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Sexual behavior and personal initiative to take the HIV test among men who have sex with men in Semarang, Indonesia

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Abstract

The HIV test is an important strategy for HIV prevention and treatment, starting from screening individuals who are unaware of being infected with HIV and requiring antiretroviral therapy. Information about sexual behavior factors related to HIV testing initiatives among MSM in Indonesia is still limited. Previous studies only showed the correlation of various sexual behavior variables with the decision whether to obtain an HIV test or not; but did not learn whether the HIV testing was obtained due to personal initiative or invited by others. This research can be used as a reference for developing an HIV testing program based on sexual behavior variables. This research aims to study the sexual behavior factors related to the personal initiative on taking the HIV test among men who have sex with men (MSM). We used cross-sectional study among 300 MSM who had an HIV test. This research found that homosexual orientation was negative factor related to the personal initiative for obtaining an HIV test. Sexual behavior among MSM is correlated with the personal initiative to take HIV testing. Further investigation should emphasize among homosexuals because they do not have the initiative to take an HIV test. *(Afr J Reprod Health 2024; 28 [7]: 114-126).*

Keywords: : HIV Test Initiative, Sexual Behavior, Men who have sex with men, Personal Initiative

Résumé

Le test du VIH est une stratégie importante pour la prévention et le traitement du VIH, qui commence par le dépistage des personnes qui ignorent qu'elles sont infectées par le VIH et qui nécessitent un traitement antirétroviral. Les informations sur les facteurs de comportement sexuel liés aux initiatives de dépistage du VIH parmi les HSH en Indonésie sont encore limitées. Des études antérieures ont uniquement montré la corrélation entre diverses variables du comportement sexuel et la décision d'obtenir ou non un test de dépistage du VIH; mais n'a pas appris si le test du VIH avait été obtenu grâce à une initiative personnelle ou sur invitation d'autres personnes. Cette recherche peut servir de référence pour développer un programme de dépistage du VIH basé sur des variables de comportement sexuel. Cette recherche vise à étudier les facteurs de comportement sexuel liés à l'initiative personnelle de faire le test du VIH chez les hommes ayant des rapports sexuels avec des hommes (HSH). Nous avons utilisé une étude transversale auprès de 300 HSH ayant subi un test de dépistage du VIH. Cette recherche a révélé que l'orientation homosexuelle était un facteur négatif lié à l'initiative personnelle d'obtenir un test de dépistage du VIH. Le comportement sexuel des HSH est corrélé à l'initiative personnelle de se soumettre au test du VIH. Une enquête plus approfondie devrait être menée auprès des homosexuels car ils n'ont pas l'initiative de faire un test de dépistage du VIH. *(Afr J Reprod Health 2024; 28 [7]: 114-126).*

Mots-clés: Initiative de dépistage du VIH, Comportement sexuel, Hommes ayant des rapports sexuels avec des hommes, Initiative personnelle

Introduction

Despite the rapid development of HIV prevention and treatment programs, HIV contamination is still a public health priority in many countries[1]. Similar to any other country, HIV program in Indonesia focuses on high-risk subpopulations in the society such as sex workers, injecting drug users, transvestite and men who have sex with men (MSM)[2]. According to surveillance information in low and middle-income countries, MSM is 19.3 times more likely to live with HIV than the general population, and only 14% of them access HIV/AIDS healthcare services providing prevention and treatment programs[3–5]. Results of studies in various developed countries discovered many were still

unaware of being infected with HIV with low HIV test coverage[6–8]. It was reported that among MSM groups specifically in low-income countries, more than 70% of the MSM population did not have access to other HIV test services, although the HIV test was free of charge and confidential[9,10].

