



Analyzing 2017 Indonesia Demographic Health Survey: Knowledge, Socio-demographics, and HIV/AIDS Prevention among Housewives

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Abstract

The spread of HIV/AIDS in Indonesia is increasing and dominated by housewives. This study aims to analyze the knowledge and socio-demographics that influence HIV/AIDS prevention behavior among housewives in Indonesia through data from the 2017 Indonesian Demographic and Health Survey (IDHS 2017). The data used were women of childbearing age (15-49 years) with 12,445 samples. cross-sectional study design with Chi-square test on bivariate analysis and logistic regression test on multivariate test. The results showed that there was a significant relationship between knowledge and HIV/AIDS prevention behavior. Women who had better knowledge about HIV/AIDS tended to use condoms more often and take HIV tests and had positive attitudes towards safe sex, which also positively correlated with better prevention behavior. Regression results also revealed that socio-demographic factors such as knowledge, age, latest education, economic status, and place of residence had a significant impact on HIV/AIDS prevention behavior. It suggests improving knowledge and education for housewives, promoting economic empowerment, implementing neighborhood-level initiatives, and enhancing community-wide awareness efforts.

INTRODUCTION

Ministry of Health Regulation No. 21 Year 2013 on HIV and AIDS Response states that HIV (Human Immunodeficiency Virus) is a virus that infects white blood cells to reduce immunity and result in AIDS (Acquired Immuno Deficiency Syndrome). AIDS is a collection of symptoms of reduced self-defense capabilities caused by the entry of HIV into a person's body (Menteri Kesehatan Indonesia, 2013). Until now, HIV/AIDS is still an iceberg phenomenon because the number of reported cases is less than the actual cases (Hanif et al., 2022). The HIV is usually found in body fluids such as blood, sperm fluid, vaginal fluid, and breast milk (Yeshaneh et al., 2023). This virus causes the body's inability to fight infections that enter the body, so people with HIV / AIDS will be vulnerable to various diseases. HIV infection will cause a reduction in the number and function of CD4 cells, resulting

in a progressive decline in the immune system (Vijayan et al., 2017). HIV patients with poor immune systems, and not working effectively, will increase the risk of severity of opportunistic infections that coincide with increasing mortality and morbidity of HIV patients (Tegegne et al., 2022)

Worldwide, there are an estimated 2000 children under the age of 15 every day who contract HIV, about 1400 children under the age of 15 who die, and more than 6000 people of productive age who are infected with HIV. WHO (World Health Organization) reported approximately 36,900,000 people living with HIV positive, with 2.1 million being children under the age of 15 (WHO, 2023). The Ministry of Health reported that in Indonesia, as of June 2017, there were more than 255,000 cases of HIV incidence. It is estimated that 0.8% of adults aged 15-49 years are infected with HIV, with the incidence rate more in women than men.

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Data on AIDS cases reported every 3 months in the period 2003–2013 by the Ministry of Health showed that the highest number of AIDS cases in women were housewives and increased in 2023 (Dirjen Kesehatan Masyarakat Kemkes RI, 2023). The majority cause of housewives' risk of HIV/AIDS transmission is transmission from their husbands who have indiscriminate sex. If HIV infection occurs in women during pregnancy and breastfeeding, there is a risk of transmission from the mother to her child (Paneru et al., 2014).

HIV/AIDS transmission among housewives can occur due to a lack of knowledge about HIV/AIDS prevention behavior. Knowledge is a reflection of one's behavior. A person with low knowledge about HIV/AIDS prevention behavior will often allow risky behavior to be carried out without any prevention. In addition to knowledge, demographic factors such as age, education level, occupation, economic status, area of residence, and media exposure are also some of the factors that influence preventive behavior in housewives. Age affects a person's mindset. With age, the mindset will develop so that a person will more easily acquire knowledge. Housewives have a high risk of HIV/AIDS transmission through their partners, which is supported by the lack of information and efforts to prevent transmission. Education is closely related to knowledge. The higher a person's education, the broader the insight and the more information they get about the world of health so they can behave in HIV/AIDS prevention. This reason is also supported by (Bunyasi & Coetzee, 2017), which states that a higher level of education is more likely to allow a person to have better knowledge about HIV prevention, more accepting of health care, more able to negotiate for safe sex, and all factors that can reduce HIV transmission.

