**Misconceptions and stigma against people living with HIV/AIDS: a cross-sectional study
from 2017 Indonesia Demographic and Health Survey**

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Short running head : -

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Misconceptions and stigma against people living with HIV/AIDS: a cross-sectional study from 2017 Indonesia Demographic and Health Survey

Abstract

Objectives: There is no data available in Indonesia to measure the main indicators of Zero New Infection, Zero AIDS-related death and Zero Stigma and Discrimination. This study aims to determine factors related to misconceptions about HIV transmission and stigma against PLWHA in Indonesia

Methods: Cross-sectional study used secondary data from the 2017 Indonesia Demographic and Health Survey (IDHS). The sample was women and men aged 17-45 years (N = 3023)

Results: There are two variables that are significantly related to misconceptions about HIV transmission, namely educational level and wealth index quintile. The lower the education level of the respondents, the more likely they are to experience misconceptions about HIV transmission. Respondents who were in the poorest, poorer, middle and richer wealth index were more likely of experiencing misconceptions about HIV transmission as compared to respondents who were in the richest. Educational level, employment status and wealth index quintile are predictors of stigma against PLWHA.

Conclusions: There are still many Indonesian people who experience misconceptions about HIV transmission and the magnitude of the stigma against PLWHA. Future studies should focus more on education programs or interventions aimed at increasing public knowledge and awareness, promoting compassion towards PLWHA and emphasizing on respect for the rights of PLWHA particularly in the population who are in poverty and uneducated.

Keywords: Human Immunodeficiency Virus, education, knowledge

Introduction

Human Immunodeficiency Virus (HIV) is a type of virus that infects white blood cells, causing a weakening of the human immune system. Acquired Immune Deficiency Syndrome (AIDS) is a set of symptoms of a disease that arises due to immune deficiency caused by HIV infection [1]. The virus can be transmitted by sexual contact, sharing needles to inject drugs and mother to baby during pregnancy, birth or breastfeeding. It is not transmitted by air or water; saliva, sweat, tears, or closed-mouth kissing, insects or pets and sharing toilets, food or drinks [2].

Globally, in 2020, there are 37.7 million (30.2—45.1 million) people living with HIV. In South-East Asia, there are 3.7 million people living with HIV, 100.000 (71.000—130.000) people acquiring HIV, and 82.000 (55.000—130.000) people dying from HIV-related causes [3]. Although it tends to fluctuate, data on HIV/AIDS cases in Indonesia continues to increase from year to year. Over the past eleven years the number of HIV cases in Indonesia reached its peak in 2019, which was 50,282 cases [1]. The highest percentage of HIV cases was reported in the 25 – 49 years age group (70%), followed by the age group 20-24 years (14.9%) and the age group 50 years (10.2%). Based on sex, the percentage of HIV case finding in men was 67.6% and women was 32.4% with a ratio of male and female is 2:1 [4].

One of the main reasons for the increased number of new HIV infection is lack of knowledge about HIV/AIDS [5]. Several previous studies showed that in many settings, knowledge about HIV is still low [5-7]. In Ethiopia, only 25.2% of women had a comprehensive knowledge of HIV/AIDS (95% CI 24.48, 25.9) [5]. It was less than 50% in Vietnam [6] and in Yemen [7]. In Indonesia, only 15% of women and 16% of married men have comprehensive knowledge about HIV transmission and prevention [8].

Level of knowledge about HIV is related to the possibility of experiencing misconceptions about HIV [9]. Misconceptions about HIV can also be influenced by area of residence, level of education, employment status [10], health illiteracy [11] and wealth index

[9]. Misunderstanding or lack knowledge about HIV/AIDS often has an impact on people's fear and rejection of people living with HIV/AIDS (PLWHA) [8]. The lack of knowledge about HIV is also perceived facilitators of stigma towards PLWHA [12]. Eight out of 10 women and married men discriminate against PLWHA. This discriminatory attitude towards PLWHA is most likely related to one's ignorance of the mechanisms of HIV transmission [8].

