Being Faithful, Condom Use, No Drug Use and Circumcision Behavior in Men Sex with Men Group

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ABSTRACT

Background: *Men Sex Men (MSM) adolescents and young adults living with Sexually Transmitted Infections (STIs) in Indonesia is about 19.3%; the transmission occurs if they do not apply the behavior of be faithful, Condom use, no Drug use and circumcision. The purpose of study is to see the effect of BCD and circumcision behavior on the incidence of STI in young MSM in Indonesia.*
Method: *Integrated Biological Behavior Survey (IBBS) data was the main data source used in this study, with the research design applied was a cross-sectional study. The study population was MSM spread across 24 provinces in Indonesia totaling 6,000 people and the sample used was MSM aged between 15-25 years around 2,200 people, sample selection using Respondent Driven Sampling (RDS) technique, where data testing used logistic regression test risk factor model using STATA 16 data processing software.*
Result: *MSM suffering from STI had one of the STI symptoms (76.9%). Results: partner fidelity (AOR: 0.44; 95% CI: 0.08-2.64), condom use (AOR: 0.47; 95% CI: 0.16-0.78), needle and syringe drug use (AOR: 0.49; 95% CI: 0.28-0.71) and circumcision behavior (AOR: 1.22; 95% CI: 0.98-1.45) appeared to be associated with STI incidence in Indonesia after controlling for the variables of frequency of anal sex, frequency of HIV testing and STI testing behavior. Conclusions: BCD and circumcision behavior is one of the easy-to-implement alternatives to prevent STI transmission among young MSM.*

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INTRODUCTION

Sexually transmitted infections (STIs) are infectious diseases that affect not only the general population but also high-risk populations, including MSM and transgender women.(1)(2) The ways of STI transmission are very varied, not only through sex but also through contact with people infected with STIs, changing partners by selling sex and buying sex with men and female sex workers (FSWs), using unsterilized needles alternately and not using condoms every time you have sex is also an entry point for STI transmission among MSM and transgender.(3)(4) MSM are a minority group but are the most vulnerable group to contracting and transmitting STIs compared to heterosexual groups.(5)

STIs infected an estimated 1 million new people worldwide yearly during 2020.(6) This starkly contrasts the 2030 target set by the World Health Organization (WHO) of reducing new STI infections by 9.9 million per year in the 15-49 age group.(7) The high number of infection cases is certainly contributed by one-third of the countries in the Southeast Asian Region.(8) Indonesia is one of the Southeast Asian countries, with the number of STI cases increasing throughout 2022 - 2023 by around 1,700 cases.(9) The increase in the proportion of cases was contributed by key population groups, one of which was the MSM group, where the proportion of MSM infected with STI throughout 2023 was around 17.1%, with the age range of MSM infected with STI most between the ages of 15-24 years around 19.3%9. Recent data suggests that the proportion of MSM infected with STIs is highest among adolescents and young adults10, with approximately 25% of adolescents and young adults infected with STIs representing the sexually active population(10), which is because they are more susceptible to STI symptoms in general(11)(12). In Brazil, for example, the average age of adolescents infected with STIs, especially Syphilis, is about 18.9 years13, At the same time, in the US, the risk of STIs is more significant in the 20-24-year-old age group by about 1.26 times compared to MSM aged between 18 - 21 years. (14) Passionate sexual desires, as well as the desire to find an authentic identity, encourage adolescents to engage in risky sexual behavior.(15) This data is indeed concerning, as young adolescents should have the ability to fully utilize their potential for future development and careers.

