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Determinants of condom use by male adolescents in Indonesia during their first sexual intercourse: 2017 national survey data analysis

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Abstract

Introduction: The 2017 Indonesian Demographic and Health Survey (IDHS) shows that male adolescents' prevalence of condom use is relatively low during their first sexual intercourse. The present study aimed to ascertain the determinants of condom use by male adolescents in Indonesia during their first sexual intercourse.

Material and methods: A quantitative analysis with a cross-sectional approach of secondary data from IDHS 2017 was used in this research. Sample used included 980 male adolescents aged 15-24 years, unmarried, and have had a sexual intercourse. Determinant analysis was conducted with multivariable binomial logistic regression analysis.

Results: The results showed a greater tendency of condom use during first sexual intercourse by male adolescents with a higher education level (AOR: 2.47; 95% CI: 1.41-4.34%), age of ≥ 18 years (AOR: 1.48; 95% CI: 1.09-2.00%), with a positive attitude towards condom use (AOR: 2.08; 95% CI: 1.40-3.11%), and exposed to all mass media (AOR: 2.00; 95% CI: 1.43-2.80%). However, a reverse trend occurred if first sexual partner was not a sex worker, such as a friend or girlfriend (AOR: 0.29; 95% CI: 0.15-0.56%).

Conclusions: Interventions in the control of STIs, including HIV/AIDS, through condom use in male adolescents, should be focused on the age group of < 18 years, with lower secondary education level, and among the most at-risk individuals. These efforts can be conducted through comprehensive, community-based reproductive health and sexuality education outside school, and based on the curriculum applied in these institutions.

Introduction

Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) is a global public health problem, in which around 38 million people were estimated to be living with the disease by the end of 2019. In the same year, approximately 4,500 new infections occurred, out of which 4,100 were aged 15 years or older. Moreover, 31% of the total

infection in 2019 was found in adolescents aged 15-24 years [1]. Meanwhile, in Indonesia, until June 2020, 127,873 people were reported to be infected with HIV. The highest percentage of cases reported was among the age group of 20-29 years (31.9%) [2]. Since the incubation period of HIV and progress to AIDS takes on average 1-3 months and ten years, respectively, majority of infections take place at a young age, especially during teenage years [3].

Transmission of HIV/AIDS among adolescents occurs through unsafe sexual behavior during premarital sex [4]. The 2017 Indonesian Demographic and Health Survey (IDHS) report stated that premarital sexual relations were relatively high among male adolescents, where eight percent were involved in this act. Approximately, 74% had sex for the first time at a very young age between 15-19 years [4]. Several previous research have shown that condom use among male adolescents in some countries is fairly low [5, 6]. Findings from Vietnam revealed that the prevalence of condom use was 28.6% [5]. Meanwhile, a study in Chiang Mai Thailand reported eight percent of male teenagers (15-19 years old) reported having more than one sexual partner in the past 3 months, with 68% of them never using condoms during sexual intercourse in the past 3 months [6].

In Indonesia, the percentage of condom use by male adolescents during their first sexual intercourse is low, with a value of 27% [4]. However, 89% of individuals aged 15-24 years have heard of condoms, and approximately 54% and 65% aged 15-19 and 20-24 years, respectively, knew how to prevent HIV by using condoms [4]. Furthermore, based on IDHS 2017 data, the percentage of male adolescents who agreed that condoms can prevent HIV/AIDS was 64%. Therefore, efforts to identify the determinants of condom use by male adolescents during their first sexual intercourse are essential. Also, important to note that past condom use, including first sexual intercourse, may explain variance in condom use intentions and subsequent use [7]. Previous research on condom use among male adolescent in Indonesia was reported using IDHS 2012 data [8]. The present study aimed to fill the current literature gap by analyzing the determinants of condom use in male adolescents in Indonesia, by analyzing IDHS 2017 data for the first time.

Material and methods

Data capture and data cleaning

This cross-sectional study used secondary data from the IDHS 2017, which is a national-scale survey. Data was obtained through the website: http://www.dhsprogram.com after registering and obtaining a power of attorney (Auth. Letter) from DHS program, which stated that the researcher had the authority to access DHS data according to the proposed research. The IDHS 2017 survey reported interviews with 13,079 unmarried male adolescents aged 15-24 years. Moreover, detailed information on study design, sample size calculations, instruments and methods of data collection, and other survey procedures, are available in this report [4].