People living with HIV often receive various kinds of stigma, including avoidance behaviors (e.g. refusal to share food, hold hands or sit nearby), gossip and verbal abuse and social rejection (e.g. ostracism, ignorant view, loss of respect and standing) [13]. Several studies reported that stigma towards PLWHA often occur within families by parents, siblings, relatives or in-laws [14] even they receive discrimination from health workers [15,16]. A lack of knowledge about HIV, fear of contracting HIV, personal values, religious thoughts and sociocultural values and norms [15], educational background, marital status [17] were indicated to be a factor in the occurrence of stigma and discrimination against PLWHA. Family members encourage PLWHA to remain silent to avoid social rejection [18]. A qualitative study in Indonesia emphasized that stigma against PLWHA causes them to hide their HIV status from relatives and community [19]. Stigma has negative social and psychological effects. These will affect the quality of life and resilience of PLWHA [20].

In Indonesia, only 6% of women aged 15-49 years and 8.6% of men aged 15-49 years showed an attitude of acceptance towards PLWHA. Furthermore, only 43.9% of women and 44.6% of men said the HIV cannot be transmitted by mosquito bites, 64% of women and 54% of men would not buy fresh vegetables from a shopkeeper who has HIV, 45.8% of women said the HIV cannot be transmitted by supernatural means, 35% of women and 29% of men do not think that a female teacher infected with HIV, but is not sick, should be allowed to continue teaching [8].

One of the strategies for overcoming HIV/AIDS in Indonesia is strengthening partnership and community participation, including the private sector, the business world and other multi-sectors, both at the national and international levels. This strategy aimed to reduce stigma and discrimination in society. The results of the analysis of HIV and STIs programs in the 2015-2019 period showed there is no data available to measure the main indicators of Zero New Infection, Zero AIDS-related death and Zero Stigma and Discrimination [21]. This study aims to determine the factors related to misconceptions about HIV transmission and stigma against PLWHA in Indonesia. It is expected that the results of this study can contribute to the HIV/AIDS prevention program in Indonesia.

Materials and Methods

Study design

This cross-sectional study used secondary data from the 2017 Indonesia Demographic and Health Survey (IDHS). The dependent variables were misconceptions about HIV transmission and stigma against PLWHA. The independent variables were area of residence, educational level, employment status, wealth index quintile, reading ability and access to mass media. The variable of misconceptions about HIV transmission was independent variable for the outcome of stigma against PLWHA.

Setting

The 2017 IDHS sample covered 1,970 census blocks in urban and rural areas and was expected to obtain responses from 49,250 households. The sample frame of the 2017 IDHS was the Master Sample of Census Blocks from the 2010 Population Census. The frame for the household sample selection was the updated list of ordinary households in the selected census blocks. This list did not include institutional households, such as orphanages, police/military

barracks, and prisons, or special households (boarding houses with a minimum of 10 people).

Fieldwork took place from 24 July – 30 September 30 2017.

Participants

Participants in this study were respondents in the 2017 IDHS aged 17–45 years and married with a total of 3023 people. There were 1620 women (53.6%) and 1403 male (46.4%).

Measurements

Socio-demographic variables collected included age, sex, educational status, employment status, area of residence and wealth index quintile. Other variables were reading ability, access to mass media (newspaper/magazine, radio or television), misconceptions about HIV transmission and stigma against PLWHA. Variable of misconceptions about HIV transmission was measured by 4 indicators:

1. People can get HIV from mosquito bites (yes/no/don't know).
2. People can get the HIV by sharing food with a person who has HIV (yes/no/don't know).
3. People can get HIV because of witchcraft or other supernatural means (yes/no/don't know).
4. It is possible for a healthy-looking person to have the HIV (yes/no/don't know).

It is said that there is a misconception if there was “yes” answer for the indicators number 1, 2, or 3.

Variable of stigma against PLWHA was measured by the indicators below.

1. You will buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV-AIDS (yes/no/don't know).
2. If a member of your family got infected with the HIV, you will not want it to remain a secret (yes/no/don't know).

3. If a member of your family became sick with HIV-AIDS, you will be willing to care for her or him in your own household (yes/no/don't know).
4. A female teacher infected with HIV, but is not sick, should be allowed to continue teaching (yes/no/don't know).

Respondents are said to be stigmatizing PLWHA if they answer at least one "no" answer for all of the indicators above.

Statistical analysis

Descriptive statistics were calculated for all participant characteristics (Table 1). Multivariate analysis was conducted to determine the factors related to misconceptions about HIV transmission and stigma against PLWHA. We used backward method for the analysis. The result was that area of residence, employment status and access to mass media variables are excluded from the modeling for outcome of misconceptions about HIV transmission. And the area of residence variable was excluded from the modeling for outcome of stigma against PLWHA.