The estimated population of MSM nationally is 754,310, with the province of Central Java as much as 77,722[11]. Compared to the adult population in general, MSM continues to increase the HIV contamination burden[12,13]. The number of PLWHA from the MSM group in Indonesia has increased from 23.6% in the fourth quarter of 2020 to 26.3% in the first quarter of 202[14,15]. The coverage of HIV testing in Indonesia has only reached 77% of the estimated population of Indonesian PLHIV (543,100)[16]. Even though at the end of 2018, there were many HIV testing services in Indonesia, namely 8,485 HIV testing services and 1,284 of them providing ARV treatment services[17].

There are several factors that cause this group's reluctance to come to the VCT clinic, including stigma, concerns about their HIV-positive status, lack of assurance of client confidentiality, the long distance to reach the VCT clinic, the length of time to return to the VCT clinic to see the test results[18,19]. Other structural factors such as discrimination, violence based on sexual orientation and gender identity, as well as the criminalization of HIV and AIDS and same-sex sexual practices, including MSM, are barriers to the availability, access and uptake of HIV and AIDS prevention, screening and treatment for MSM[20,21].

WHO has recommended that all MSM have to be tested for HIV at least once a year and those who have more than one or anonymous partners, or are using illegal drugs should be tested at least every 3 or 6 months[13]. An HIV test is an important strategy for HIV prevention and treatment programs, starting from identifying or screening individuals who are unaware of being infected with HIV and require antiretroviral therapy[22]. HIV testing can increase the access of a person to care and treatment, which allows a wider population to benefit from HIV prevention programs and antiretroviral treatment[23,24]. Early initiation of HIV testing and antiretroviral treatment has been shown to be effective in reducing HIV transmission, AIDS incidence and death among people with positive-HIV status, including the MSM group[25,26].

However, there are still many MSM who do not want to take an HIV test even though they behave at high risk of being infected with HIV because they are not mentally ready, afraid of the social impacts that will occur[4]. The test and treat program is an HIV control program that emphasizes achieving targets the triple 95s, namely people who are at high risk of being diagnosed and immediately entering treatment to prevent transmission and severity[27].

Various studies have found several factors related to the decision to do an HIV test grouped into individual factors and factors related to health services. Individual factors, namely high self-efficacy, knowing the location of the test, high wealth index, married at least once, older age, high education level, having good knowledge of HIV/AIDS, having a lifetime partner, positive perceptions of health care facilities, not hiding their gender identity, and having beliefs that they are at risk of being infected with HIV[28,29]. Factors related to health services were that health service providers or health workers felt uncomfortable in handling HIV tests, limited knowledge of health workers about HIV/AIDS, and health care providers does not have guidelines for HIV testing[30].

To the best of our knowledge, information on the correlation between sexual behavior and personal initiative in obtaining HIV testing among MSM groups in Indonesia is still limited. Previously, various studies carried out in developing countries only showed the correlation of various sexual behavior variables with the decision whether to obtain an HIV test or not; but did not learn whether the HIV testing was obtained due to personal initiative or invited by others[31–33]. Besides, information about sexual behavior factors related to HIV testing initiatives among MSM is still limited. In fact, the decision to carry out positive behavior in this study is to tahe an HIV testing is closely related to personal factors such as intention and perceived control over the risky behavior being carried out[34,35]. Based on that, this study intends to examine the personal characteristic decision of the MSM group

on obtaining an HIV test, and sexual behavior factors related to the personal initiative on obtaining an HIV test. Thus, this research can be used as a reference for developing an HIV testing program in Indonesia, especially the city of Semarang, based on sexual behavior variables as a barrier or supporting variable in the MSM group.

Methods

Study design

This research is a cross-sectional study conducted from May to July 2019, in Semarang, Central Java, Indonesia.

