.8)	5411 (22.2)	
Married or cohabitating	10 968 (73.7)	4607 (74.6)	15 575 (74.0)	
Widowed/ divorced/ separated	608 (3.9)	244 (3.6)	852 (3.8)	
Education level				<0.001
No education	44 (0.3)	8 (0.1)	52 (0.2)	
Primary	2371 (18.5)	696 (13.4)	3067 (17.0)	
Secondary	9399 (62.1)	3686 (59.5)	13 085 (61.3)	
Higher	3573 (19.1)	2061 (27.0)	5634 (21.5)	
Residence				<0.001
Urban	9315 (57.7)	4296 (63.4)	13 611 (59.5)	
Rural	6072 (42.3)	2155 (36.6)	8227 (40.5)	
Home province				0.007
Low rate of HIV infection	7638 (27.5)	2920 (25.4)	10 558 (26.8)	
High rate of HIV infection	7749 (72.5)	3531 (74.6)	11 280 (73.2)	
Stereotype				
Had negative stereotype of PLHA				0.003
Yes	13 694 (89.1)	5618 (86.9)	19 312 (88.4)	
No	1693 (10.9)	883 (13.1)	2526 (11.6)	
Knowledge				
Ways to reduce the risk of getting HIV/AIDS				<0.001
Don't know	4269 (26.3)	1443 (21.4)	5712 (24.8)	
Know	11 118 (73.7)	5008 (78.6)	16 126 (75.2)	
Ways to get infected with HIV/AIDS				<0.001
Don't know	14 468 (93.9)	5088 (78.8)	19 556 (89.2)	
Know	919 (6.1)	1363 (21.2)	2282 (10.8)	
Ways in which HIV is transmitted from mother to child				<0.001
Don't know	2381 (14.9)	1228 (18.5)	3609 (16.1)	
Know	13 006 (85.1)	5223 (81.5)	18 229 (83.9)	
Attitude				
Would be ashamed if someone in the family had HIV/AIDS				<0.001
No	6633 (43.5)	3863 (60.4)	10 496 (48.7)	
Yes	8754 (56.5)	2588 (39.6)	11 342 (51.3)	
Would keep HIV infection in the family a secret				0.955
Yes	7252 (50.1)	3169 (50.1)	10 421 (50.1)	
No	8135 (49.9)	3282 (49.9)	11 417 (49.9)	
Would be willing to care for relatives with HIV/AIDS				<0.001
No	4671 (26.1)	762 (10.3)	5433 (21.2)	
Yes	10 716 (73.9)	5689 (89.7)	16 405 (78.8)	

Values are presented as number (%).

HIV/AIDS-related variables, it was found that 89.1% of people who had negative stereotypes of PLHA demonstrated potential discrimination towards them as well. Among the knowledge variable group, an unusual finding was identified. Up to 73.7% of people who knew how to reduce the risk of getting HIV/AIDS and 85.1% of people who knew how HIV is transmitted between mother and child demonstrated potential discrimination towards PLHA, while only 6.1% of people who were knowledgeable about how HIV/AIDS is transmitted discriminated against PLHA. Regarding attitudes, people who demonstrated potential discrimination were people who would be ashamed if someone in the family had HIV/AIDS (56.5%), would keep an HIV infection in the family a secret (50.1%), and would be willing to care for relatives with HIV/AIDS (73.9%) (Table 1).

The chi-square test showed that 2 of 13 variables did not have significant differences in proportions. Those variables were marital status and knowledge of how transmission of HIV occurs.

Among 13 explanatory variables, 4 showed statistically insignificant associations with discrimination: age, marital status, education level, and attitudes. The variable "would keep HIV infection in the family a secret" had a *p*-value higher than the cut-off point for inclusion in the predictive model (Table 2).

The initial model consisted of 9 variables with a *p*-value less than 0.05. The knowledge variable "ways to get infected with HIV/AIDS" had the highest aOR, while gender had the lowest aOR. People who knew how HIV/AIDS is transmitted had a higher probability of discrimination towards PLHA, 3.49 times higher than those answering "do not know" regarding this item. The probability of discrimination towards PLHA was 1.58 times lower among women than among men (Table 3).