STIs suffered by young MSM are usually challenging to detect because MSM is reluctant to be

open about their illness(16)(17), which causes STIs among young MSM to be like a time bomb that can explode at any time, which has an impact on sexual health18 especially for MSM under 25 years of age 19. The worst impact experienced by MSM who live with STIs is death, as seen from the results of a meta-analysis conducted by Stutterheim et al. (2021) that Syphilis causes around 0.3 million deaths in young groups (20), this is because the reproductive organs are not yet fully developed, causing MSM under the age of 25 to be easily infected. (21) Another impact that haunts MSM under 25 years old is the risk of contracting other STIs and HIV infection through inflammation (5)(22). STIs do not only affect health issues but also extend to social issues 23, such as discrimination against themselves, which has a psychological impact on the MSM and affects the romantic relationship with their partner.(24) Other impacts beyond health include MSM of reproductive age with untreated STIs, which can affect the labour market. (25)

STIs rarely show severe symptoms, so they are often overlooked, making them a significant disease burden in the group of sexually transmitted diseases5. This disease is also the second highest sexually transmitted infectious disease in Indonesia besides HIV9. This is not without reason where there is a role of biological factors(16)(26), where the practice of rectal sex causes the mixing of microbes from various body locations. This mixing can lead to changes in the natural flora that have the potential to increase transmission and development of pathogenic strains(27), so it is not uncommon for HIV-positive MSM to be at high risk of other STIs, as happened in a cohort study in Jakarta that found HIV positive MSM had a 4.53 times higher risk of syphilis compared to HIV hostile MSM.(28) Risky sexual behaviour practices among MSM by having multiple sex partners.(16)(26) The same is seen from the results of research in Surakarta, where MSM who have many partners have a chance of about 2.28 times to contract STIs.(29) Inconsistency in condom use during anal sex also affects the incidence of STIs, as in Portugal, where MSM who do not consistently use condoms have a 2.13 times chance of being infected with STIs during anal sex(16)(26)(30). Circumcision behaviour is also thought to contribute to the incidence of STIs, where MSM who have representative sex can reduce the risk of STI transmission(30). The low accessibility of young MSM to health services, with a lack of providers trained in adolescent sexual health issues, has resulted in low detection and treatment rates among MSM(31) and the interconnected dynamics of sexual networks have resulted in a high incidence of STIs among MSM(16)(26)(27).

Previous studies have also revealed that the burden of STIs is disproportionately higher among adolescents and young adults, so it is necessary to try the right strategy to prevent the spread of STIs among MSM adolescents and young adults (32)(33), one of which is by implementing the behaviour of being faithful, Condom Use, no Drug use and Circumcision (BCD and circumcision). Prevention of STI transmission among young MSM can be done by implementing condom use every time they have sex, conducting routine HIV and STI tests once a year, voluntary circumcision and utilizing harm reduction services from injecting drug use (22). The fact that young MSM are more at risk of contracting STIs due to their risky sexual behaviours is because the adolescent brain is still developing, including the ability to calibrate risk versus reward (31) and their genital organs are not yet fully developed and affect the financial losses they incur at a young age. Another reason is the proliferation of research on the incidence of STIs in general MSM. However, the limited research on the incidence of STIs among MSM adolescents and young adults has piqued the interest of researchers in this topic. It is hoped that the government will be able to make regulations related to the prevention of STIs in young MSM groups, considering the long-term impact it will have on our human resources in the future. This study aims to see the effect of BCD and circumcision behaviour on the incidence of Sexually Transmitted Infections (STIs) in Young MSM in Indonesia.

METHOD

The Integrated Biological Behavior Survey (IBBS) was the primary data source used in this study, where the IBBS used in this study was the 2018-2019 IBBS issued by the Sub Directorate of Prevention and Transmission of Communicable Diseases (P2PM) of the Ministry of Health of the Republic of Indonesia with a cross-sectional research design. IBBS data as research material has obtained permission from the Directorate General of Communicable Disease Prevention and Control Ministry of Health by issuing a permission letter to use research data. The location of this study was in 24 provinces in Indonesia. The population of this study was all MSM in 24 Indonesian provinces totalling 6,000 people, with the research sample being MSM who fell into the category of adolescents and young adults with an age range under 25 years of 2,200 people spread across 24 provinces in Indonesia with inclusion criteria are MSM who fall into the age category of adolescents and early adults (15-24 years); MSM who have been actively having sex at the age of over 15 years; have had sex either once, occasionally or often; and reside in the survey location for at least one month, while the exclusion criteria are: MSM