Participants and data collection

The number of samples in this study is 300 MSM who had an HIV test based on the calculation of a two-way hypothesis test with different proportions. This study used a significance level of 95% (α = 0.05) for the two-way test of 1.96 with a power of 80% (β = 0.20) of 0.842. Respondents in this study were MSM who were members of the Pulmonary and Eye Health Center Peer Support Group (KDS BKPM), and the Gaya Semarang Community (gay community peer support group) which provided information on HIV-negative MSM, HIV-positive MSM and places in Semarang City visited by MSM. Respondents are MSM who have obtained an HIV test, whether diagnosed positive or negative, sexually active, and/or have received health services in Semarang City for at least one year. Recruitment was carried out for 3 (three) months by consecutive sampling until the minimum sample size was met and an online questionnaire was used for data collection.

The process of recruiting respondents and research was carried out based on recommendations and in collaboration with gay community peer support group and BKPM KDS program managers to maintain a sense of comfort and security in data collection. Researchers will also adjust the time and place according to the respondents' needs. This researcher emphasizes maintaining human dignity, maintaining confidentiality by providing an identification number and not including personal data on the respondent's questionnaire.

Respondents who met the criteria were informed that this research was confidential and would not reveal their identities. A consent form must be completed, information about the contact person must be provided to confirm unclear answers, and participants have the right to withdraw from the study at any time. The research questionnaire was filled in by the respondents themselves, then the contents of the questionnaire were checked, and data was clarified regarding incomplete questionnaires or unclear answers. The data that collected can only be accessed by the principal investigator.

This survey was carried out with a questionnaire developed based on the results of previous research which was appropriate to the local culture and country of Indonesia and was proven to be valid and reliable. It was declared valid when the correlation results r> 0.113 on each question item, and Cronbach's alpha value was 0.298 which means it was quite reliable.

Variable measurement

Independent variables

In this study the independent variables consist of three domains. Sociodemographic characteristics, and respondent characteristics related to participation in the HIV and STI tests were explored descriptively. Meanwhile, the relationship between the sexual behavior domain and the dependent variable will be tested.

Sociodemographic characteristics

The measured sociodemographic characteristics included age, education level, type of occupation, marital status, and residential area. Age was categorized into five groups: 15-24 years, 25-34 years, 35-44 years, and 44-54 years. Education level was classified into never-attended school and basic education, secondary school (SMP, SMA/SMK), and higher education (University or Academy). Employment was classified into unemployed, self-employed, private employees, and civil servants. Marital status was classified into never married,

being married (still married or separated/ divorced/ died/ widowed), and living in a city (yes or no). Knowledge of HIV prevention and early testing (low, moderate, and high), and has received information on prevention (yes or no)

Characteristics correlated with testing for HIV and STIs

Characteristics correlated with HIV testing were measured from the history of HIV tests considering from the last time they had an HIV test in the category of: never been tested, ≤ 3 months ago, 4-6 months ago, > 6-12 months ago, > 1 year. The frequency of HIV testing was divided into four categories as follows: 1 time, 2-3 times, 4-5 times, and >5 times. Characteristics related to the STI test were measured from the history of taking an STI test (yes or no), the frequency of doing an STI test in the past year (no STI test, 1 time, 2-3 times, 4-5 times, and >5 times). Meanwhile, to describe the vulnerability characteristics of respondents towards HIV and STIs, the risk was measured by HIV vulnerability perception (high, moderate, and low) and STI symptoms (yes or no).

Sexual behavior

In this study, the measured sexual behavior as independent variables included: sex orientation (bisexual, homosexual, heterosexual), regular sex partners (no regular sex partner, only men, female main partner, both male and female), sexual roles (versatile, bottom, top), engage in violent sex (no or yes), receive payment for having sex (no, oral and, oral and anal), have sex with someone while drunk (yes or no), have group sex (yes or no), take stimulant drugs (yes or no), use condom (inconsistent and consistent), sex with someone who is not a regular sex partner (no, oral only, anal only and, oral and anal), use of lubricants (no and yes), and sex with someone who sells sex (no, oral, anal and oral-anal).

Dependent variables

The intention to take an HIV test was measured as a categorical variable by distinguishing groups who took HIV testing on their own initiative/intention or took HIV tests due to suggestions by others.