In the final predictive model, gender, residence, knowledge variables ("ways to reduce the risk of getting HIV/AIDS", "ways to get infected with HIV/AIDS," and "ways in which HIV is transmitted from mother to child") and attitude variables ("would be ashamed if someone in the family had HIV/AIDS" and "will-

Table 2. The association of socio-demographic characteristics, stereotypes, knowledge and attitudes related to HIV/AIDS, and discrimination towards people living with HIV/AIDS (PLHA) in Indonesia

Variables	OR (95% CI)	*p*-value
Gender		
Men	1.00 (reference)	<0.001
Women	0.71 (0.64, 0.80)	
Age (y)		
15-19	1.00 (reference)	
20-24	1.01 (0.87, 1.16)	0.877
25-29	1.20 (1.05, 1.38)	0.006
30-34	1.23 (1.08, 1.40)	0.001
35-39	1.51 (1.32, 1.72)	<0.001
40-44	1.41 (1.23, 1.62)	<0.001
45-49	1.28 (1.12, 1.47)	<0.001
50-54	1.37 (0.99, 1.91)	0.054
Marital status		
Never married	1.00 (reference)	
Married or cohabitating	1.04 (0.95, 1.13)	0.337
Widowed/ divorced/ separated	0.93 (0.77, 1.13)	0.486
Education level		
No education	1.00 (reference)	
Primary	1.46 (0.63, 3.36)	0.368
Secondary	1.93 (0.84, 4.42)	0.116
Higher	2.85 (1.25, 6.52)	0.013
Residence		
Urban	1.00 (reference)	<0.001
Rural	0.78 (0.72, 0.85)	
Province		
Low rate of HIV infection	1.00 (reference)	0.007
High rate of HIV infection	1.11 (1.02, 1.20)	
Had negative stereotypes of PLHA		
Yes	1.00 (reference)	<0.001
No	1.21 (1.09, 1.35)	
Ways to reduce the risk of getting HIV/AIDS		
Do not know	1.00 (reference)	<0.001
Know	1.31 (1.19, 1.43)	
Ways to get infected with HIV/AIDS		
Do not know	1.00 (reference)	<0.001
Know	4.18 (3.71, 4.70)	
Ways in which HIV is transmitted from mother to child		
Don't know	1.00 (reference)	<0.001
Know	0.77 (0.70, 0.84)	
Would be ashamed if someone in the family had HIV/AIDS		
No	1.00 (reference)	<0.001
Yes	0.50 (0.46, 0.54)	
Would keep HIV infection in the family a secret		
Yes	1.00 (reference)	0.956
No	0.99 (0.93, 1.07)	
Would be willing to care for relatives with HIV/AIDS		
No	1.00 (reference)	<0.001
Yes	3.05 (2.71, 3.44)	

OR, odds ratio; CI, confidence interval.

Table 3. Initial and final predictive models of discrimination towards people living with HIV/AIDS (PLHA) in Indonesia

Variables	Initial model	*p*-value	Final model	*p*-value
Gender				
Men	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Women	0.63 (0.56, 0.71)		0.63 (0.55, 0.71)	
Residence				
Urban	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Rural	0.81 (0.75, 0.89)		0.81 (0.75, 0.89)	
Province				
Low rate of HIV infection	1.00 (reference)	0.677	-	
High rate of HIV infection	1.01 (0.93, 1.10)		-	
Had negative stereotypes of PLHA				
Yes	1.00 (reference)	0.616	-	
No	0.98 (0.93, 1.04)		-	
Ways to reduce the risk of getting HIV/AIDS				
Don't know	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Know	1.27 (1.15, 1.40)		1.27 (1.15, 1.39)	
Ways to get infected with HIV/AIDS				
Don't know	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Know	3.49 (3.09, 3.95)		3.49 (3.09, 3.95)	
Ways in which HIV is transmitted from mother to child				
Don't know	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Know	0.81 (0.73, 0.90)		0.81 (0.73, 0.89)	
Would be ashamed if someone in the family had HIV/AIDS				
No	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Yes	0.56 (0.52, 0.61)		0.56 (0.52, 0.61)	
Willing to care for relatives with HIV/AIDS				
No	1.00 (reference)	<0.001	1.00 (reference)	<0.001
Yes	2.78 (2.46, 3.13)		2.78 (2.47, 3.13)	

Values are presented as adjusted odds ratio (95% confidence interval).

ing to care for relatives with HIV/AIDS") showed statistically significant associations with discrimination towards PLHA in Indonesia. The multicollinearity test among covariate variables in the final model showed that multicollinearity was not a problem since the mean of the variance inflation factor was <5.