living in conflict areas and districts with a small number of MSM. Sampling in the 2018-2019 IBBS used the Respondent Driven Sampling (RDS) technique, with the data analysis used in this study being univariate, bivariate analysis using the Chi-Square test, and multivariate analysis using the logistic regression test risk factor model, where the data analysis used in this study used STATA 16. The dependent variable in this study, in the form of STI incidence, was obtained with a syndromic approach carried out by health workers with groups of young MSM by asking whether young MSM had ever felt pain or burning when urinating; the presence of warts in the genital area and anus; the presence of scabs or wounds in the genital area and anus; abnormal discharge from the penis and anus; and the presence of lumps or swelling around the anus, with dichotomous categories used in this variable, namely: 0. Yes to STI, if having symptoms, if any of the STI symptoms and 1. No STI if no symptoms are present. For the independent variable, in the form of a Faithful variable with categories: 0. Unfaithful, if having sex other than the right partner and 1. Faithful if having sex only with the right partner. Condom use variable with categorization: 0. Not using a condom when having sex and 1. Using a condom when having sex. Variable drug use with categorization: 0. using non-sterile syringes and 1. not using non-sterile syringes. Finally, there is the circumcision variable, where the categories are 0. Not circumcised, and 1. For confounding variables in this study, there were six variables used, namely the age of first vaginal sex, the age of first anal sex, the frequency of anal sex, the perception of the risk of transmitting and contracting STI / HIV, the frequency of HIV testing and STI testing behaviour. This study has undoubtedly passed ethics with 035/KEPK-FKM-UC/2023 issued by the Faculty of Public Health ethics committee, Cenderawasih University.

RESULT AND DISCUSSION

Table 1 shows that of the eight signs of STIs experienced by MSM based on the results of anamnesis obtained, if most MSM feel pain like burning when urinating, around 15.6% followed by the second most symptoms in the form of abnormal discharge from the penis, around 5.1%, then there are symptoms of the next STI in the form of warts around the anus (2.7%), around 2.6% of MSM have warts around the genitals. Then, 1.7% of MSM admitted to having sores or scabs around the anus, MSM also admitted to having lumps/swelling around the anus at around 1.2%, and around 1.1% of MSM admitted to having abnormal discharge from the anal.

Table 1. Symptoms of sexually transmitted infections (STIs) among young men who have sex with men (MSM) in Indonesia in 2018-2019

STIs Symptoms	n	%
Very painful or burning when urinating		
Have symptoms	344	15.6
No symptoms	1,856	84.4
Warts around the genitals		
Have symptoms	58	2.6
No symptoms	2,142	97.4
Warts around the anus		
Have symptoms	52	2.4
No symptoms	2,148	97.6
Sores or scabs around the genitals		
Have symptoms	59	2.7
No symptoms	2,141	97.3
Sores or scabs around the anus		
Have symptoms	37	1.7
No symptoms	2,163	98
Abnormal discharge from the penis		
Have symptoms	112	5,1
No symptoms	2,088	94.9
Abnormal discharge from the anus		
Have symptoms	23	1.1
No symptoms	2,177	98.9
Lump/swelling around the anus		
Have symptoms	27	1.2
No symptoms	2,173	98.8

The proportion of MSM under 25 years old with STI was lower than that of MSM without STI, as shown in Figure 1.