Results

We had a total of 3023 respondents. Sample characteristics are summarized in Table 1.

Table 1.

Our respondents had an average age of 32.41 years ($SD = 7,332$) and most were in the age range of 26 – 35 years (44.3%). Almost all (98.4%) of respondents had heard of HIV/AIDS but 75.9% of respondents showed misconceptions about HIV transmission. Surprisingly, almost all (94.7%) of respondents stigmatized PLWHA.

Table 2.

Misconception about HIV transmission

In this study, 75.9% of respondents expressed misconceptions about HIV transmission. There are two variables that are significantly related to misconceptions about HIV transmission, namely educational level and wealth index quintile, while reading ability as a controlling variable. The most influential variable is the educational level. Respondents with no education have a 5.3 times greater risk ($p < 0.05$) of experiencing misconceptions about HIV transmission compared to respondents with higher education. Respondents with primary education have a 4.4 times greater risk ($p < 0.05$) of experiencing misconceptions about HIV transmission than respondents with higher education. And respondents with secondary education have a 2.7 times greater risk ($p < 0.05$) of experiencing misconceptions about HIV transmission than respondents with higher education. We also found that respondents who were in the poorest had 1.2 times higher chance of having misconceptions about HIV transmission as compared to respondents who were in the richest ($p < 0.05$). Respondents who were in the poorer had 2.2 times higher chance to have misconceptions about HIV transmission as compared to respondents who were in the richest ($p < 0.05$). Respondents who were in middle had 2.4 times higher chance of having misconceptions about HIV transmission as compared to respondents who were in the richest ($p < 0.05$). And respondents who were in richer had 1.6 times higher chance of having misconception about HIV transmission as compared to respondents who were in the richest ($p < 0.05$).

Stigma against PLWHA

There are three variables that are significantly related to stigma against PLWHA, namely educational level, employment status and wealth index quintile, while reading ability and misconceptions about HIV transmission were controlling variables. The variable that has the greatest influence is the wealth index quintile. Respondents who were in the richest respondents were 3.3 times ($p < 0.05$) more likely to stigmatize PLWHA than respondents

who were in the poorest. Respondents who worked were 3 times ($p < 0.05$) more likely to stigmatize PLWHA than those who did not work. Respondents with secondary education were 2.7 times ($p < 0.05$) more likely to stigmatize PLWHA than respondents with higher education.

Table 3.

Discussion

Almost all (98.4%) of respondents had heard of HIV/AIDS but 75.9% of respondents experienced misconceptions about HIV transmission. More than 50% of respondents believed that HIV can be transmitted through mosquito bites, sharing food with PLWHA, witchcraft or other supernatural means and it is impossible for someone who looks healthy to be infected with HIV. This finding is similar to several previous studies in various countries [5,9,10]. We found that educational level and wealth index quintile were associated with misconceptions about HIV transmission. The lower the level of education, the more likely it is to experience misconceptions about HIV transmission. This result is supported by different studies done in Ethiopia [10], Malawi [9] and Bangladesh [22]. This might be because educated individuals have more access to information about HIV/AIDS than their counterparts [5]. Accurate knowledge is instrumental to reduce the various misconceptions related to HIV [10]. These findings suggest a need to target individuals who do not attend formal school through awareness-raising campaigns, specifically using mass media to attract wider audience to improve their overall knowledge about HIV/AIDS. These also indicate that there are still social and cultural barriers that prevent access to comprehensive knowledge. In general, effective educational programs are needed to increase individual knowledge [14].

Individuals who were in the poorest, poorer, middle, and richer wealth index were more likely of experiencing misconceptions about HIV transmission as compared to the richest. This

result is in agreement with the study done in Vietnam [23] and Malawi [9]. Having good socioeconomic status improves media exposure or educational achievement which increases the likelihood of knowledge about HIV/AIDS [5].

This study reveals that the stigma against PLWHA is still widespread in Indonesia, as well as in other countries [24,25]. Secondary education, currently employed and in the richest category of wealth index are positively related to stigma against PLWHA. Less educated people may have no understanding of HIV/AIDS (including misconceptions about how it is transmitted) leading to increased stigma associated with HIV [26]. Educated people have higher awareness on the prognosis of PLWHA and the availability of anti-retroviral treatments [27]. This study also shows that people who are currently working tend to stigmatize PLWHA.