The final model showed reasonably good fit. Figure 1 presents the results of the goodness-of-fit test, with a *p*-value >0.05. The ROC curve also showed that the final model accurately predicted discrimination towards PLHA in Indonesia (69.81%).

The test statistic value (3.92) and the *p*-value (0.999) of the test suggest that the final model met the good calibration test and performed well in the sample versus the initial model (Figure 2).

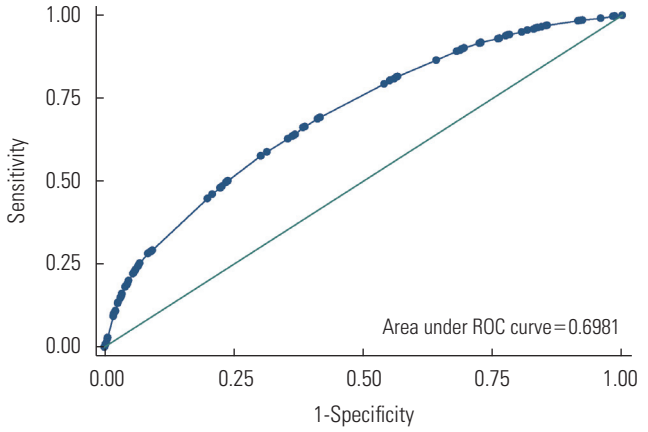

Figure 1. The receiver operating characteristic (ROC) curve of the final model.

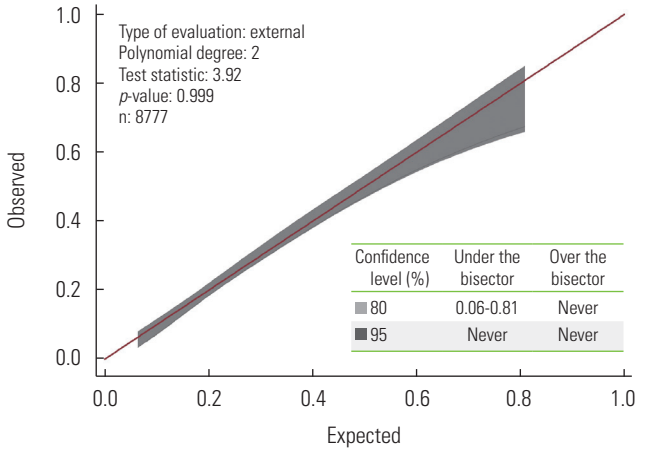

Figure 2. The calibration belt plot on the final model.

DISCUSSION

This study found that women were more likely to refrain from discrimination towards PLHA than men, which aligns with studies conducted in Pakistan [23] and Vietnam [24]. This result is also supported by previous studies which showed that women had a stronger ability to assume the role of a conceptualized other (other-orientation) and were more highly socialized to be other-oriented and socially responsible, which might influence their pro-environmental behavior, including acceptance of PLHA as part of the social environment [25,26]. Pro-environmental behavior can be explained by the norm activation model (Schwartz, 1977), which is based on an "other" value orientation that occurs when individuals are aware of the harmful consequences (awareness of consequences) of their actions and feel responsible for these consequences [26].