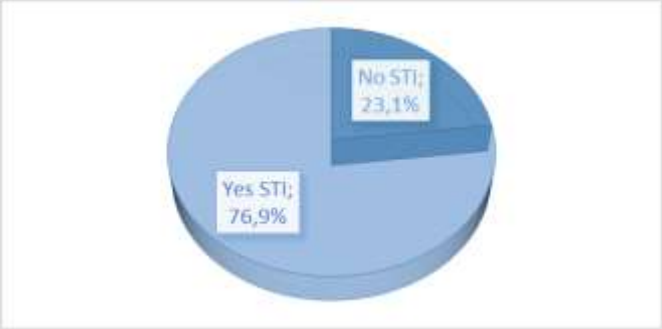

Figure 1. The proportion of Young MSM Based on Sexually Transmitted Infections (STIs) in Indonesia 2018-2019

MSM aged less than 25 years were unfaithful to their partners who had STI symptoms around 71.7%, where the behaviour of being unfaithful to a partner had an association with the incidence of STIs (p-value: 0.001) as well as condom use behaviour, MSM who did not use condoms during sex and had STI symptoms were more than MSM who used condoms during sex around 83.4% as seen if condom use had an association with the incidence of STIs (p-value: 0.003). The more often MSM use drugs, the higher the risk of STI transmission among MSM, which means that drug use has an association with STI incidence (p-value: 0.001). Circumcision behaviour in MSM has an association with STI incidence (p-value: 0.001), where MSM who are not circumcised have STI symptoms around 55.9%; this can be seen in Table 2**.**

Table 2. Result of bivariate analysis

Variable	STIs				P-value
	Yes		No		
	n	%	n	%	
Faithfull					
No	548	71.7	216	28.3	0.001
Yes	1,145	79.8	291	20.2	
Condom use					
No	272	83.4	54	16,6	0.003
Yes	1,421	75.8	453	24,2	
Drug use					
Yes	912	73.3	333	26.7	0.001
No	781	81.8	174	18.2	
Circumcision					
No	203	55.9	160	44.1	0.001
Yes	1,490	81.1	347	18.9	
Sex intercourse vaginal					
≤19	1,070	75.1	354	24.8	
20 – 24	309	76.9	93	23.1	0.478
25	314	83.9	60	16.1	0.001
Sex intercourse anal					
≤19	760	70.3	321	29.7	
20 – 24	141	80.1	302	19.9	0.008
25	792	84.0	91	16.1	0.001
Frequency of anal sex (times)					
≥3	15	88.3	2	11.7	0.042
<3	47	60.3	31	39.7	
Risk Perception of STI/HIV transmission					
No and don’t know	624	74.3	216	25.7	0.020
Know	1,069	78.6	291	21.4	
HIV Test Frequency (times)					
≤2	692	74.1	243	25.9	0.033
>2	145	66.8	72	33.2	
STIS test practice					
Never	1,449	81.4	332	18.6	0.001
Ever	244	58.2	175	41.8	

The older the age at which MSM first had vaginal sex, the more likely MSM were to have an STI. Similar to the age of first anal sex among MSM, MSM aged 25 years old experienced more STIs compared to MSM under 20 years old. The higher the frequency of MSM who have anal sex, the higher the MSM experience STIs, which is 88.3%, where the frequency of having anal sex has an association with the incidence of STIs in MSM (p-value: 0.042). MSM who perceived that they were not at risk and did not know that they were at risk of transmitting STI/HIV had fewer STIs than MSM who perceived that they were at risk of transmitting STI/HIV, around 74.3%, where the perceived risk of transmitting STI/HIV was associated with STI incidence (p-value: 0.020). The lower the frequency of MSM taking HIV tests, the higher the MSM experience STIs, where the results of the analysis obtained if the frequency of taking HIV tests in MSM has an association with the incidence of STIs (p-value: 0.033). MSM who never tested for STIs experienced more STIs than MSM who had tested for STIs, namely 81.4%; as the results of the analysis showed, STI testing behaviour had an association with the incidence of STIs (p-value: 0.001) as seen in table 2.