This study found that respondents who were in the richest seem to be less compassionate towards PLWHA compared to respondents who were in the poorest. This finding contradicts the study conducted in Nigeria [26] and Tajikistan [28]. A possible explanation is that HIV is considered a disease of the poor. Poverty increases risky behavior towards HIV/AIDS such as transactional sex. Poverty also leads to fewer opportunities for work and education. On a broader scale, financial shortfalls can limit educational opportunities, access to health care and access to jobs. These conditions create a favorable environment for the spread of HIV [29]. This might be the cause of the richest judge that PLWHA is not from their class so they actually stigmatize PLWHA.

This study shows that there are still many Indonesian people who experience misconceptions about HIV transmission and the magnitude of the stigma against PLWHA. Future studies should focus more on education programs or interventions aimed at increasing public knowledge and awareness, promoting compassion towards PLWHA and emphasizing on respect for the rights of PLWHA particularly among the poor and uneducated. By increasing

public knowledge about HIV/AIDS, it is hoped that the stigma against PLWHA can be reduced.

Limitations of study

This study was a cross-sectional study and hence one cannot determine causality.

Conclusion

There are two variables that are significantly related to misconceptions about HIV transmission, namely educational level and wealth index quintile. The lower the education level of the respondents, the more likely they are to experience misconceptions about HIV transmission. Respondents who were in the poorest, poorer, middle and richer wealth index were more likely of experiencing misconceptions about HIV transmission as compared to respondents who were in the richest wealth index. Educational level, employment status and wealth index quintile are predictors of stigma against PLWHA. Future studies should focus more on education programs or interventions aimed at increasing public knowledge and awareness about HIV.

Ethics Statement

Not applicable as the manuscript did not involve any experimentation.

Conflicts of interests

The author has no conflicts of interest to declare for this study.

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Author contributions

Conceptualization, data curation, data analysis, writing – original draft, review & editing: DS.

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Table 1. Descriptive characteristics of analysis sample (N = 3023). Data are shown as n (%) unless otherwise specified

Variables	Summary value
Mean age (SD), years	32.41 (7.332)
Age group, years	
17 – 25	634 (21.0)
26 – 35	1340 (44.3)
36 – 45	1049 (34.7)
Sex	
Male	1403 (46.4)
Female	1620 (53.6)
Ever heard of AIDS	
No	47 (1.6)
Yes	2976 (98.4)
Area of residence	
Rural	2103 (69.6)
Urban	920 (30.4)
Educational level	
No education	1961 (64.9)
Primary	393 (13.0)
Secondary	559 (18.5)
Higher	110 (3.6)
Wealth index quintile	
Poorest	721 (23.9)
Poorer	718 (23.8)
Middle	666 (22.0)
Higher	570 (18.9)
Highest	348 (11.5)
Employment status	
No	434 (14.4)
Yes	2589 (85.6)
Reading ability	
Unable	2189 (72.4)
Able	834 (27.6)
Access to mass media	
No	914 (30.2)
Yes	2109 (69.8)
Knowledge about HIV transmission: people can get HIV from mosquito bites	
Yes	1704 (56.4)
No	885 (29.3)
Don't know	434 (14.4)
Knowledge about HIV transmission: people can get the HIV by sharing food with a person who has HIV	
Yes	1684 (55.7)
No	955 (31.6)
Don't know	384 (12.7)
Knowledge about HIV transmission: people can get HIV because of witchcraft or other supernatural means	
Yes	1835 (60.7)
No	471 (15.6)
Don't know	717 (23.7)
Knowledge about HIV transmission: it is possible for a healthy-looking person to have the HIV	
Yes	1840 (60.9)
No	717 (23.7)
Don't know	466 (15.4)

