

HIV-related knowledge level among Indonesian women between 15 years and 49 years of age

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Abstract

Background: Women are a highly vulnerable population for HIV-infection, influenced by biological, cultural, social and economic factors. Inadequate knowledge about the risk for exposure to HIV will impact the prevention and treatment of HIV.

Objectives: The aim of this study was to examine HIV-related knowledge among women in Indonesia and the associated demographic determinants that influence their access to accurate HIV-related information.

Methods: This was a secondary analysis of the Indonesia Demographic and Health Survey in 2012. Level of HIV-related knowledge was determined by analyzing nine items on the 2012 IDHS instrument.

Results: The percentage of women in Indonesia between the ages of 15 and 49 years of age, more than half (53.6%) had high score of HIV-related knowledge. The results from logistic regression showed that women aged 30-34 years old had 2.2 times higher knowledge level about HIV compared to older women. Married women, living in rural area, with a lower level of education, reported to have limited or no access to HIV related information; thus, had a correspondingly lower knowledge level of HIV.

Conclusion: Study findings underscore the lack of knowledge-level among Indonesian women about HIV, especially the prevention, transmission, and prevention mother to child transmission (PMCT).

Keywords: HIV, Knowledge, prevention, women, demographic health survey.

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Introduction

Human immunodeficiency virus (HIV) in Indonesia is a serious public health concern, and the associated social problems remain a priority for action. Indonesia is ranked second highest number of people (males and women) living with HIV (PLWH) in the South-East Asia Region (SEAR), and the rate increased significantly annually ranging from 5,846 in 2004 to 242,699 in 2017¹. The HIV prevalence among Women also continues to increase every year, accounting for 32% of total PLWH in 2017^{2,3}.

Although the number of new HIV infection decreased by 19% from 2014 to 2017, the risk of HIV transmission remains high³. Associated with lack of knowledge and the serious stigma in HIV, individuals in the highest risk groups tend to have limited access to relevant HIV education and social services. In turn, this probably results in the underreporting of HIV in those medically underserved and more remote regions of the nation^{1,4,5}. Therefore, the knowledge level of HIV is a critical factor in HIV prevention⁶.

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Women are a highly vulnerable population for HIV-infection, influenced by biological, cultural, social and economic factors^{1,5}. The risk of HIV in women is estimated to be from 2 to 4 times greater than for male due to their reproductive and genital anatomic structures which facilitates HIV transmission with sexual intercourse⁷. Culturally, gender inequality, male dominance, and stigma exacerbate the Women vulnerability further increasing their vulnerability for HIV exposure⁸. A previous study

in Indonesia reported that most Indonesia women have been involved in deciding their health care but are relegated less power in social and economic decision making²⁹. Furthermore, for a married woman who is pregnant with HIV, there are long-term consequences for her children such as her child has the potential to be infected by HIV if did not do prevention in advance.

Inadequate knowledge about the risk of exposure to HIV will also impact the prevention and treatment for PLWH, perpetuated by the stigma and the discrimination of being HIV positive¹⁰. A previous study conducted in Nigeria found that only 24% of women had comprehensive knowledge about transmission of HIV¹¹. Previous studies conducted in 137 countries reported the gender gap in the knowledge level of HIV decreased and knowledge about HIV prevention was even lower among women¹². A study conducted in Uganda and Bangladesh indicated that women's knowledge of HIV in both countries was unevenly distributed with disparities found based on economic status and education level^{13,14}. Furthermore, in Sub-Saharan Africa found that accurate and comprehensive information about HIV would reduce the risk of HIV infection¹⁵. Factors associated with HIV-related knowledge in Indonesia included age, gender, and education background and place of residence has been previously reported¹⁶. However, there is a paucity of information focusing women's knowledge level about HIV prevention and management associated with the increased emphasis on exposure to HIV-related information. The purpose of this study was to examine HIV-related knowledge among Women in Indonesia and the associated demographic determinants that influence their access to accurate HIV-related information.

Methods

Secondary data from the 2012 Indonesian Demographic Data Survey (IDHS). IDHS were analyzed. This survey is a component of the International Demographic and Health Survey (DHS) program. The 2012 IDHS was carried out by the Central Statistics Agency (BPS) in collaboration with the National Population and Family Planning Board (BKKBN) and the Ministry of Health. The International Inner City Fund (ICF) provided technical assistance through the MEASURE DHS project, funded by the United States Agency for International Development (USAID). The 2012 IDHS was conducted in 33 provinc-

es from May to August 2012. Women between the ages of 15 to 49 years old were included in the analysis, using stratification and multistage random sampling techniques. The 2012 IDHS included 43,852 households¹⁷; for this study, data were analyzed for N=45,067 ranging from 15 years to 49 years of age.