Number of samples used in this study was obtained from initial data set with inclusion criteria of 980 male adolescent respondents, who had previously been engaged in sexual intercourse.

Variables of interest or measurements

Variables included in the analysis were: (1) socio-demographic characteristics, such as education level and age at first sexual intercourse; (2) intra-personal factor consisted of attitude towards condom use and knowledge about HIV/AIDS; (3) inter-personal factor comprised of first sexual partner and presence of friends, who had premarital sexual relations; (4) environmental factor was considered media exposure, and (5) dependent variable was condom use by male adolescents during their first sexual intercourse.

In this research analysis, education level variables were grouped into low, middle, and high education, while age at first sexual intercourse was divided into two sub-groups of < 18 and 18 years. Moreover, attitudes were measured using three-statement items. Scores of each item were summed and categorized into positive and negative, based on the cut of points determined from data distribution. Variable of attitude data was not normally distributed in this research; therefore, it was categorized as positive or negative if a score was ≥ or < median, respectively. Knowledge on HIV/AIDS was measured using 6-question items, and total scores were grouped into comprehensive knowledge (able to correctly answer 2 questions on prevention, and 3 questions related to HIV misconceptions) and not comprehensive knowledge [9]. Sexual partners were first grouped into sex workers and non-sex workers, while the presence of friends who had premarital sex into 'yes' and 'no'. Furthermore, media exposure was grouped into exposed and unexposed.

Data analysis and presentation

Data were analyzed using univariable, bivariable, and multivariable analysis with STATA SE v. 12. Bivariable analysis was conducted using χ^2. Variables with p-value < 0.25 were entered into binary logistic regression test, using enter method to obtain adjusted odds ratio of each variable, with a statistical significance level of $p \leq 0.05$. This research obtained ethical approval from ethics commission of the Faculty of Medicine, Udayana University/Sanglah Central General Hospital, number: 1091/UN14.2.2.VII.14/LT/2021, on April 19, 2021.

Results

Table 1 shows the distribution of intra-personal, inter-personal, and environmental factors in male adolescents, who had premarital sex in Indonesia in 2017. Also, of the 980 adolescents, condom use during first sexual activity was 27.24% (n = 267), with 95% CI: 24.45-30.04%. Most of the respondents had secondary education (65.03%), not comprehensive

Table 1. Condom use, intra-personal, inter-personal, and environmental factors among male adolescents, who had premarital sex in Indonesia in 2017

Variable	Frequency (n = 980)	Proportion (%)
Intra-personal		
Level of education*	n = 975	
Low	137	14.05
Intermediate	634	65.03
High	204	20.92
Age at first sexual intercourse (mean ± SD)	17.6 ± 2.1	
< 18 years old	490	50
≥ 18 years old	490	50
Knowledge on HIV/AIDS*	n = 980	
Not comprehensive	865	88.27
Comprehensive	115	11.73
Attitude towards condom use*	n = 952	
Negative	240	25.21
Positive	712	74.79
Inter-personal		
First-time sexual partner		
Sex worker	47	4.80
Not a sex worker	933	95.20
Presence of friends who have had premarital sex*	n = 948	
No	48	5.06
Yes	900	94.94
Environmental		
Media exposure*	n = 961	
Not exposed	367	38.19
Exposed	594	61.81
Condom use in first sexual intercourse		
Not using	713	72.76
Using	267	27.24

*Number is less than 980 because of missing data.

Table 2. Condom use during first sexual intercourse based on intra-personal, inter-personal, and environmental factors

Variable	Condom use during first sex				p-value
	No		Yes		
	n	%	n	%	
Level of education					
Low	114	83.21	23	16.79	0.000
Intermediate	478	75.39	156	24.61	
High	117	57.35	87	42.65	
Age at first sexual intercourse (years)					
< 18	381	77.76	109	22.24	0.000
≥ 18	332	67.76	158	32.24	
Knowledge on HIV/AIDS					
Not comprehensive	633	73.18	232	26.82	0.413
Comprehensive	80	69.87	35	30.43	
Attitude towards condom use					
Negative	201	83.75	39	16.25	0.000
Positive	484	67.98	228	32.02	
First-time sex partner					
Sex worker	21	44.68	26	55.32	0.000
Not a sex worker	692	74.17	241	25.83	
Presence of friends who had premarital sex					
No	43	89.58	5	10.42	0.006
Yes	642	71.33	258	28.67	
Media exposure					
Not exposed	302	82.29	65	17.71	0.000
Exposed	393	66.16	201	33.84	