The work environment can also be a bridge for a person to gain knowledge and experience about HIV/AIDS prevention. Economic factors determine the availability of access to information and the utilization of healthcare infrastructure. A high economic level will facilitate access to information through various mass media. The family economy depends on the head of the family. This is the cause of the

difficulty of housewives in controlling HIV/AIDS transmission because they are unable or reluctant to refuse relationships or ask partners to use condoms as a preventive behavior. Low income will put a person in a risky situation in meeting their daily needs, such as being willing to do work that is vulnerable to HIV/AIDS transmission (Ogunmola et al., 2014). In terms of area of residence, according to (Pellowski, 2013), individuals residing in rural areas are particularly at risk of HIV/AIDS transmission because they do not have adequate access to health care, both in terms of transportation and health services. The dissemination of information related to HIV/AIDS prevention is also inseparable from the role of the media in its dissemination. The importance of mass media in health promotion and disease prevention plays a vital role in increasing knowledge and awareness of public health behavior (Jung et al., 2013). Based on this description, it is necessary to research the relationship between knowledge and demographic factors on HIV/AIDS prevention behavior in housewives.

METHOD

This study is an analytic observation with a cross-sectional study design using secondary data from the 2017 Indonesian Demographic Health Survey (IDHS 2017). The 2017 IDHS was conducted by the Central Statistics Agency (BPS) in collaboration with the National Population and Family Planning Agency (BKKBN) and the Ministry of Health. The survey has also met the standards of the ICF Institutional Review Board (IRB). The sample selection procedure in this data is a two-stage stratified sampling, first by sorting by urban, rural, and welfare index categories. The number of census blocks selected in each district or city was determined by a systematic PPS (probability proportional to size) calculated from the 2010 census. Second, 25 households were systematically selected from each selected census block. The dataset used is IDIR71SV, which contains survey data of 49,627 women of childbearing age (15–49 years). This study aimed to determine the relationship between knowledge and sociodemographic factors with HIV/AIDS prevention behavior efforts among housewives. The inclusion criteria were those

who filled out the questionnaire and joined the 2017 IDHS, while the exclusion criteria were mothers who did not answer and did not know and variables with missing data were excluded. The sample obtained after being done by the criterias was 12,445.

The dependent variable of this study was HIV/AIDS prevention behavior efforts grouped into two categories: low and high. Low preventive behavior is performing behaviors that are at risk of HIV/AIDS, while the high category of preventive behavior is respondents who do not perform risky behaviors. The independent variables were HIV/AIDS knowledge, age, latest education, marital status, occupation, economic status, residence, and exposure to HIV/AIDS-related media. HIV/AIDS knowledge consisted of four parts, namely: HIV/AIDS, how it is transmitted, how to prevent it, and Prevention of Mother to Child Transmission (PMTCT) (Tang et al., 2019). The knowledge was categorized into two categories: low and high knowledge. Knowledge is low if the value is ≤ 81.125 , while it is high if the respondent's answer is > 81.125 . The analysis was conducted in stages, from univariate analysis by presenting the frequency distribution of each variable to testing the relationship between the dependent and independent variables using the chi-square test. Finally, a multiple logistic regression test with a predictive model was used to assess the dominant factor associated with the dependent variable.

RESULT AND DISCUSSION

In this study, more respondents made low-level than high-level prevention efforts. There were 10,593 (85.1%) respondents whose HIV/AIDS prevention efforts were still low, while 1,852 (14.9%) other respondents had proper HIV/AIDS prevention efforts. In the variable of knowledge level, respondents with low knowledge were 5,389 (43.3%), while respondents with high knowledge level related to HIV/AIDS were 7,056 (56.7%). In this study, there were 7 categories in age, including 15-19 years, as many as 170 (1.4%), 20-24 years as many as 1,165 (9.4%), 25-29 years as many as 2,238 (18%), 30-34 years as many as 2,538 (20.4%), 35-39 years as many as 2,518 (20.2%), 40-44 years as many as 2,161 (17.4%), and

45-49 years as many as 1,655 (13.3%). More respondents have a high level of education than respondents with a low level of education. Respondents with a high level of education were 10,778 (86.6%), while respondents with a low level of education were only 1,667 (14.4%).

