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Sexually Transmitted Infection, Sexual Behavior, and Role of Husband on HIV/AIDS Transmission to Housewives

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Abstract
HIV/AIDS infection on Housewives has great effect on HIV transmission to children. The purpose of this study is to prove sexually transmitted infection, sexual behavior and role of husband on HIV/AIDS to Housewives. This study used case control design which sample taking technique was purposive sampling. Subjects of the study was 100 respondents which consists of 50 cases and 50 controls meeting the criteria of inclusion and exclusion. Data analysis used logistic regression. Result of analysis showed history of sexually transmitted infection during marriage (OR=3.434; 95% CI= 1.103-10.691), have number of sexual partner ≥ 2 during life (OR=3.393; 95% CI= 1.136-10.133), perform combined sexual activity with anal (OR=2.982; 95% CI=1.017-8.743), husband has HIV history (OR=3.954; 95% CI= 1.508-10.366) and husband does not do circumcision (OR=3.147; 95% CI= 1.043-9.495) were risk factors on HIV/AIDS transmission to Housewives. Factors of sexually transmitted infection, risky sex behavior and role of husband are very important in the increase of HIV/AIDS transmission to Housewives. Government needs to support the development of health promotion on married couples to prevent transmission.

Keywords: *HIV/AIDS, housewives, sexually transmitted infection, sexual behavior*

I. INTRODUCTION

The first case of AIDS in the world was reported in 1981 and has developed into global issue [(1)]. UNAIDS (*United Nations Programme on HIV/AIDS*) reported that, in 2016, 36.7 millions (30.8-42.9 millions) people live with HIV globally, where 17.8 millions (15.4-20.3 millions) are women. The number of new infection is 1.8 millions (1.6-2.1 millions) people and 1 million (830.000-1.3 millions) died because of AIDS-related disease in 2016 [(2)].

HIV-AIDS progress report of WHO at SEARO regional stated that, in 2016, around 10% of people who live with HIV/AIDS are globally living in South and Southeast Asia. It is predicted that there are around 3,9 millions people live with HIV, 180.000 among others are new HIV infection and deceases because of AIDS-related disease reaches 130,000 in 2015 in this area. HIV prevalence in the region of South-Southeast Asia reaches 0.3% and 39% of all cases are females and women [(3)].

In 2016, the prevalence of HIV/AIDS according to province showed that Papua Province places the number 1 rank in Indonesia [(4)]. The proportion of HIV case is higher on women, which reaches 54.9%. HIV case on housewives also showed an increase from 2013 up to 2015, which was 345 (12%) of 2.861 cases into 612 (15.4%) of 3,949 cases [(5)].

The cummulative of HIV/AIDS case in Jayapura city places the 4th rank of the highest in the province of Papua [(5)], where an increase of 1.4% of 914 cases happening in 2014 became 1,052 cases in 2015. The percentage of the highest HIV/AIDS is on women which was 55% with the number of case is on housewives reached 217 cases (20.6%) in 2015 [(6)].

The case of HIV/AIDS on housewives has great effect on HIV being transmitted from mother to her child. The HIV transmission to children ≤ 4 years old in Indonesia showed significant increase in 2010 which was only 390 cases (1.8%) to 1,030 cases (3.1%) in 2014 [(4)]. The case of HIV transmission from mother to her children was also reported by Health Department of Papua Province in 2015 to reach 1.6%, which was quite high if compared to that in 2016 which reached 1.5% [(5)]. The case of HIV on children < 4 years old also increased in Jayapura which was 10 cases (1.1%) in 2014 to 17 cases (1.8%) in 2015) [(6)].

II. METHOD

This study was observational analytic using case control design. Sample was selected by using purposive sampling. Respondents in this study were unworking married women. The determination of respondent health status was based on medical record data of patients who are stated to have HIV positive or negative according to the result of laboratory examination at Regional General Hospital in Jayapura and Regional General Hospital in Abepura using rapid test. Research ethical approval is from Health Research of Ethical Comission (KEPK) of Medical Faculty Diponegoro University-RSUP. Dr. Kariadi Semarang Number 483/EC/FK-RSDK/VII/2017. In

this study, HIV status is dependent variable, while variable of sexually transmitted infection (STIs), risky sex behaviour and role of husband as independent variable and income rate, number of respondent's marriage and number of husband's marriage are confounding variable. Data analysis uses SPSS software version 21 include univariate, bivariate and multivariate analysis.

III. RESULT

The average age of respondents in the case group was of 31 years old (SD 7.640 ± 20.51) while in the control group was of 27 years old (SD 3.496 ±18.37). Average distribution of respondent's husband's age in the case group was of 34 years old (SD 7.643 ± 25.56) while in the control group is of 30 years old (SD 3.844 ± 23.43). The full respondent characteristics are shown in the following table 1.