Data analysis

To determine factors associated with the intention to take an HIV test, bivariate analysis using the chi-square test was used to select sexual behavior factors, all factors with a p-value <0.25 at bivariate were considered for the multivariable analysis [36]. Multivariable analysis using multiple logistic regression to obtain the adjusted Prevalence Odds Ratio value which can estimate the correlated strength of sexual behavior variables towards the initiation variable for personal HIV testing.

Framework

This research build conceptual framework and thinking construct adapted from part of theory planned behavior (TPB). The TPB states that behavioral achievement depends on both motivation (intention) and ability (behavioral control). This refers to a person's perception of the ease or difficulty of performing the behavior of interest. Perceived behavioral control varies across situations and actions. Behavioral intention refers to the motivational factors that influence a given behavior where the stronger the intention to perform the behavior, the more likely the behavior will be performed[32]. In this study, we looked at initiative to take an HIV test based on how MSM can control their sexual behavior and sexual behavior in this study was based on background factors. Then, based on sexual behavior and initiative to take HIV test, it will affect to actual take an HIV test.

Results

The general characteristics of the respondents are as follows. mean age: 27.07 years (SD = 5.9), and most of the respondents (85.3%) were at least married once. Around 41.7% of the respondents had attended higher education (academies and universities), 52.7% were employees with fixed salaries and lived in urban areas (70%) (Table 1).

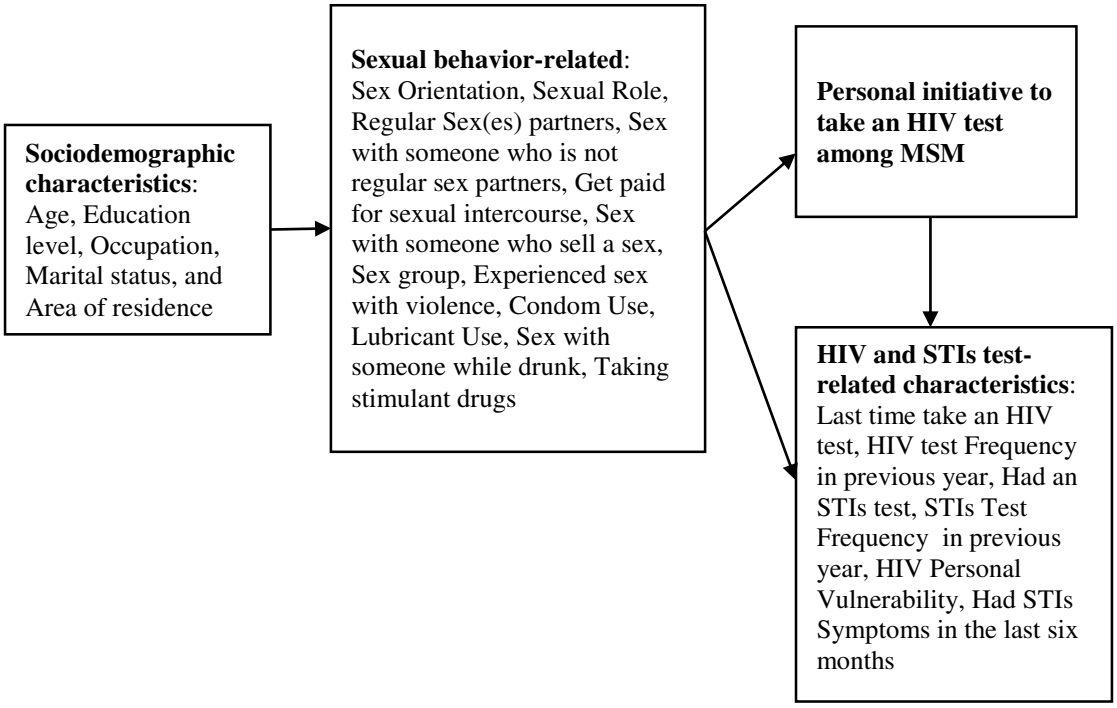

Figure 1: Conceptual frame work on Sexual Behavior and Personal Initiative to Take the HIV Test Among Men Who Have Sex with Men in Semarang, Indonesia adapted from part of Theory Planned Behavior

