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Knowledge, attitude, and practice of pregnant women in preventing HIV transmission from mother to child

Helwiah Umniyati[1], Sri Puji Utami Atmoko[2], Mondastri Korib Sudaryo[3]

[1] Faculty of Medicine, Universitas YARSI, Jakarta, Indonesia, helwiah.umniyati@yarsi.ac.id
[2] Faculty of Information Technology, Universitas YARSI, Jakarta, Indonesia, puji.atmoko@yarsi.ac.id
[3] Faculty of Public Health, Universitas Indonesia, Jakarta, Indonesia, maqo1@ui.ac.id

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ABSTRACT

HIV AIDS is a very important global health issue, and the trend of housewives getting HIV AIDS significantly increases. The objective of this study to assess knowledge, attitude, and practice related to mother-to-child HIV transmission and its prevention in antenatal clinic (ANC) attendees at the public health center. The type of studdy was a cross-sectional survey was conducted amongst 101 antenatal attendees in Senen Public Health Centre (Puskesmas) in Central Jakarta. The result was most respondents (83.2%) knew HIV caused AIDS. Knowledge of HIV prevention was quite good. Based on pregnant women's perception, only 25.7% had HIV test and 18% syphilis test in last pregnancy. In chi-square analysis, we found a significant relationship in variables knowledge of PMTCT, attended group discussion, and syphilis test related to attitude (p <0.05). The results of cox survival analysis, which was the lower the PMTCT knowledge, the worse the attitude (PR = 1.84 with 95% CI 1-072 - 3.150). Among the pregnant mothers, we found that the awareness and knowledge about HIV/AIDS were superficial.

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Corresponding Author:

Helwiah Umniyati
Faculty of Medicine, Universitas YARSI, Menara YARSI, Jl. Letjen. Suprapto, Cempaka Putih, Jakarta 10410.
E-mail: helwiah.umniyati@yarsi.ac.id

INTRODUCTION

HIV AIDS is a very important global health issue. It was estimated globally that people living with HIV AIDS (PLHIV) were about 38 million people. About 52% among the estimated PLHIV were women and 1.7 million were children under 15 years of age. Fortunately, the trend of the global incidence-prevalence ratio has decreased from about 11% in 2000 to about 5% in 2018 (1).

The annual trend of HIV/AIDS in Indonesia was increasing. The reported cumulative cases of HIV infections in Indonesia by December 2019 were 377,564, 65.5% from total estimation. The highest numbers of HIV cases reported in several main provinces in Indonesia, were, in order, as follows; DKI Jakarta (65,578), East Java (57,176), West Java

(40,215), Papua (36,382), and Central Java (33,322). The number of reported AIDS cases up to December 2019 was 121,101 people. The five provinces with the highest number of AIDS were Papua (23,599), East Java (20,787), Central Java (11,724), DKI Jakarta (10,517), and Bali (8,230). The highest reported AIDS cases, by working status, was non-professional staff/employees (18,750) and housewives (17,522) followed by self-employed (15,651), farmers/breeders/fishermen (6,028), and laborers (5,593). Regarding mode of transmission, the majority was heterosexual transmission (70.4%). Perinatal or vertical transmission or transmission from mother to child was about 2.9 %. Other transmissions were homosexual transmission (7.3%) and the use of non-sterile syringes (8.0%) (2).

HIV-infected pregnant women can transmit HIV to their infants. This vertical transmission may occur during pregnancy, delivery, or breastfeeding. Without any intervention, transmission rates range from 15% to 45%. WHO reported 1400 babies in South-East Asia are infected every year through mother-to-child transmission. In 2017, it was estimated by WHO that 53% (23,000 out of the estimated 45,000) HIV infected pregnant women in South-East Asia, received ARV to prevent mother-to-child transmission (3).