Table 2 shows independent variable or main variable which has significant relation with the case of HIV/AIDS on housewives ($p < 0.05$), STIs history of housewives (p=0.013; OR= 3.218; 95% CI= 1.248-8.299), the number of sexual partner of housewives during life (p=0.002; OR=4.125; 95% CI= 1.611-10.559), anal combination sex (p=0.032; OR= 2.567; 95% CI= 1.072-6.150), HIV history of husband (p= 0.000; OR= 5.060; 95% CI= 2.150-11.910) and husband's circumcision (p=0.000; OR= 3.037; 95% CI= 1.214-7.597). Confounding variable which becomes main variable and includes in multivariate modelling with logistic regression test (p = < 0.05) is the number of respondent's marriage (p= 0.037).

Table 1. Characteristic distribution of respondents and husband at VCT Clinic of Regional General Hospital in Jayapura and Regional General Hospital in Abepura, Papua

Variable	Category	Case		Control	
		n	(%)	n	(%)
Race of housewives	Papuan	36	72	19	38
	Non Papuan	14	28	31	31
Religion of housewives	Kristen Protestan	35	79	23	46
	Catholic	2	4	5	10
	Islam	13	28	22	44
Education of housewives	Primary school	6	12	2	4
	Middle school	8	16	3	6
	High school	30	60	28	56
	University/College	6	12	17	34
Education of husband	Primary school	4	8	2	4
	Middle school	7	14	3	6
	High school	32	64	29	58
	University/College	9	18	16	32
Profession of husband	Farmer	2	4	1	2
	Labor of ship/building	6	12	3	6
	Driver of truck/taxi	8	16	2	4
	Ojek driver	7	14	3	6
	Businessman/Entrepreneur	5	10	4	8
	Private company employee	2	4	9	18
	Temporary employee	3	6	3	6
	Goverment employee/ national army/police	17	34	25	50
Age of respondent	Mean	31.00		27.16	
	Median	30.00		27.00	
	Modus	30		26	
	SD	7.640		3.496	
	Minimum	20		18	
	Maximum	51		37	
Age of husband	Mean	34.44		30.58	
	Median	32.00		30.00	
	Modus	30		30	
	SD	7.643		3.844	
	Minimum	25		23	
	Maximum	56		43	

Table 2. Analysis of independent and confounding variables

No	Variable	Case		Control		OR	95% CI	*p*
		n	(%)	n	(%)			
1.	STIs history of housewives							
	- Yes	19	38	8	16	3.218	1.248-8.299	0.013
	- No	31	62	42	84			
2.	Number of sexual partner of housewives during life							
	- ≥ 2	22	44	8	16	4.125	1.611-10.559	0.002
	- < 2	28	56	42	84			
3.	Combination sex							
	- Anal combination	21	42	11	22	2.567	1.072-6.150	0.032
	- No anal combination	29	58	39	78			
4.	Condom use consistency sexual partner							
	- Inconsistent	32	64	37	74	0.625	0.265-1.470	0.280
	- Consistent	18	36	13	26			
5.	HIV history of husband							
	- Yes	32	64	13	26	5.060	2.150-11.910	0.000
	- No	18	36	37	74			
6.	Circumcision history of husband							
	- Yes	20	40	9	18	3.037	1.214-7.597	0.015
	- No	30	60	41	82			
11.	STIs history of husband							
	- Yes	16	32	7	14	2.891	1.068-7.823	0.032
	- No	34	68	43	86			
12.	Husband is injection drug user							
	- Yes	3	6	1	2	3.128	0.314-31.142	0.307
	- No	47	94	49	98			
13.	Tattoo use of husband							
	- Yes	8	16	4	8	2.190	0.615-7.808	0.218
	- No	42	84	46	92			
15.	Income of husband							
	< 2.435.000 rupiah	26	52	19	38	1.768	0.797-3.919	0.159
	≥ Rp 2.435.000 rupiah	24	48	31	62			
16.	Number of respondent's marriage							
	≥ 2 times	13	26	5	10	3.162	1.032-9.685	0.037
	< 2 times	37	74	45	90			
17.	Number of husband's marriage							
	≥ 2 times	10	20	5	10	2.250	0.709-7.141	0.161
	< 2 times	40	80	45	90			

Table 3. Result of Logistic Regression Analysis

No	Risk Factor	Value B	OR	95% CI	*p*
1.	Number of sexual partner of housewives ≥ 2 during life	1.222	3.393	1.136-10.133	0.029
2.	Housewives have STIs history	1.234	3.434	1.103-10.691	0.033
3.	perform combined sexual activity with anal	1.093	2.982	1.017-8.743	0.047
4.	Husband has HIV history	1.375	3.954	1.508-10.366	0.005
5.	Husband does not do circumcision	1.146	3.147	1.043-9.495	0.042
	Constants	-1.929			

Table 3 shows independent factor which is risk factor towards HIV/AIDS on housewives on multivariate model is that housewives have STIs history, number of sexual partner of housewives ≥ 2 during life, perform combined sexual activity with anal, husband has HIV history and husband does not do circumcision.