Table 1: Personal initiative to take an HIV test by sociodemographic characteristics of MSM (n=300)

Variable	Category	Personal initiative		No Personal initiative		Total
		n	%	n	%	
Age	15-24	15	16.0	78	84.0	93
	25-34	48	48.0	52	52.0	100
	35-44	31	52.0	29	48.0	60
	45-54	6	13.0	41	87.0	47
Education	Never Attended School And Primary	10	15.0	55	85.0	65
	Secondary And Vocational School	41	37.0	69	63.0	110
	Higher Education (Academy And University)	49	39.0	76	61.0	125
Occupation	Not Working	28	56.0	22	44.0	50
	Own an Independent Business/Freelance	20	24.0	63	76.0	83
	Employee With a Fixed Salary	48	30.0	110	70.0	158
	Government Employee	4	44.0	5	56.0	9
Marital Status	Never Married	28	64.0	16	36.0	44
	Married at Least Once	72	28.0	184	72.0	256
Living in Urban area	Yes	78	37.0	132	63.0	210
	No	22	24.0	68	76.0	90

Table 2: Personal initiative to take an HIV test by HIV and STIs test-related characteristics of MSM (n=300)

Variable	Category	Personal initiative		No Personal initiative		Total
		n	%	n	%	
Last time take an HIV test	≤ 1months ago	0	0.0	7	100.0	7
	1-3 months ago	41	32.0	88	68.0	129
	4-6 months ago	20	80.0	5	20.0	25
	>6-12 months ago	16	25.0	47	75.0	63
	> 1 years ago	23	30.0	53	70.0	76
HIV test Frequency in previous year	1 time	33	28.0	83	72.0	116
	2-3 times	36	32.0	78	68.0	114
	4-5 times	14	33.0	29	67.0	43
	> 5 times	17	63.0	10	37.0	27
Had an STIs test	Yes	62	40.0	94	60.0	156
	No	38	26.0	106	74.0	144
STIs Test Frequency in previous year	Didn't take an STIs test	38	26.0	106	74.0	144
	1 time	29	30.0	67	70.0	96
	2-3 times	20	44.0	25	56.0	45
	4-5 times	8	80.0	2	20.0	10
	> 5 times	5	100.0	0	0.0	5
HIV Personal Vulnerability	Severe	34	42.0	47	58.0	81
	Moderate	32	24.0	104	76.0	136
	Mild	34	41.0	49	59.0	83
Had STIs Symptoms in the last six months	Yes	53	46.0	61	54.0	114
	No	47	25.0	139	75.0	186

Table 3: Bivariate analysis of personal initiative to take an HIV test by sexual behavior-related characteristics of MSM (n=300)

Variable	Personal initiative to test				Total	P Value
	Yes	%	No	%		
Sex Orientation						
Bisexual	49	31.0	108	69.0	157	0.009
Homosexual	46	42.0	63	58.0	109	
Heterosexual	5	15.0	29	85.0	34	
Sexual Role						
Versatile	56	38.0	92	62.0	148	0.002
Bottom	22	47.0	25	53.0	47	
Top	22	21.0	83	79.0	105	
Regular Sex(es) partners						
No regular sex partners	57	52.0	53	48.0	110	<0.001
Only Men	35	22.0	122	78.0	157	
Mainly women	2	10.0	19	90.0	21	
Both. Men and women	6	50.0	6	50.0	12	
Sex with someone who is not regular sex partners						
No	40	25.0	121	75.0	161	<0.001
Yes. Oral	19	25.0	58	75.0	77	
Yes. Anal	8	57.0	6	43.0	14	
Yes. Oral and Anal	33	69.0	15	31.0	48	
Get paid for sexual intercourse						
No	62	30.0	143	70.0	205	<0.001
Yes. Oral	8	17.0	39	83.0	47	