The 2012 IDHS obtained ethical permission from the National Institute of Health Research and Development, Indonesian Ministry of Health. Respondents provided written informed consent which is securely maintained by the Indonesian Ministry of Health. Permission to use data for this study was obtained from ICF International-DHS10 program. All respondents' identities were deleted from the secondary data that were analyzed for this study.

The knowledge of HIV was assessed using the 2012 IDHS questionnaire for women, which consisted of nine items (yes or no responses), focusing on the transmission of HIV, [personal] prevention, prevention of mother-to-child transmission (PMTCT). Knowledge-level of HIV was categorized as "good enough" or "lack of knowledge."

Determinants (factors) of women knowledge level about HIV included demographics, place of residence (geographic area, i.e., urban, rural), socioeconomic, and access to information. Demographic factors were age (15—19 years, 20—24 years, 25—29 years, 30—34 years, 35—39 years, 40—44 years, 45—49 years, age was classified based on Indonesian demographic data classification) and marital status was defined based on the Indonesian law (unmarried, married). Education was determined by formal years of education (not at all, primary, secondary, higher education) and economic status by measure monthly income (lowest, lower middle, middle, upper middle, higher); access to information such as newspaper, radio and television (no. yes - at least once each week).

All data were analyzed using IBM SPSS version 22.0 for Windows 10.

Univariate analysis and Chi-square test were used to determine the relationship among demographic variables, place of residence (geographic area), socio-economic factors and access to information with knowledge-level of HIV. Further analysis was undertaken to determine significant factors associated with knowledge-level of HIV using a logistic regression model.

Results

Table 1 summarizes demographic characteristics of all Indonesian women ranging in age from 15 years to 49 years of age. Of these, the majority were married

(76.5%); more than half had completed secondary education (52%) and were lower-mid socioeconomic status (20.1%). More than half had access to a newspaper and or radio at least once weekly, but almost all had access to televisions (95.2%).

Table 1. Demographic characteristics of Indonesian women (N= 45,067)

Variables		%
Age in years		
15-19	n=7123	15.8
20-24	n=6519	14.5
25-29	n=7070	15.7
30-34	n=6879	15.3
35-39	6694	14.8
40-44	5826	12.9
45-49	4986	11.1
Marital status		
Unmarried (never married/divorced)	10618	23.5
Married	34779	76.5
Place of residence (Geographic)		
Urban	22615	50.1
Rural	22482	49.9
Education level (years of formal education)		
Not at all	1606	3.6
Primary	13594	30.1
Secondary	23461	52.0
Higher	6436	14.3
Economic status (monthly income)		
Lowest	10527	23.3
Lower middle	9065	20.1
Middle	8579	19.0
Upper middle	8379	18.6
Higher	8547	19.0
Access to written media (newspapers / magazines)		
No	21551	47.8
At least once a week	23546	52.2
Access to radio		
No	20993	46.6
At least once a week	24104	53.4
Access to TV		
No	2146	4.8
At least once a week	42951	95.2

HIV-related knowledge level among Indonesian women is highlighted in Table 2. With respect to understanding the HIV mode of transmission, most women gave a correct response. Specifically, transmission of HIV is not through mosquitos' bites (75.1%); and, HIV can be transmitted by sharing needle (69.7%) and cannot be transmitted by sharing food with PLWH (68.9%). Regarding the PMTCT-related questions, about half responded correctly for the prevention strategy of having a monoga-

mous partner (56%); people who are healthy can have HIV (58.9%). In contrast, 57.1% of the women did not correctly respond to the item related to male condom use for HIV prevention during sexual intercourse. In bivariate analysis, there were significant associations between the Women's age, marital status, Place of residence (geographic area -urban/rural), socioeconomic status, and access to information (newspaper, radio, and television) with their knowledge level of HIV ($p < 0.05$) (Table 3).

Table 2. Percentage of Indonesian women responding to HIV survey (N= 45,067)

Questions/Items	Correct Response (%)
Always use a condom during sexual intercourse	42.9
Only have one partner	56.0
Can be infected with HIV by mosquito bites	75.1
Can be infected with HIV from sharing food with PLWHA	68.6
People who are healthy can have HIV	58.9
HIV is transmitted during pregnancy	63.4
HIV is transmitted during labor	55.6
HIV is transmitted through ASI	61.5
Can be infected with HIV by sharing needles	69.7

Table 3. Determinants of Indonesian womens' HIV knowledge level (N= 45,067)