For child HIV infection, mother-to-child transmission (MTCT) is the predominant mode of transmission (4), accounting for more than 90% of new HIV infections among children (5). Prevention of mother-to-child transmission (PMTCT) started by WHO in 2001 is among the essential approach to control the epidemic (6). The PMTCT program covers comprehensive antenatal care (ANC), safer delivery practices, HIV testing and counseling (VCT), antiretroviral (ARV) therapy, infant feeding. Without adequate intervention, the risk of MTCT is high, varies from 15% to 45%. However, this rate can be reduced to be <2% among non-breastfeeding infants, or to be <5% in breastfeeding populations by having effective interventions during pregnancy, delivery, and birth (7)(8)(4). The most important problem in PMTCT is poor awareness and knowledge about MTCT and PMTCT. The WHO has promoted 4 pillars of approach to prevent this perinatal transmission, i.e., (1) primary HIV prevention to protect women in reproductive age (2) preventing unplanned pregnancies among HIV infected mothers; (3) preventing vertical/ perinatal HIV transmission during delivery and breastfeeding, and (4) providing psychological, social and care support to HIV infected pregnant mothers (4).

Mother's knowledge contributes a significant factor to reduce MTCT and increasing the service utilization of PMTCT(9). Poor awareness and knowledge were a major problem in the implementation of prevention of mother-to-child HIV transmission (PMTCT) in developing countries, including in Indonesia. A previous study in Semarang found almost 50% of pregnant women had low knowledge about PMTCT(10). The objective of this study was to assess knowledge, attitude, and behavior related to mother-to-child HIV transmission and its prevention in antenatal clinic (ANC) attendees at the public health center in Senen Subdistrict, Central Jakarta.

METHOD

A descriptive-analytic study was conducted on pregnant mothers through a survey with a cross-sectional design to observe the knowledge, attitudes, and behavior related to PMTCT in the Senen Subdistrict Public Health Centre (Puskesmas) in Central Jakarta. By using a structured questionnaire, we obtained as many as 101 pieces of data from pregnant women who came to the Puskesmas for ante-natal care (ANC). We used a consecutive sampling method, with no inclusion and exclusion criteria. Informed concern was fulfilled. Univariate analysis was run to describe demographic data, knowledge, attitude, and behavior of pregnant women. Further analysis using chi-square and logistic regression to see the relationship between attitude and other variables using SPSS version 23. Ethical clearance was obtained from YARSI University Ethical Review Committee. Legal permits for conducting the study were obtained from the primary health care coordinator of the local

government of Central Jakarta. Each of the study participants should voluntarily fill and sign the informed consent form before being interviewed using the structured questionnaire.

RESULT AND DISCUSSION

Result

Table 1 Socio-demographic characteristics of Pregnant Women (n=101)

Socio-Demographic	Frequency	Percentage
Aged		
≤ 25 years	35	34.7
>25 years	66	65.3
Marriage status		
Single	2	2
Marriage	99	98
Education		
Elementary school	10	9.9
Junior high school	24	23.8
Senior high school	60	59.4
University	7	6.9
Occupation		
Labor	2	2.0
Trade	1	1.0
Housewife	82	81.2
Public employees	1	1.0
Private employees	15	14.9

Table 1 presented the respondent's social demographic characteristics. Total 101 respondents, we got the majority (80.2%) aged 20 - 35 years, married (98%) and more than half (59.4%) graduated from Senior high school. Most of the sample (81.2%) did not have a job (housewife).

Table 2. Knowledge about HIV, MTCT, and PMTCT of pregnant women (n=101)

No	Questions of Knowledge	Number of right responses	Percentage
1.	AIDS caused by a virus called HIV	84	83.2
2	HIV-AIDS caused not by magic/witchcraft	72	71.3
3	We can not tell if someone is infected with HIV by just notice at their physical appearance	61	60.4
4	HIV can not be transmitted through mosquito bites	50	49.5
5	Using together the cutlery and drinking equipment with HIV infected person will not get infected	46	45.5
6	HIV can be transmitted using syringes that have been used by others	80	79.2
7	HIV can be transmitted through tattooing or cutting the skin with sharp objects	71	70.3
8	Being faithful to one sexual partner who is not infected with HIV prevent HIV transmission	70	69.3
9	Always using a condom prevents HIV infection	58	57.4
10	Having sex with a partner who looks clean can not prevent from contracting HIV	40	39.6
11	People can get HIV even if they only have sex once	62	61.4
12	Having sex with someone who has just been known can be infected with HIV	63	62.4