knowledge about HIV/AIDS (88.27%), a positive attitude towards condom use (74.79%), and sex for the first time with a non-sex worker (95.20%). Furthermore, a high percentage of the individuals had friends, who had premarital sex (94.94%) and were exposed to media (61.81%). Meanwhile, based on the age of first sexual intercourse, the proportion of male adolescents who had sex for the first time at the age of < 18 and ≥ 18 years (50%) were similar.

Table 2 presents a bivariable analysis of condom use and independent variables. Respondents with higher education level, age ≥ 18 years at first sexual intercourse, positive attitude towards condom use, having friends who had premarital sexual intercourse, and exposure to mass media had a greater tendency to use condoms during first sexual intercourse. Meanwhile, male adolescents who partnered with non-sex workers, such as friends or girlfriends, were less likely to use condoms.

All eligible variables ($p < 0.25$) were entered into multivariable model (Table 3). The level of higher education (AOR: 2.47; 95% CI: 1.41-4.34%; $p < 0.01$), age at first sexual intercourse (AOR: 1.48; 95% CI: 1.09-2.00%; $p < 0.05$), attitude towards condom use (AOR: 2.08; 95% CI: 1.40-3.11%; $p < 0.01$), first sexual partner (AOR: 0.29; 95% CI: 0.15-0.56%; $p < 0.01$), and media exposure (AOR: 2.00; 95% CI: 1.43-2.80%; $p < 0.01$) were significantly related to the condom use by male adolescents during their first sexual intercourse.

Discussion

The prevalence of condom use during first sexual intercourse by male adolescents based on the 2017 was 27% [4], which was slightly higher than the IDHS 2012 version. Low

Table 3. Crude and adjusted odds ratio of several variables on condom use by male adolescents in Indonesia during their first sexual intercourse

Variable	Crude OR	*p*-value	Adjusted OR	95% CI	*p*-value
Level of education					
Low	Ref.		Ref.		
Intermediate	1.62	0.051	1.29	0.77-2.15	0.331
High	3.69	0.000	2.47	1.41-4.34	0.002*
Age at first sexual intercourse (years)					
< 18	Ref.		Ref.		
≥ 18	1.66	0.000	1.48	1.09-2.00	0.013**
Knowledge on HIV/AIDS					
Not comprehensive	Ref.				
Comprehensive	1.19	0.414			
Attitude towards condom use					
Negative	Ref.		Ref.		
Positive	2.43	0.000	2.08	1.40-3.11	0.000*
First-time sex partner					
Sex worker	Ref.		Ref.		
Not a sex worker	0.28	0.000	0.29	0.15-0.56	0.000*
Presence of friends who had premarital sex					
No	Ref.		Ref.		
Yes	3.46	0.010	2.32	0.88-6.11	0.088
Media exposure					
Not exposed	Ref.		Ref.		
Exposed	2.38	0.000	2.00	1.43-2.80	0.000*

*Significance at p < 0.01. **Significance at p < 0.05.*

percentage of condom use also occurs in several Southeast Asian countries, such as Vietnam (28.6%), Thailand (10.2%), and Malaysia (25.6%) [5, 10, 11]. Moreover, in developed settings, based on the National Survey of Family Growth (NSFG) between 2015-2017 in USA, approximately 89% of male adolescents aged 15-24 years had sexual intercourse for the first time before the age of 20 years, and used contraception [12].

In our study, higher education is the primary determinant (most significant AOR) related to condom use in adolescents. Additionally, similar findings were reported in Botswana, Uganda, and Nigeria, where condom use was higher among male adolescents with higher education levels [13-15]. Education is directly proportional to knowledge and information obtained. Furthermore, a person with a higher level of education tends to prioritize possible risks [16].