Yes. oral and anal	30	63.0	18	38.0	48	
Sex with someone who sell a sex						
No	88	34.0	174	66.0	262	0.001*
Yes. Oral	0	0.0	12	100.0	12	
Yes. Anal	8	67.0	4	33.0	12	
Yes. Oral and Anal	4	29.0	10	71.0	14	
Sex group						
Yes	36	61.0	23	39.0	59	<0.001
No	64	27.0	177	73.0	241	
Experienced sex with violence						
No	8	19.0	35	81.0	43	0.027
Yes	92	36.0	165	64.0	257	
Condom Use						
Inconsistent	56	48.0	61	52.0	117	<0.001
Consistent	44	24.0	139	76.0	183	
Lubricant Use						
No	18	53.0	16	47.0	34	0.017
Yes	82	31.0	184	69.0	266	
Sex with someone while drunk						
Yes	58	40.0	87	60.0	145	0.025
No	42	27.0	113	73.0	155	
Taking stimulant drugs						
Yes	35	45.0	42	55.0	77	0.013
No	65	29.0	158	71.0	223	

*Likelihood ratio

Table 4: Multivariable analysis of Personal initiative to take an HIV test among MSM (n=300)

Variable	Category	P Value	aPOR	95 C.I.for EXP(B)	
				Lower	Upper
Sex Orientation	Homosexual	0.005	0.29	0.13	0.69
	Bisexual		1		
Regular Sex(es) partners	Only Men	<0.001	3.94	1.83	8.52
	Mainly women	0.072	4.25	0.84	6.95
	Both. Men and women	0.079	0.24	0.05	1.18
	No regular sex partners		1		
Sex with someone who not regular sex partners	Yes. Oral	<0.001	8.44	2.92	10.37
	Yes. Oral and Anal		1		
Get paid for sexual intercourse	No	0.002	4.35	1.72	11.05
	Yes. Oral	0.054	3.62	1.98	9.42
	Yes. oral and anal		1		
Group sex	No	<0.001	5.87	2.32	6.84
	Yes		1		
Experienced sex with violence	No	0.051	2.67	0.99	3.57
	Yes		1		
Condom use	Consistent	0.012	2.69	1.24	5.87
	Inconsistent		1		
Lubricant Use	Yes	0.004	4.36	3.58	11.98
	No		1		
Sex with someone while drunk	No	0.033	2.14	1.06	4.29
	Yes		1		
Taking stimulant drugs	No	0.101	2.03	0.87	4.72
	Yes		1		

Results of the study in terms of HIV testing and STIs discovered that around 25.3% of respondents had their latest HIV test more than a year ago and 52% were tested for STIs. In the past year, the frequency of taking an HIV test was only once (38.7%) and 52% of respondents did not have an STI test. Around 45.3% of respondents felt they had moderate HIV vulnerability and in the last six months 62% had no STI symptoms (Table 2). Bivariate analysis results revealed that p-value are <0.25, sex orientation, sexual role, regular sex partner, sex with someone who is not a regular sex partner, getting paid for sexual intercourse, sex with a sex worker, engaged in group sex, experienced violence during intercourse, used condoms, used lubricants, sex with someone while drunk and took stimulant drugs (Table 3).

Results from the multivariable logistic regression analysis are shown in Table 4. Being homosexual is less likely to take an HIV test (aPOR 0.29; 95% CI: 0.13-0.69). Respondents reported having mainly female sex partner are more likely to take a test (aPOR 4.25; 95% CI: 0.84-6.95). The Hosmer-Lemeshow test for the multivariate model was good ($\chi 2 = 21.4$, $p = 0.006$) with R2: 47.4% and prediction accuracy of 80%.