More respondents were employed than those who were not. In this study, 8,135 (65.4%) people had jobs, while the remaining 4,320 (34.6%) were respondents who did not have jobs. In the economic status variable, respondents who had low economic status were 3,153 (25.3%), middle economic status as many as 2,368 (19%), and upper economic status as many as 6,924 (55.6%). There were 4,437 (35.7%) respondents who lived in rural areas compared to 8,008 (64.3%) who lived in urban areas. More respondents were exposed to information media about HIV/AIDS, namely 10,662 (85.7%), compared to respondents who were not, namely 1,783 (14.3%).

The results of the chi-square test showed a p-value on the HIV/AIDS knowledge variable of $(<0.001) < (0.05)$, which means that there is a significant relationship between the knowledge variable and HIV/AIDS prevention behavior in housewives. Knowledge is one of the sources in shaping a person's behavior that will play a role in decision-making before taking action so that the transmission of HIV/AIDS in the household, especially in transmission by mother to child, can be prevented (Yeshaneh et al., 2023). Before adopting a behavior, a person must understand the meaning and benefits of the behavior for self, family, and society. This knowledge is the basis for someone to make decisions and determining an action. Knowledge related to HIV/AIDS will be useable in recognizing the disease more deeply, from causes to prevention. The study is in line with research (Dewi et al., 2019), where the p-value (0.000). It means that there is a relationship between knowledge and HIV/AIDS prevention behavior in housewives. Knowledge can be obtained through direct experience or from the experience of others.

Age is one of the factors describing physical, psychological, social maturity, and the maturity of positive thinking in making decisions. A person's experience increases as

Table 1. HIV/AIDS Prevention Behavior Efforts in Indonesia 2017 IDHS Data

Variables	N	%
Prevention behaviour Efforts		
Low	10.593	85,1%
High	1.852	14,9%
HIV/AIDS knowledge		
Low	5.389	43,3%
High	7.056	56,7%
Age		
15-19	170	1,4%
20-24	1.165	9,4%
25-29	2.238	18,0%
30-34	2.538	20,4%
35-39	2.518	20,2%
40-44	2.161	17,4%
45-49	1.655	13,3%
Latest education		
Low	1.667	13,4%
High	10.778	86,6%
Working status		
No	4.310	34,6%
Yes	8.135	65,4%
Economic Status		
Low	3.153	25,3%
Middle	2.368	19,0%
Upper	6.924	55,6%
Place of residence		
Rural	4.437	35,7%
Urban	8.008	64,3%
Media Exposure		
No	1.783	14,3%
Yes	10.662	85,7%

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they get older (Van Dijk et al., 2020). Human adults will better consider the risks that occur before taking action. The test results show a p-value at the age of 15-19 years of (0.007) < (0.05) and age 20-24 of (<0.001), which means that someone aged 15-24 years has a low level of preventive behavior. This study is in line with the 2012 IDHS study, which states those aged 15 to 19 years old have less knowledge than other age groups, as much as 99.7%. When in the logistic regression model, those ages 15-19 and 20-24

are not significant to HIV/AIDS knowledge (Erma Pradnyani et al., 2019). Adolescents and young adults tend to be less aware of the risk of HIV/AIDS transmission from free lifestyle behaviors than adults, so they are more prone to unsafe sexual behavior.

The results of the chi-square test showed a p-value of (<0.001) on the education variable, which indicates that education has a significant relationship with HIV/AIDS prevention behavior among housewives. In general,

education is all efforts to influence, urge, invite, persuade, and end with the willingness of others to do what is expected. Low education will affect a person's level of knowledge and understanding of HIV/AIDS as well as poor HIV attitudes and behaviors (Nutakor et al., 2023). An educated person has better absorption and understanding of information, especially health information (Paterick et al., 2017). The results of this study are also in line with research (David et al., 2020). The risk of HIV decreases with higher education, reaching a peak of 80% lower risk for individuals with postgraduate degrees. It was noted that, in comparison to illiterate women, those with some schooling experienced a higher reduction in the risk of HIV. It shows that the higher the level of education, the higher awareness of health status is because it is a determining factor in women's empowerment, access to information and health services so that they can determine health not only for themselves but also their loved ones (Mude et al., 2020).