We also found that age at first sexual intercourse was significantly associated with condom use. This finding is in line with a research in different settings in Indonesia, where male adolescents who had sexual intercourse for the first time within the age of 20-24, had a 2.5 times greater chance of using a condom than those in a group of 10-14 years old [8]. In this research, male adolescents who had

sexual intercourse for the first time at 18 years were more likely to use condoms than at an earlier age. This is in line with a trend found in education level due to male adolescents' increasing age and knowledge. Furthermore, awareness about sexual and reproductive health in adolescents who delay sexual intercourse influences their decision to use condoms during their first time. Consequently, age shows a person's thinking maturity, where decisions can be made to change behavior [17].

Furthermore, the analysis found 2.1 times greater odds of condom use in male adolescents with positive attitudes. These results are in accordance with studies in Uganda, Thailand, and Taiwan [18-20]. This positive attitude was probably because most adolescents had a good knowledge, aside from curiosity and experience, which influenced their opinions [20]. Consequently, positive attitudes of adolescents increase their intention and frequency in using condoms [21].

In this study, another important factor was first sexual partner. The results showed that having sex for the first time with a sex worker increased the odds of condom use. This finding is in line with other previous research in Indonesia and Vietnam, where male adolescents tend to have unsafe sex with their girlfriends [5, 8]. Also, perceived risk is higher

when having sex with strangers, including sex workers [8]. Furthermore, starting or being in a relationship that is not expected to last long, increases the tendency to use condoms, whereas trust in an intimate and committed partner and relationship that is expected to last long, increases the propensity to having unsafe sex [22]. In this case, the decision to use condoms in a relationship between teenagers is directly related to commitment, love, and trust [23]. However, unprotected sex with a known or intimate partner still carries the risk of transmitting STIs, HIV, and unwanted pregnancy. In Indonesia, approximately 12% of female adolescents experience unwanted pregnancies, and 7% of males have partners with unwanted pregnancies [24].

A significant environmental factor associated with condom use by male adolescents during their first sexual experience is media exposure. The development of information technology gives adolescents easy access to information from various existing media. Knowledge on HIV/AIDS and safe sex plays a significant role in influencing adolescents' behavior [25]. Therefore, imitation of what is obtained from the information media in their daily behavior without seeing any differences in terms of culture and norms in different environments, is relatively easy [24]. Consequently, their awareness of risky behavior plays a vital role in deciding to engage in safe sex using condoms [26]. These results are in line with research in Nigeria and sub-Saharan Africa, showing a correlation between media exposure and condom use in adolescents [15, 27]. Also, previous research in Indonesia showed similar results [25].

In this research, knowledge on HIV/AIDS was seen to be unrelated to condom use, while different results were reported in China and Cameroon [28, 29]. Knowledge does not always reflect changes in behavior, because there are other influencing factors [30]. Moreover, another unrelated factor was peer pressure, where the presence of friends who had premarital sex was unrelated to condom use. This was probably because discussions about sex and condoms are still a taboo for adolescents [30]. However, adolescents with their skills and ability to personally decide to engage in sex or use condoms, are less likely to respond in peer influence and having unprotected sex [31]. These results are different from a research in Vietnam, where adolescents tended to form associations or organizations that shelter them from risky behaviors [5].

The limitation of this study was the availability of IDHS 2017 data, where only available variables were investigated. Therefore, not all factors related to condom use in male adolescents could be analyzed. These included condom access, risk perception, self-efficacy, psycho-social, culture, and intentions related to condom use in adolescents, which, based on previous literature, had a significant influence on condom use. Other limitation was the possibility of underreporting for sex without condom due to social desirability bias [32].

Conclusions

The determinants of condom use during first sexual intercourse by male adolescents are education level, age, attitudes toward condom use, first sexual partner, and media exposure. Interventions in the control of STIs, including HIV/AIDS, through condom use in male adolescents, should be focused on individuals of < 18 years old, with lower secondary education level, who are at most at-risk. Efforts should be implemented into community-based comprehensive sexual education outside school or based on curriculum applied in institutions. Furthermore, providing information on HIV/AIDS and the risks of sexuality through peer education should be also applied. The role of mass media needs to be optimized to provide information related to sexual and reproductive health, delaying premarital sex, sexually transmitted infections, HIV/AIDS, and condom use in an educative and interesting way, not only through one surveillance, but filtering existing content and sites. Therefore, information that is needed by the community can be distinguished from content or sites that are less educational.

Conflict of interest

The authors declare no conflict of interest.

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