No	Questions of Knowledge	Number of right responses	Percentage
13	Always washing genitals after sex will not avoid contracting HIV	44	43.6
14	HIV transmission can not be prevented by taking medicine/ taking traditional herbs before sex	56	55.4
15	HIV transmission can not be prevented by eating nutritious foods	56	55.4
16	Having sex before marriage can increase the risk of contracting HIV	73	72.3
17	Changing sexual partners increase the risk of contracting HIV	90	89.1
18	Circumcision will reduce the risk of contracting HIV	32	31.7
19	The drug obtained from health services can help people infected with HIV to improve and maintain their health	58	57.4
20	AIDS can not be cured only by prayer/worship /yoga/ meditation	59	58.4
21	Babies can get HIV from their mothers who have HIV	76	75.2
22	HIV can be transmitted from a mother when she is pregnant	76	75.2
23	HIV can be transmitted from mother through vaginal delivery	53	52.5
24	HIV from mothers can be transmitted through breast milk	58	57.4
25	The risk of HIV transmission from an HIV positive mother to her fetus can be reduced if the mother takes ARV drugs during pregnancy	53	52.5
26	The risk of HIV transmission from an HIV positive mother to her fetus can be reduced if the mother gives birth by cesarean section	25	24.8
27	The risk of HIV transmission from an HIV positive mother to her fetus can be reduced if the newborn is given ARV	47	46.5
28	Starting to take ARVs in trimester one can prevent (prophylactic) transmission to infants	51	50.5
29	Formula milk is the main alternative for baby food	20	19.8

Table 2 shows the distribution of respondents who correctly answered the questions identified to evaluate respondents' level of knowledge about HIV and MTCT and PMTCT which consisted of 29 questions.

Most respondents (83.2%) knew HIV caused AIDS, not by magic/witchcraft (71.3%). Knowledge of HIV prevention, most of the pregnant women (69.3%) stated that being faithful to one sexual partner who is not infected with HIV prevent HIV infection, however only 57.4% of them knew that always using condom (57.4%) also prevent HIV infection. Always washing genitals after sex will not avoid contracting HIV (43.6%). HIV transmission can not be prevented by taking medicine/taking traditional herbs before sex (55.4%). HIV transmission can not be prevented by eating nutritious foods (55.4%).

Less than half of respondents knew that HIV can not be transmitted through mosquito bites (49.5%) or cutlery or drinking equipment (45.5%). Most of them knew well that HIV can be transmitted through joint use of syringes (79.2%) and tattooing or cutting the skin with sharp objects (70.3%) and by having sex only once (61.4%).

Most pregnant women had good knowledge of the risk of getting more infected. They stated that having sex before marriage (72.3%) and changing sexual partners (89.1%) increased the risk of contracting HIV. Less than one-third of them knew that circumcision would reduce the risk of contracting HIV.

Only 57.4% of pregnant women knew that there is a drug (ARV) from public health centers that can be consumed to improve and maintain the health of a person infected with HIV AIDS. AIDS can not be cured only by prayer/worship /yoga/ meditation (58.4%).

Seventy-five percent of pregnant women knew about MTCT. They also knew that HIV can be transmitted through the placenta (75.2%), during delivery (52.5%), and through breastfeeding (57.4%). About 84.2% of pregnant women knew at least one cycle of transmission, while 37.6 % of them mentioned all the periods which are: during pregnancy, delivery, and breastfeeding.

It was about 32.7% of pregnant women did not know at all about PMTCT and only 5% of them mentioned all the PMTCT program which are: giving ART to the mother during pregnancy, during labor by cesarean section, giving ART to babies of HIV-infected mothers, and not breastfeeding the baby at all.

Table 3. Mother's attitude toward mother and child prevention services (PMTCT)

No	Statement	5		4		3		2		1	
		n	%	n	%	n	%	n	%	n	%
1	Every pregnant woman needs to get an HIV test	52	51.5	38	37.6	8	7.9	3	3.0	-	-
2	If a pregnant woman is infected with HIV, she cannot get pregnant again	1	1.0	24	23.8	20	19.8	30	29.7	26	25.7
3	Using condoms during pregnancy and reducing breastfeeding will reduce transmission of HIV infection from mother to child (MTCT)	16	15.8	33	32.7	31	30.7	17	16.8	4	4.0
4	Some mothers infected with HIV choose to breastfeed their babies due to poverty.	4	4.0	35	34.7	24	23.8	21	20.8	17	16.8
5	Some mothers who are infected with HIV choose to breastfeed their babies for fear of being exposed to their HIV status.	8	7.9	36	35.6	24	23.8	18	17.8	15	14.9
6	Some mothers infected with HIV choose to give milk to their babies because their education is low	7	6.9	35	34.7	23	22.8	22	21.8	14	13.9
7	My family will support my choice not to breastfeed	19	18.8	22	21.8	8	7.9	41	40.6	11	10.9
8	I support the PMTCT program	29	28.7	46	45.5	14	13.9	5	5.0	7	6.9