Work is an activity that aims to make a living or livelihood. The results of the chi-square test resulted in a p-value of (0.003) < (0.05), which means that there is an association between employment status and HIV/AIDS prevention behavior among housewives. Someone who works can be more likely to get health facilities, especially in health care and HIV prevention, one of which is the existence of HIV / AIDS tests on workers (Maulsby et al., 2020). The results of the chi-square test on economic status variables with HIV/AIDS prevention behavior among housewives, the p-value <0.001 and PR value = 1.885 (95% CI: 1.654-2.148) in low economic status. While the middle economic status with PR value = 1.466 (95% CI: 1.281-1.281). It shows that mothers who are in the lower and middle economic status tend to have lower HIV/AIDS prevention behavior efforts compared to the upper economic status whose risk is 1.885 times and 1.466 times, respectively. Based on previous research, there is a significant relationship between economic status that affects knowledge and preventive behavior towards HIV/AIDS (Erma Pradnyani et al., 2019; Nutakor et al., 2023). Another study conducted in South Africa showed a relationship between better

economic status and better knowledge about HIV prevention, seeking or receiving health services, and negotiating for safe sex (Bunyasi & Coetzee, 2017).

The results of the chi-square test on the variable of residence showed a significant relationship with HIV/AIDS prevention behavior in housewives P-value = <0.001 and PR value = 1.058 (95% CI: 1.042-1.073), which means that mothers who live in villages have a greater low effort of prevention behavior compared to mothers who live in cities. Based on previous studies conducted in Ethiopia, it is known that rural women have a lower probability of having comprehensive HIV knowledge than urban women. However, there was a negative association with comprehensive HIV knowledge only in women who had never had an HIV test (Abate et al., 2020). Other findings show that individuals living in rural areas have limited access to public sources of HIV/AIDS-related information, thus affecting their knowledge and awareness of HIV prevention methods (Hasan et al., 2022; Wen et al., 2015).

The results of the chi-square test on the variable media exposure with HIV/AIDS prevention behavior in housewives showed a significant relationship with a p-value = 0.015 PR value = 1.027 (95% CI: 1.007-1.047). Based on research on women of productive age, media exposure such as television, radio, magazines, the internet, and other media is associated with increased knowledge related to HIV/AIDS. Media exposure is evidence that it can change HIV/AIDS risk behavior ((Agegnehu & Tesema, 2020). This finding is consistent with women who are exposed to media-based information about HIV being more likely to visit health facilities for HIV testing (Nutakor et al., 2023; Onsomu et al., 2013; Sano et al., 2016). It means that information media has the potential to increase understanding and knowledge and may have the potential for HIV/AIDS prevention, including the use of HIV testing (Sano et al., 2016).

Table 3 shows that the results of multivariate test analysis on the knowledge variable showed a p-value = <0.001 (p <0.05) and OR = 1.511, meaning that after controlling

Table 2. Bivariate Analysis of HIV/AIDS Prevention Behavior Efforts in Indonesia 2017 IDHS Data

	HIV/AIDS Prevention Behavior					<i>P-Value</i>
Variable	Low		High		PR 95 CI	
	N	%	N	%		
HIV/AIDS knowledge						
Low	4791	88,9	598	11,1	1,081 (1,066-1,097)	<0,001*
High	5802	82,2	1254	17,8		
Age						
15-19	158	92,2	12	7,1	2,277 (1,247-4,159)	0,007*
20-24	1046	89,8	119	10,2	1,520 (1,204-1,919)	<0,001*
25-29	1899	84,9	339	15,1	0,969 (0,810-1,158)	0,727
30-34	2128	83,8	410	16,2	0,898 (0,756 -1,066)	0,218
35-39	2143	85,1	375	14,9	0,988 (0,830-1,177)	0,894
40-44	1808	83,7	353	16,3	0,886 (0,742- 1,058)	0,180
45-49	1411	85,3	244	14,7	Ref	
Latest education						
Low	1559	93,5	108	6,5	1,116 (1,099-1,133)	<0,001*
High	9034	83,8	1744	16,2		
Working status						
No	3725	86,4	585	13,6	1,024 (1,008-1,039)	0,003*
Yes	6868	84,4	1267	15,6		
Economic Status						
Low	2830	89,8	323	10,2	1,885 (1,654-2,148)	<0,001*
Middle	2065	87,2	303	12,8	1,466 (1,281- 1,281)	<0,001*
Upper	5698	82,3	1226	17,7	Ref	
Place of residence						
Rural	3914	88,2	523	11,8	1,058 (1,042-1,073)	<0,001*
Urban	6679	83,4	1329	16,6		
Media Exposure						
No	1552	67	231	13	1,027 (1,007-1,047)	0,015*
Yes	9041	84,8	1621	15,2		
*p<0,05						