Variables from the results of the bivariate analysis in Table 2 will be selected or, in other words, will be used as candidates to enter the logistic regression test of the risk factor model, where variables that have a p-value above 0.25 will not be continued to enter the multivariate analysis, but this does not apply to faithful variables, condom use, drug use and circumcision because the four variables are variables that will be tested or in other words, the five variables are independent. Table 2 above shows that six variables are confounding variables, namely: vaginal intercourse sex, anal intercourse sex, frequency of anal sex on the last customer, risk perception of transmitting STI/HIV, HIV test frequency, and STI test behaviour have a p-value below 0.25 so that the seven variables are candidates for logistic regression testing. The logistic regression test of the risk factor model in this study is shown in Table 3.

Table 3. Multivariate modeling of BCD behavior on the incidence of STIs in unmarried MSM in Indonesia in 2018–2019

Variable	P-value	AOR	95% CI
Be faithful			
No		reff	
Yes	0.034	0.44	0.08 - 2.64
Condom use			
No		reff	
Yes	0.002	0.47	0.16 – 0.78
Drug use			
No		reff	
Yes	0.004	0.49	0.28 – 0.71
Circumcision			
No		reff	
Yes	0.001	1.22	0.98 – 1.45
Frequency of anal sex on the last customer			
≥3		reff	
<3	0.175	5.32	0.47 – 59.5
HIV test frequency			
≤2		reff	
>2	0.125	3.64	0.69 – 19.1
STI test practice			
Never		reff	
Ever	0.330	2.1	0.49 – 0.82

The behaviour of being faithful to a partner is a factor that can prevent the transmission of STIs among MSM, as seen from the AOR value of 0.44 (95% CI = 0.08 - 2.64) in addition, the behavior of being faithful to a partner has an association with the incidence of STIs in MSM under 25 years of age after controlling for the variable frequency of anal sex, frequency of HIV testing and STI testing behaviour (p-value: 0.034). Likewise, the behaviour of using condoms during sex is also a protective factor that prevents the incidence of STIs among MSM (AOR: 0.47; 95% CI: 0.16-0.78); the results of the analysis show that the behaviour of using condoms every time you have sex among MSM under 25 years of age has an association with the incidence of STIs after controlling for the variables of frequency of anal sex, frequency of HIV testing and STI testing behaviour (p-value = 0.002). Injecting drug use behaviour was also associated with STI incidence after controlling for frequency of anal sex, frequency of HIV testing and STI testing behaviour (p-value = 0.004), where injecting drug use is a protective factor that can prevent STI transmission among MSM under 25 years of age (AOR: 0.49; 95% CI: 0.28-0.71). Finally, uncircumcised MSM had a risk of 1.22 times more likely to be infected with STIs compared to non-circumcised MSM (AOR = 1.22; 95% CI: 0.98-1.45); the analysis also explained that circumcision behaviour had an association with the incidence of STIs after controlling for the variables of frequency of anal sex, frequency of HIV testing and STI testing behaviour (p-value = 0.001) as shown in Table 3.

The low immune system of adolescent and young adult MSM from previous infections increased

physically traumatic sex, and repeated STIs make STIs in young MSM relatively high (34), and the presence of that do not show early symptoms, such as in chlamydia and gonorrhoea causes ignorance which results in them not realizing what they are experiencing so that young MSM do not seek treatment or STI testing (35), causing STIs among young MSM to be high in the productive age group in Indonesia throughout 2023, namely: 19.3% in 2023 in Indonesia[9]. MSM are the first highest-risk group in Indonesia for contracting STI.(9) Similarly, in this study, at least 76.9% of MSM under 25 years old suffered from STIs, with the two most common symptoms being burning pain when urinating followed by abnormal discharge from the penis. Similar results were also found in previous studies, including a longitudinal study in America that found that the incidence of early syphilis, chlamydia and gonorrhoea increased in adolescents aged 15-24 years.(34) Young people in America accounted for about 53% of new STIs in 2020.(36) Research conducted by Kreisel *et al.* (2021) consistently found that about 18.6% of MSM aged 15-24 years experienced syphilis, chlamydia, gonorrhoea and herpes.(19) Every year in America, about 10 million new STIs infect adolescents aged 15-24 years.(35) The proliferation of STIs among MSM is not without reason; this could be due to the low awareness and lack of access of young MSM to health services. This can be seen from the results of this study, where about 74.1% of MSM under 25 years old had STI symptoms with less than 2 times access to HIV testing services in one year and about 80.1% of MSM who never accessed STI testing services. Other influences that cause STIs to be high among adolescent MSM include adolescent sexual health habits often develop, including calibrating risk versus reward, where curiosity and trial and error desires in the adolescent group are high to seek self-identity, including changing partners, from the results of this study it was also found that around 71.7% of young MSM were unfaithful to their partners.