Variables	HIV Knowledge (%)			χ^2
	<	=	>	
Age in years				
15-19	18.3	25.7	56.0	1444.40*
20-24	20.7	22.3	57.0	
25-29	22.1	21.0	56.8	
30-34	22.7	20.0	57.2	
35-39	27.4	18.5	54.2	
40-44	33.0	17.9	49.1	
45-49	43.7	15.5	40.9	
Marital status				
Unmarried	14.3	24.6	61.1	1000.34*
(never married/divorced)	29.6	19.1	51.3	
Married				
Place of residence				
(Geographic)	13.2	21.0	65.8	4110.55*
Urban	38.8	19.8	41.4	
Rural				
Education level (years of formal education)	85.8	6.4	7.8	12578.3*
Not at all	52.2	18.6	29.3	
Primary	13.5	23.6	63.0	
Secondary	1.3	16.3	82.3	
Higher				
Economic status (monthly income)	53.8	17.6	28.6	7578.87*
Lowest	30.6	22.7	46.7	
Lower middle	19.5	22.7	57.8	
Middle	12.4	20.8	66.7	
Upper middle	6.6	18.8	74.6	
Higher				
Access to written media (newspapers / magazines)	41.3	20.6	38.2	5541.73*
No	12.0	20.3	67.7	
At least once a week				
Access to radio				
No	34.3	20.6	44.9	1637.42*
At least once a week	18.6	20.2	61.2	
Access to TV				
No	64.1	14.4	21.5	1732.19*
At least once a week	24.1	20.7	55.2	

The logistic regression analysis found that age, marital status, place of residence, education level, socioeconomic status, and access to information was significantly associated with knowledge-level of HIV (Table 4). Indonesian women between 30 to 34 years of age (OR=2.13, 95% CI=1.88—2.40), were not married (OR=1.12, 95%

CI=1.01—1.26), and living in the urban area (OR=1.62, 95%CI= 1.52—1.74) contributed more notably to the modest knowledge level about HIV. Furthermore, women between 30 to 34 years of age (OR=2.21, 95% CI=1.98—2.45) and living in the urban area (OR=1.84, 95% CI=1.73—1.95) were found to be stronger factors associated with higher level of HIV-related knowledge.

Table 4. Logistic regression analysis of Indonesian women HIV knowledge level (adjusted and unadjusted odds ratios)

variables	OR	95% CI	P-value	OR	95% CI	p-value
Age in year						
15-19	1.73 (1.49 - 2.01)	1.49 -2.01	0.000	1.50	1.31 - 1.72	0.000
20-24	1.82	1.60 -2.07	0.000	1.60	1.43 - 1.79	0.000
25-29	1.99	1.76 - 2.25	0.000	1.90	1.70 - 2.11	0.000
30-34	2.13	1.88 - 2.40	0.000	2.21	1.98 - 2.45	0.000
35-39	1.67	1.84 - 1.88	0.000	1.82	1.64 - 2.02	0.000
40-44	1.37	1.22 - 1.55	0.000	1.39	1.25 - 1.55	0.000
45-49	Ref.					
Marital status	Married					
Unmarried (never married/divorced)	1.12	1.01 - 1.26	0.040	0.88	0.80 - 0.98	0.021
Place of residence (Geographic)	Ref.					
Urban	1.62	1.52 - 1.74	0.000	1.84	1.73 - 1.95	0.000
Rural	Ref.					
Education level (years of formal education)						
Not at all	0.02	0.02 - 0.03	0.000	0.01	0.006 - 0.011	0.000
Primary	0.07	0.06 - 0.09	0.000	0.03	0.02 - 0.04	0.000
Secondary	0.23	0.18 - 0.28	0.000	0.14	0.11 - 0.18	0.000
Higher	Ref.					
Economic status (monthly income)						
Lowest	0.32	0.29 - 0.37	0.000	0.21	0.19 - 0.23	0.000
Lower middle	0.56	0.50 - 0.63	0.000	0.40	0.36 - 0.45	0.000
Middle	0.71	0.63 - 0.81	0.000	0.59	0.52 - 0.66	0.000
Upper middle	0.83	0.73 - 0.85	0.005	0.77	0.69 - 0.87	0.000
Higher	Ref.					
Access to written media (newspapers / magazines)						
None	0.67	0.62 - 0.72	0.000	0.49	0.46 - 0.52	0.000
At least once a week	Ref.					
Access to Radio						
None	0.92	0.86 - 0.97	0.008	0.80	0.75 -0.85	0.000
At least once a week	Ref.					
Access to TV						
None	0.78	0.67 - 0.89	0.000	0.71	0.62 - 0.80	0.000
At least once a week	Ref.					