*p<0,05

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for other variables, respondents with low knowledge levels were 1.511 times lower in implementing HIV/AIDS prevention efforts compared to respondents with high knowledge levels. In the age variable, only the age range of 15-19 years old and 20-24 years old have a significant relationship with HIV/AIDS prevention behavior efforts, which have a p-value of 0.027 and 0.001, respectively. The

last education level variable showed a p-value = <0.001 and OR=2.368, which means that after controlling for other variables, respondents with low education levels had a 2.368 times greater risk of low implementation of HIV/AIDS prevention efforts among housewives. In terms of economic status, low economic status has an OR=1.367, meaning that after controlling for other variables, respondents

Table 3. Multivariate Analysis of HIV/AIDS Prevention Behavior Efforts in Indonesia 2017 IDHS Data

Variable	B	SE	Wald	OR (CI 95)	p-value
HIV/AIDS knowledge	0,413	0,055	57,121	1,511 (1,358-1,682)	<0,001
Age 15-19	0,686	0,310	4,892	1,986 (1,081-3,657)	0,027
Age 20-24	0,392	0,122	10,424	1,481 (1,167-1,879)	0,001
Age 25-29	-0,007	0,093	0,005	0,993 (0,828-1,192)	0,943
Age 30-34	-0,068	0,089	0,582	0,934 (0,784-1,113)	0,446
Age 35-39	0,026	0,090	0,083	1,026 (0,860-1,225)	0,773
Age 40-44	-0,122	0,092	1,776	0,885 (0,740-1,059)	0,183
Latest education	0,862	0,106	65,861	2,368 (1,923-2,216)	<0,001
Low Economic Status	0,312	0,074	17,819	1,367 (1,1820-1,580)	<0,001
Middle Economic Status	0,210	0,071	8,653	1,233 (1,073-1,419)	0,003
Place of residence	0,168	0,060	7,724	1,183 (1,051-1,2332)	0,005

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with low economic status are 1.367 times more likely not to implement HIV/AIDS prevention efforts. Not only that, respondents with middle economic status also have a risk of 1.233 times more to be the cause of low implementation of HIV/AIDS prevention behavior in housewives. Living conditions showed a p-value = 0.005 and OR = 1.183, meaning that it has a significant relationship with HIV/AIDS prevention efforts. Based on the results of statistical tests using a logistic regression test, the most dominant factor associated with HIV/AIDS prevention efforts among housewives is the education level because it has the smallest p-value (<0.001) or the highest Wald value (65.861).

Education, in general, will affect respondents' awareness of preventing HIV transmission. A woman who has a higher education will be more open to new ideas and changes in obtaining a proportional health service (Parvazian et al., 2017).

CONCLUSION

The implementation of HIV/AIDS prevention behavior among housewives was influenced by knowledge level (p<0.001), education level (p<0.001), working status (p=0.003), residence (p<0.001), and media exposure (p=0.015). Low HIV/AIDS prevention behavior was more prevalent among housewives aged 15-24 years with lower-middle economic status. Based on the research findings, there is hope that community-wide interventions focusing on improving knowledge and education among housewives, particularly younger ones with lower-middle economic status, will enhance their understanding of HIV/AIDS risks and prevention methods. Moreover, promoting economic empowerment and initiatives that can help individuals who are not working to become financially independent and reduce their risk of HIV/AIDS. In residential settings, consider implementing neighborhood-level initiatives to raise awareness and facilitate access to HIV/AIDS prevention resources for

housewives. The aspiration is for the entire community, especially housewives, to actively seek information about HIV/AIDS through outreach activities and mass media. Health workers and policymakers are expected to increase awareness among all stakeholders involved in HIV/AIDS prevention programs, facilitating proactive communication, socialization, and education.

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