IV. DISCUSSION

A. Sexually transmitted infection on HIV/AIDS transmission to Housewives

Biologically, a woman is 2-8 times more vulnerable to be infected by HIV than that to men [(7)]. It is because of the viral load which is bigger in the sperm than that in the vaginal fluid, besides that, vagina has wide surface so that an exposure on virus can happen during sexual intercourse. This vulnerability is worsened by the existence of co-infection like sexually transmitted infection, where on most of the cases do not show symptoms, so it tends to be left untreated [(8)]. In this study, of 100 interviewed housewife respondents, 27% of them had ever suffered from sexually transmitted infection during marriage. The kind of STIs is gonorrhea 22.2%, syphilis 59.2%, herpes 11.1% and genital warts 7.4%. STIs history has OR value= 3.434 (95 CI= 1.103-10.691), which means that housewives who have ever had history during marriage have 3.43 bigger times of risk to get HIV/AIDS than that housewives without previous STIs history. This result is in accordance with study of Panda et al (2015) in India shows that HIV transmission from a husband to his wife is caused by the history of sexually transmitted infection experienced by the wife during marriage with value of risk is 2.05 times [(9)].

B. Number of Sexual Partner during life on HIV/AIDS transmission on Housewives

This study shows that overall, 30% respondents in this study have number of sexual partner ≥ 2 during life. Multivariate analysis shows that having sexual partner of ≥ 2 during life is a risk factor of HIV/AIDS on Housewives with OR value= 3.393 (95% CI= 1.136-10.133). It means that Housewives with number of sexual partner ≥ 2 during life has 3.39 bigger times of risk to get HIV/AIDS than that to Housewives who only have 1 sexual partner during life. Unsafe Multiple sex partner behavior can place someone to the risk of HIV/IMS transmission and also place other partners in the risky position [(10)]. This is in accordance with study of Saggurti et al (2012) on spouses in India where it was found that a wife who has sexual partner ≥ 2 during life has 5.56 bigger times to be infected by HIV [(11)].

C. Combination sex on HIV/AIDS transmission on Housewives

Multivariate analysis shows that doing anal combination sex during sexual intercourse with the husband is risk factor of HIV/AIDS on Housewives with OR value=2.982 (95% CI= 1.017-8.743), which means that housewives who do anal combination sex have 2,98 bigger risk to be infected by HIV/AIDS than those who do not do anal combination sex. It is in accordance with the study of Dwi Murtono (2016) although the population of the study is different, it shows that the form of combination sex activity is the risk factor of HIV/AIDS on key population (OR= 4.324; 95% CI= 1.739-10.754) [(12)]. The proof shows that HIV transmission can happen through oral-genital sex from penis to mouth and vagina to mouth. HIV transmission risk through oral-genital is substantially lower if compared to vaginal and anal sexual intercourse [(13)]. Risk of HIV transmission on anal receptive intercourse without protection is bigger than vaginal receptive intercourse without protection because of the difference between anus mucosa and vaginal mucosa. The high amount of lymphoid follicle which is target cell of HIV in anus mucosa and thin and easily-ripped membrane of anus mucosa makes lesion often occur in the anus than in vaginal mucosa [(14)].

D. HIV history of Husband on HIV/AIDS Transmission to Housewives

Overall, 31% respondents are in serodiscordant relationship and 69% others are in seroconcordant relationship. Multivariate analysis shows that HIV history of husband is risk factor of HIV/AIDS on Housewives with OR value= 3.954 (95% CI= 1.508-10.366), which means that Housewives who have husband with HIV history has 6.459 bigger risk to be infected by HIV/AIDS than that to having husband without HIV history. It is in accordance with Decker et al (2015) in India which shows that husband with HIV history is related to the increase of HIV transmission risk to his wife (AOR =7.22; 95% CI= 1.05-49.88) (15). Based on interview result, it is discovered that most husbands of new respondents know their HIV status after their wives are diagnosed to get HIV. It shows that husband's participation to do HIV examination regularly is low, moreover when they have risky behavior so that prevention action is impossible to do by the housewives. Study of Manopaiboon (2007) in Thailand found that a good communication with the spouse can effect husband's desire to do HIV test in order to prevent HIV transmission [(16)].

E. History of husband's circumcision on HIV/AIDS Transmission to Housewives

Circumcision on men gives long-term indirect protection for women by reducing risk of heterosexual men to be infected by HIV [(17)]. Multivariate analysis shows husband's circumcision has risk factor of HIV/AIDS on Housewives with OR value = 3.147 (95% CI=1.043-9.495), which means that Housewives whose husband does not do circumcision has 4 times bigger risk to be infected by HIV/AIDS than if husband does circumcision. This result is in accordance with Kaiser et al (2011) which successfully proved that history of husband's circumcision is risk factor of HIV transmission to discordant as well as concordant partner (OR=1.8; 95 % CI= 1.0–3.3) [(18)].

V. CONCLUSION

History of sexually transmitted infection during marriage, number of sexual partner during life, combination sex, HIV history of husband, history of husband's circumcision are risk factors on the increase of the risk of HIV/AIDS transmission to Housewives.

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