Individuals with more sexual partners have a higher prevalence of contracting STIs,(37) where the number of sexual partners is identified as a significant risk factor in the spread of STIs.(38) This is also reflected in this study, which found an association between partner fidelity and the incidence of STIs in young MSM; this variable is one of the preventive factors in the transmission of STIs among young MSM. Previous research that relates to this study includes King *et al.* (2023), Mugglin *et* (2023) and the results of Nascimento *et al. (*2024), both revealed that young MSM who were unfaithful to their regular sexual partners would be at risk of STIs. (38)(39)(40) Loyalty to a partner often correlates with the number of sexual partners, as young MSM who remain loyal to their current partner are more likely to avoid changing partners. It will minimize the risk of contracting STIs from non-permanent partners, as evidenced by the research showing that 20.2% of young MSM who are loyal to their partners do not get STIs, besides other related variables in the form of Young MSM who are loyal to their partners tend to build good communication with their partners, of course, good communication about STI status and utilization of STI and HIV services with partners will help prevent transmission of STIs among young MSM; this is also evident from the results of this study where 33.2% of young MSM who have a frequency of HIV testing do not experience STIs as well as young MSM who have had STI testing around 41.8% do not experience STIs.

Transmission of STIs is more likely to be through skin-to-skin contact by having sex, so the use of condoms in sex is very effective in preventing the transmission of STIs.(40) Regular and consistent condom use in heterosexual and MSM groups can at least prevent the transmission of STIs with proportions of around 80% and 70%, respectively.(41) Thus, condoms are the only method that offers dual protection to both men and women as they significantly prevent the transmission of HIV and other STIs as well as unwanted pregnancies.(42) (43) Condoms must be used consistently and correctly to achieve such protection. When condoms fail to protect a person from STI transmission, this is usually due to inconsistent use of condoms during sex. (41) Inconsistent condoms use and having multiple partners are associated with higher STI prevalence among young MSM.(44) A report released in Paris in August 2024 highlighted that there was a 9% decrease in condom use among young MSM from 2014 to 2002, which is worrying because the decrease in condom use will affect the increase in STI cases in various regions in Paris. (45) The incident in Paris certainly contrasts with the results of this study, where condom use is one of the ways that can be used to prevent the transmission of STI incidence among young MSM. This contrasts with the results of this study, where condom use is one of the ways to prevent STI transmission among young MSM. This is linear with several other studies, including research conducted by Fatiah and Tambing (2023) (46), Hentgens *et al* (2023) (47), David *et al* (2021) (48), and Zhou *et al* (2022) (49) agreed that consistent condom use in young MSM can help prevent STI transmission during sex. The desire to use condoms during sex must, of course, be followed by the accessibility of condoms. Both in terms of condom logistics must be fulfilled, and the distance to obtain condoms must be easily accessible. The price of condoms must also be affordable so that this is expected to increase the interest of young MSM in using condoms during sex, besides the need for awareness from young MSM of the

risk of STI transmission through anal sex, which affects the consistency of young MSM to use condoms every time they have sex, both insertively and representively. The results of this study also found that about 21.4% of young MSM who knew the risk of contracting and transmitting STIs did not get STIs.