Discrimination towards PLHA can occur in either urban or rural areas. Previous studies have identified higher discrimination towards PLHA among rural dwellers when compared to urban dwellers [27-29]. However, in this study, rural dwellers were found to have a lower probability of discrimination towards PLHA when compared to urban dwellers. The author postulates that this finding could be explained by 2 possible conditions. First, conservative values in a rural area may mean that HIV/AIDS was rarely discussed, which was also supported by the sense that HIV/AIDS was something that happens to the "other" and was not "their" problem [30]. Second, rural communities tend to be small and people know each other more intimately [31], resulting in strong social capital among rural dwellers. Social capital is community cohesion that results from the positive aspects of community life, particularly from a high level of "civic engagement/participation," as reflected in the membership of local voluntary associations [28,32]. Higher levels of social capital contribute to a broader range of favorable health outcomes (i.e., as a buffer to health-damaging stress).

There are 3 possible explanations for the association between social capital and discrimination towards PLHA [32]. First, membership in a cohesive community works as an "early warning system." If a member is infected with HIV/AIDS, another member will urge them to seek early diagnosis and treatment of incipient health problems instead of isolating and judging them for the infection. Second, members of a cohesive community are more likely to engage in health-protective behaviors because of the generalized level of perceived self-efficacy and empowerment they feel themselves to be part of such a community. Group behavior would more likely include a willingness to keep physical/social contact with the PLHA—that is, to treat them as a part of the membership/community with its inherent rights. Third, discrimination behaviors are shaped by the social identities and social norms that are collectively negotiated within the peer group. Communities with high levels of membership engagement in local organizations might have a broader range of "peer" groups within which people could debate and negotiate on subjects such as acceptance of PLHA as part of the community.

Many studies have found that the degree of knowledge/understanding of HIV/AIDS was associated with the degree of discrimination towards PLHA and showed that high degrees of knowledge were associated with a lower likelihood of discrimination [17,23,33]. Unfortunately, knowledge did not guarantee good behavior. This study found that people who knew how to reduce the risk of infection by HIV/AIDS and how HIV/AIDS is transmitted had a higher probability of discrimination towards PLHA than people who had low levels of knowledge/understanding. This is in line with studies in Malaysia, Gujarat, Afghanistan, Nigeria, and other African countries [29,34-37]. The degree of unease felt towards PLHA and the irrational fears of getting infected could override adequate education and knowledge, causing people to make behavioral choices that they believe reduce harm to themselves and their social environment, but discriminate against PLHA [25]. Those choices may be based on complex irrational fears of getting infected, which are mainly psychological and based on prejudice and irrational beliefs [17].

Despite this finding, we do not suggest stopping education related to HIV/AIDS. Instead, this result is a critical reflection on the effectiveness of HIV/AIDS education as it has previously been structured. Education that is focused only on giving information about the disease (causes, signs and symptoms, modes of transmission, prevention, and treatments) may create fear and result in discrimination. It is important to also include information about the consequences of stigma and discrimination towards PLHA so that the individual and the community together realize their role and responsibility to prevent the discrimination that significantly affects the quality of life for PHLA.

Attitudes toward family members infected with HIV/AIDS showed associations with discrimination towards PLHA. Studies in Afghanistan and Malaysia showed that HIV was associated with disgrace and family shame, depending on the closeness of the relationship to the target of the stigma and discrimination [34,37]. This could be the reason for discrimination by family members towards other PLHA even though they might accept the HIV status of their own family and would be willing to care for them. Understanding HIV/AIDS and taking steps to prevent HIV infection may also be based on irrational fears of being infected, which could also lead to discrimination.

This study investigated the existence of discrimination towards PLHA in Indonesia. The results of this study contribute to the improvement of HIV/AIDS-related education programs to prevent discrimination and enhance the quality of life for PLHA. When compared with other studies conducted in Indonesia, this study was more representative because it used nationally collected data. The ability to determine causal relationships, however, was limited because of the cross-sectional design of the study.

Gender, residence, knowledge, and attitudes related to HIV/AIDS were explanatory factors for discrimination towards PLHA in Indonesia. Improvements in HIV/AIDS education programs are needed, not only to inform people about the health aspects of HIV/AIDS, but also the social and psychosocial aspects that affect the quality of life for PLHA.

CONFLICT OF INTEREST

The author has no conflicts of interest associated with the material presented in this paper.

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AUTHOR CONTRIBUTIONS

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