5 = strongly agree, 4 = agree, 3 = no opinion, 2 = disagree, 1 = strongly disagree

Looking for attitude, most pregnant women (89.1%) agreed that the test of HIV is very important for every pregnant woman and support of PMTCT program (74.2%). However less than half of them (48.5%) agreed of using condoms during pregnancy and not breastfeeding as apart PMTCT. Stigma was still an issue in HIV some pregnant women agreed (43.5%) not to breastfeed babies for fear of being exposed to their HIV status, poverty (38.7%), low educated (41.6%). More than half of pregnant women (55.4%) did not agree that infected pregnant women cannot get pregnant again.

Table 4. Relationship between risk factors and attitudes of pregnant women

No	Socio-Demographic	Attitude				P-Value	PR
		Not Good		Good			
		n	%	n	%		
1.	**Aged**						
	< 20 years & >35 years	8	40.0	12	60.0	0.107	0.635
	20 – 35 years	51	63.0	30	37.0		
2.	**Education**						
	Low	19	55.9	15	44.1	0.713	0.94
	High	40	59.7	27	40.3		
3.	**Work status**						
	Not work	46	56.1	36	43.9	0.326	0.82
	Work	13	68.4	6	31.6		
4.	**Knowledge of General HIV**						
	Low	31	57.4	23	42.6	0.826	0.964
	High	28	59.6	19	40.4		
5.	**Knowledge of MTCT**						
	Low	24	60.0	16	40.0	0.794	1.05
	High	35	57.4	26	42.6		
6	**Knowledge of PMTCT**						
	Low	39	75.0	13	25.0	**0.000**	1.84
	High	21	40.8	29	59.2		
7	**Attended group discussion**						
	No	55	62.5	33	37.5	**0.030**	2.03
	Yes	4	30.8	9	69.2		
8	**Syphilis Test**						
	No	53	63.9	30	36.1	**0.017**	1.92
	Yes	6	33.3	12	66.7		
9	**HIV Test**						
	No	47	62.7	28	37.3	0.215	1.36
	Yes	12	46.2	14	53.8		

The chi-square test used to determine the analytical significance of the associations between variables socio-demographic, knowledge, behavior, and attitude were shown in table 4. Based on the analysis, we found a significant relationship between knowledge of PMTCT, attended group discussion, and syphilis test and attitude of pregnant women towards HIV AIDS ($p < 0.05$). All variables with a p-value <0.25 were included in the Survival Cox analysis to find out what variables were determinants of the attitude variable by looking at the prevalence ratio (PR, 95% CI).

Table 5. Determinants associated with the attitude of pregnant women on HIV AIDS

Determinant	B	P-value	PR	95% C.I.PR	
				Lower	Upper
Knowledge of PMTCT	0.608	.027	1.837	1.072	3.150

Table 5 showed the results of cox survival analysis, which was the lower the PMTCT knowledge, the worse the attitude (PR = 1.84 with 95% CI 1-072 - 3.150).

Discussion

In Indonesia, positive rate of HIV infected pregnant women in 2020 was 0.25% (6.094/2.404.754) decreased from 2017 0,29% (3.873/1.357.255). The proportion HIV-infected pregnant women visiting health facilities and receiving antiretroviral (ARV) in 2020 was 29,8% (1,816/6,094) decreased from 2017: 39,7% (1.536/3.873) (2).

Globally, HIV prevention and treatment programs have been reducing the transmission of HIV. Since 2010, coverage of ARV to prevent transmission from HIV-positive pregnant women to their children increased from 47% [38–55%] to 76% [60–88%] (11).