Drug use in the MSM group is higher than in the heterosexual group; this occurs because MSM often holds sex parties by providing drugs, such as the use of substances such as Methylendioxy and cocaine at the party. For example, at the party, there were three people infected with STI, then they used cocaine, then they had sex with men. Hence, the possibility of experiencing seroconversion is about four to seven times.(50) The results of this study also found that drug use has the potential to transmit STIs in the Young MSM group; this is consistent with several studies, including the results of research by Nascimento *et al. (*2024) (40), Scholz-Hehn *et al.* (2021) (51) which consistently found that if drug use in MSM during unprotected sex will be at risk for contracting STIs. Research conducted in San Francisco found that the risk of STI transmission in young MSM who use drugs is about 3.12 times greater than that of young MSM who do not use drugs.(52) The use of drugs during sex will make MSM unable to control their sexual desire due to the nature of stimulant drugs that have the function of inducing energy and increasing sex drive. Drug consumption during sex parties among MSM will usually be more than one or more substance; for example, after using cocaine, young MSM will consume alcohol as well; this is what increases the effect of drugs on sexual behaviour. Besides, MSM usually tend to have sex alternately if their sex drive has increased.

MSM tend to engage in anal sexual behaviour, as we know that the anal has a thin mucosal layer that is very sensitive, making it vulnerable to the transmission of STI pathogens through sex.(17)(53) Removal of the foreskin on the penis can reduce friction on the mucosal surface area that is vulnerable to the entry of HIV and micro-bacteria that cause STIs during sex.(54) Circumcision of adolescent boys is clinically proven to reduce the incidence of STIs among MSM and heterosexual men.(17)(34) Circumcised men have a reduced incidence of Herpes Simplex Type 2 (HSV-2) of about 28% to 34%.(55) This study explains that uncircumcised men have a 1.22 times greater risk of STI compared to circumcised men. Research in Africa states that circumcised men have a lower risk of STIs compared to uncircumcised men.(56) Circumcision behaviour is one way to prevent the occurrence of STIs among MSM, both from the results of research in South Africa[54] and in Malawi.(57) Circumcision behaviour is not the right behaviour to prevent STI transmission in MSM groups because, during sex, the foreskin will come into direct contact with rectal fluids, which tend to contain many bacteria. The foreskin has a skinny mucosal layer, so the thinness of the layer predisposes it to minor trauma and abrasions during sex, making it easier for pathogens to enter. This is why the risk of STI transmission through sexual intercourse will be higher in the uncircumcised male group because, during insertive sex, the foreskin area is warm and moist, causing some pathogens to survive and be able to replicate on the uncircumcised foreskin.

This study has several limitations, including the data analyzed is secondary data released by the 2018-2019 IBBS data. As we know, if the last IBBS released by the Sub Directorate of P3M of the Ministry of Health in 2018-2019, but even so, the quality of data from the 2018-2019 IBBS can still be used to describe the general state of PIMS and HIV in Indonesia. Another limitation of this study is the use of a cross-sectional research design that cannot see the longitudinal effect on the incidence of a disease. In addition, the limitations of the variables to be analyzed make it difficult for researchers to see the relationship between STI and other risk factors; such as IBBS data does not ask about oral sex behaviour performed by MSM groups, then for STI symptoms experienced by MSM only based on memory for 1 year before the survey was conducted, as we know that the human brain can only remember past events about 1-7 days after the event occurred. Despite these limitations, the 2018-2019 IBBS data is valid enough to describe the condition of STI incidence in Indonesia; besides that, academics use the IBBS instruments and data to obtain primary research data for academics from various regions.

CONCLUSION

The behaviour of being faithful to a partner, using condoms during every sex, not using drugs, and performing circumcision in young MSM groups has the potential to prevent the transmission of STIs during sex. This study recommends that it is necessary to ensure the supply and demand of condoms for high-risk groups and promote male circumcision behaviour using approaches through religious leaders, traditional leaders, and community leaders, besides the need to integrate HIV and STI testing in MSM groups.

Conflict of Interest

The authors declare that there's no conflict of interest.

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