Continued

Variables	Summary value
Misconception about HIV transmission	
Yes	2293 (75.9)
No	730 (24.1)
Attitude towards PLWHA: if a member of your family got infected with the HIV, you will not want it to remain a secret	
Yes	1368 (45.3)
No (want it to remain a secret)	1655 (54.7)
Attitude towards PLWHA: you will buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV/AIDS	
Yes	1153 (38.1)
No	1798 (59.5)
Don't know	72 (2.4)
Attitude towards PLWHA: if a member of your family became sick with HIV/AIDS, you will be willing to care for her or him in your own household	
No	2316 (76.6)
Yes	588 (19.5)
Don't know	119 (3.9)
Attitude towards PLWHA: a female teacher infected with HIV, but is not sick, should be allowed to continue teaching	
Yes	1398 (46.2)
No	1443 (47.7)
Don't know	182 (6.0)
Stigma against PLWHA	
Yes	2863 (94.7)
No	160 (5.3)

Table 2. Descriptive statistics and multivariable regression model exploring variation in misconceptions about HIV transmission

Variables	Misconceptions about HIV transmission				Total		Sig.	Odds Ratio (95% Confidence Interval)
	No		Yes					
Area of residence								
Rural	420	(20.0)	1683	(80.0)	2103	(69.6)		
Urban	310	(33.7)	610	(66.3)	920	(30.4)		
Educational level								
No education	352	(18.0)	1609	(82.0)	1961	(64.9)	0.000	5.280 (2.833, 9.840)
Primary	90	(22.9)	303	(77.1)	393	(13.0)	0.000	4.370 (2.518, 7.583)
Secondary	214	(38.3)	345	(61.7)	559	(18.5)	0.000	2.706 (1.735, 4.221)
Higher	74	(67.3)	36	(32.7)	110	(3.6)		Ref.
Employment status								
No	126	(29.0)	308	(71.0)	434	(14.4)		
Yes	604	(23.3)	1985	(76.9)	2589	(85.6)		
Wealth index quintile								
Poorest	152	(21.1)	569	(78.9)	721	(23.9)	0.000	1.790 (1.316, 2.435)
Poorer	133	(18.5)	585	(81.5)	718	(23.8)	0.000	2.230 (1.638, 3.036)
Middle	120	(18.0)	546	(82.0)	666	(22.0)	0.000	2.383 (1.743, 3.257)
Richer	162	(28.4)	408	(71.6)	570	(18.8)	0.003	1.578 (1.173, 2.122)
Richest	163	(46.8)	185	(53.2)	348	(11.5)		Ref.
Reading ability								
Unable	401	(18.3)	1788	(81.7)	2189	(72.4)		
Able	329	(39.4)	505	(60.6)	834	(27.6)	0.395	0.824 (0.528, 1.287)
Access to mass media								
No	190	(20.8)	724	(79.2)	914	(30.2)		
Yes	540	(25.6)	1569	(74.4)	2109	(69.8)		

Table 3. Descriptive statistics and multivariable regression model exploring variation in stigma against PLWHA

Variables			Stigma against PLWHA				Total	Sig.	OR (95% Confidence Interval)
			Yes		No				
Area of residence									
Rural			2013	(95.7)	90	(4.3)	2103	(69.6)	
Urban			850	(92.4)	70	(7.6)	920	(30.4)	
Educational level									
No education			1875	(95.6)	86	(4.4)	1961	(64.9)	0.323
Primary			381	(96.9)	12	(3.1)	393	(13.0)	0.787
Secondary			504	(90.2)	55	(9.8)	559	(18.5)	0.019
Higher			103	(93.6)	7	(6.4)	110	(3.6)	Ref.
Employment status									
No			423	(97.5)	11	(2.5)	434	(14.4)	
Yes			2440	(94.2)	149	(5.8)	2589	(85.6)	0.001
Wealth index quintile									
Poorest			693	(96.1)	28	(3.9)	721	(23.9)	Ref.
Poorer			697	(97.1)	21	(2.9)	718	(23.7)	0.233
Middle			631	(94.7)	35	(5.3)	666	(22.0)	0.240
Richer			540	(94.7)	30	(5.3)	570	(18.9)	0.435
Richest			302	(86.8)	46	(13.2)	348	(11.5)	0.000
Reading ability									
Unable			2097	(95.8)	92	(4.2)	2189	(72.4)	
Able			766	(91.8)	68	(8.2)	834	(27.6)	0.744
Access to mass media									
No			871	(95.3)	43	(4.7)	914	(30.2)	
Yes			1992	(94.5)	117	(5.5)	2109	(69.8)	
Misconception about HIV transmission									
Yes			2189	(95.5)	104	(4.5)	2293	(75.9)	
No			674	(92.3)	56	(7.7)	730	(24.1)	0.069