Discussion

The findings in the analysis of secondary data from the 2012 IDHS survey showed that more than half of all Indonesian women have inaccurate or very limited HIV-related awareness and knowledge. A previous study conducted in Nigeria reported a majority of women had a

higher awareness of HIV, but only 24% had comprehensive knowledge about transmission of HIV¹¹. Insufficient knowledge of HIV prevention, HIV transmission, and prevention mother to child transmission (PMTCT) increases vulnerability to HIV infection in women¹⁸. Vulnerable groups in general, women in particular, should have

the same access to health care services and the self-determination to participate in their health care decision making. Accurate knowledge about HIV prevention reduces one's risk for HIV exposure and subsequent infection. A study conducted in Sub-Saharan Africa found that accurate and comprehensive information, increased knowledge-level about HIV prevention significantly reduce the risk of getting infected by the HIV¹⁵. This findings of this study found there is a serious need for Indonesian women from 15 to 49 years of age need more information about HIV transmission and prevention¹⁰. Designing health education program about HIV and spread out the information widely is urgently needed to reduce HIV transmission among women in Indonesia.

This study showed that Indonesia women from 30 to 34 years of age had better knowledge compared to others aged groups. This finding may be associated with cultural factors, their access to information, and lower educational levels. For example, if they have high education background and therefore can accurately read and understand written information like newspapers, magazines etc, or they have a high economic status that they can afford to buy a television set and watch any educational programme that is aired. Previous study conducted in Bangladesh suggested that as the person matures, the individual is more likely to be exposed to additional accurate health-related information, which should also increase knowledge level and awareness¹³. A similar study conducted among women in Kenya, Ethiopia, and Burundi found that women aged 30 to 34 years old had better knowledge of HIV compare to younger women aged 19. However, our study found that women 39 years of age and older had lower knowledge of HIV. This finding needs to be further investigated to determine factors that contribute to this finding.

Unmarried women had a lower HIV related knowledge level compared to married counterparts. In the pre-dominant Indonesian culture, discussed sexual health or responsible sexual activity are taboo topics, especially for single and unmarried women. Thus, they are less likely to discuss sexual issues particularly topics related to HIV transmission and prevention. Therefore, unmarried women may not have this information source. A similar with a study conducted in Kenya reported that unmarried women had a higher knowledge of HIV due to they need to secure everything by them self²⁰. In contrast to the

previous study, found that married women had a higher knowledge of HIV. The different results in this study might be due to different demographic characteristics such as educational background²¹ and media exposure. Furthermore, researchers argue that married women may have an opportunity to gain information from their partner(s) such as responsible sexual behaviors that address risk factors for HIV exposure²².

These findings highlight inequality in infrastructure development to help people easily able to access information. Women with more formal education also had a higher HIV knowledge level. However, the majority of Indonesian women have completed less than a secondary level of education. Years of education significantly influenced women HIV knowledge level^{13,22}. More years of formal education is essential for creating awareness, hence knowledge level with exposure to relevant information, in this case, HIV transmission and prevention.

Economic status also was found to be is significantly related to Indonesian women HIV knowledge level. Consistent with a study conducted in Bangladesh, but different from research conducted in Kenya which reported no significant relationship between economic status and knowledge about HIV^{20,23}. Higher economic status is associated with better ease of access to HIV related information and a better opportunity to pursue a higher education level. Women in better economic situations tend to be more aware of their health status and better prepared to make decisions about health behaviors.

This study found Indonesian women residing in urban areas had 1.62 times great knowledgeable level than rural counterparts. In Indonesia access to media sources, both electronic and written materials, often is limited or perhaps even inaccessible in many more remote and rural areas²⁴. Another study in Indonesia emphasized that people who lived in the rural area more prefer to rely on cultural traditions and beliefs about health, sexual activity, and reproduction. Moreover, community leaders often view HIV as a "curse" for the individual, family and even the community²⁵.

This finding is consistent with other researchers in Bangladesh and Sudan^{23,26}. Urban residence generally offers greater opportunity to access media of various types; and, perhaps better exposure to HIV-related information. Transparency regarding the prevalence of HIV in Indonesia, encouraging open discussions and improving access

to information are all essential to facilitate information access for Indonesian women, rural and urban alike, to learn about HIV transmission, prevention, and resources. Some limitation of our study should be acknowledged. First, our study was based on secondary of the 2012 IDHS survey may not reflect the current HIV-related knowledge level among Women in Indonesia accurately. Second, the instrument measured HIV-related knowledge level not using validate instrument which may be biased. However, our study was a national survey with a large sample size that allowed to generalize to all women aged 15-49 years old in Indonesia. A more comprehensive assessment of HIV-related knowledge level is needed to understand the impact of socioeconomic and cultural factors.

Conclusion

This study set out to determine that Indonesian women who were aged 30 to 34 years old, unmarried, living in urban area, higher education and economic status showed better knowledge of HIV compared to older age, married and living in rural area. Our findings underscore the needs for optimizing existing facilities and infrastructure in the rural area to provide comprehensive knowledge about HIV base on the local needs. Furthermore, policy maker need to design a wide health education program targeted to women who were uneducated, poor, unmarried and lived in rural area using an innovative strategy.

Declaration of conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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