In 2017, it was estimated by WHO that 53% HIV infected pregnant women in South-East Asia, received ARV to prevent mother-to-child transmission (3). The coverage of HIV-infected pregnant women receiving antiretrovirals varies from 5% in Afganistan to > 95% in Thailand and Malaysia. In Indonesia, the number of pregnant women living with HIV accessing ARV was 13% in 2017, slightly higher than in the Philippines (11%), but much lower than in Malaysia (>95%) and Thailand (>95%) (11).

In Indonesia, one of the predominant causes of pregnant women not accessing ARV therapy was the negative stigma and discrimination against PLWHA. In addition, the inability of health personnel to provide counseling negatively influenced the willingness of infected pregnant women to start therapy. Many of the HIV pregnant women did not understand the Prevention Mother-to-Child transmission of HIV (PMTCT). ARV side effects of therapy were also one of the main reasons why HIV patients delayed or stop treatment (12) (13).

The crucial way to fight against the spread of HIV is through increasing knowledge and awareness. Knowledge about HIV for the pregnant mother especially related to a program for mother to child prophylaxis will decrease the women's and babies' risks of infection. Misconceptions among the routes of HIV transmission were frequently found. More than half of the pregnant women in the study thought that HIV could be transmitted through utensils or glasses. This implied a high probability of excluding HIV-positive individuals from social life.

Awareness of transmission was still low, less than half of women stated they would not breastfeed their babies if they were HIV positive. The information about this is less likely to be conveyed by the media like radio or TV, where most pregnant women obtained their HIV knowledge. A study in China was better showing 70% percent of women would not breastfeed if they were infected (14).

The essential thing of a mother's knowledge on the prevention of mother-to-child transmission of HIV is to use available prevention options. Women, having sufficient knowledge on HIV prevention, protect themselves and their families from HIV infection (15). The woman's knowledge of PMTCT was not quite satisfying (16),(17). A study in Nigeria found that knowledge, attitude, and practice of PMTCT were insufficient. The study found that only 40% of an HIV-positive pregnant woman could name 3 or more right interventions during labor to reduce MTCT of HIV. Most HIV-positive pregnant women (79,5%) received newborn formula milk as the only feeding option (18).

In Ethiopia, about half (52%) of pregnant women had comprehensive knowledge of PMTCT of HIV(19). Another study also in Ethiopia showed that the level of correct knowledge of vertical transmission and its prevention was very low (34.9%)(20). In our study, there was still a low proportion of mothers having comprehensive knowledge, only 5% of them mentioned all the PMTCT programs.

In Northwest Cameroon, the majority of pregnant women (76.7%) had adequate knowledge of HIV modes of transmission. Meanwhile, among those who had adequate knowledge, mostly, about 79% (119/150) were aware of MTCT(9). There was a study in Semarang that showed a significant correlation between pregnant mother's knowledge and attitude about PMTCT (P=0,003)(10). Our study also showed a significant relationship between good knowledge of PMTCT and attitude after controlling other variables.

Public health authorities should be fully aware of this unsatisfied mother's comprehensive knowledge of PMTCT. As this study was still preliminary, researchers should study more other possible interventions to increase mother's knowledge and integrating the PMTCT program with the Maternal Health and the Family Planning programs.

Nutrition for infants of HIV-infected mothers must follow WHO recommendations. HIV-infected mothers can give formula milk to their babies if the formula milk meets all criteria of AFASS (Acceptable, Feasible, Affordable, Sustainable, and Safe). Otherwise, it is better to give exclusive breastfeeding if the viral load is undetectable and mothers should receive ARV therapy regularly and correctly. With this regard, a prevention program should be

implemented to give counseling to HIV-positive mothers about feeding their babies (exclusive versus formula milk breastfeeding) (21).

CONCLUSION

This study showed that pregnant women who had lower PMTCT knowledge had a worse attitude towards HIV AIDS. Among the pregnant mothers, we found that the awareness and knowledge about HIV/AIDS were superficial. There were mothers with very poor knowledge of HIV and with misconceptions about its transmission. It is very important to have effective campaigns or health promotion through widely accepted media to increase awareness. Testing and counseling must be provided freely (at no cost). Personal counseling and adequate dissemination of essential information, related to ARV therapy, cesarean section indication, formula milk versus exclusive breastfeeding, etc should be done on regular basis to decrease the risk of MTCT.

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