Discussion

This study found that those who took an HIV test because of personal initiative were higher in adults aged 35-44 years than young people who took tests because of other people's invitation. This result is different from previous research which stated that young MSM under 30 years of age tend to have the desire to take an HIV test[37]. However, other studies have found similar results, that under 35 years of age tend not to take an HIV test because MSM over 35 years of age tend to be more sexually active, can access health services better and easier, are more knowledgeable on HIV issues, and have financial independence than young age[38]. Young people usually have a perception of a lower level of susceptibility to disease than old age[39]. Based on the level of education, the respondents in this study who took an HIV test because of their initiative were more distributed among the higher education group than those who had never attended school or only received primary education. Previous studies have also mentioned that low education is a factor inhibiting someone from taking an annual HIV test[9].

The majority of respondents in this study (85.3%) had at least been married once, which means they had more than one sexual partner (male and female). The results of another study showed that older MSM was more likely to enter heterosexual marriages and to have unprotected sex with their female partners[40].

MSM who reported having only male sex partners had a higher prevalence rate of having an HIV test than MSM who reported having sex only with female partners, both female and male sex partners, (excluding male and/or female sex partners). However, MSM with both male and female sex partners had a significantly higher HIV prevalence than those with only male partners[41]. This strongly suggests that bisexual behavior among MSM is a very significant channel of HIV transmission in the female population that married with MSM.

This study also found that compared to those who did not have regular sexual partners, having only male or female sexual partners were 3.9 times and 4.2 times more likely to take an HIV test out of their initiative. Interestingly, this study found that compared to those with a bisexual orientation, those who were homosexual had no desire to take an HIV test (aOR 0.29, CI: 0.13-0.69). Previous research has identified factors experienced or perceived stigma related to MSM or HIV, such as homosexual identity, and cultural concepts of masculinity that become barriers to MSM seeking HIV testing services[42].

This study found that those who had HIV testing due to personal initiative had a high perception of HIV infection risk (34%) and had experienced STI symptoms (53%), this figure was higher than the group that had HIV testing by other invitation. This condition relates to the positive attitude among MSM toward using sexual and reproductive health services for obtaining information on sexual activity, HIV testing, and STIs as an HIV transmission mediator[43]. Other studies have found that the cause of someone not

having an HIV test is having a low perceived risk of HIV infection, this causes a feeling of "invincibility" about contracting the virus[5,44]. In addition, another study discovered that there was a significant correlation between understanding the HIV status with the decline of high-risk HIV transmission behavior[45]. On the other hand, those who were unaware of their health status will engage in HIV risk behaviors such as not using condoms and having more than one sexual partner, and change their risk behavior when finding out they are infected with HIV or joining antiretroviral therapy[46,47].

Respondents in this study were more distributed living in urban areas, this is because urban areas make it more likely for someone at risk of being infected with HIV to access HIV service providers more easily and more fully to provide information and care related to HIV/AIDS[3]. Other research also states that those living in urban areas are more likely to be exposed to a lot of information about HIV and have more experience with people living with HIV than those living in rural areas[39].

In this study, the sexual behavior of respondents can be categorized as low-risk behavior for HIV infection[48–50]. Previous research found that the MSM who had high-risk sexual behavior for HIV infection tended not want to take a test because they were afraid of knowing a positive test result[27,51]. This low-risk behavior is indicated by the sexual behavior of the majority of respondents who do not sell or buy sex, do not have group sex, never received violence during sexual intercourse, always consistently use condoms, use lubricants, are not drunk during sexual intercourse, and do not use stimulant drugs. This study found that sexual behavior was a predictor of someone taking an HIV test based on their initiative. It can happen because of the amount of information, and someone's motivation to take care of their health[43]. Information about HIV/AIDS prevention and proper motivation for HIV/AIDS prevention will improve the behavioral skills of HIV/AIDS prevention in the MSM group, both intrapersonal and interpersonal actions[43]. The emergence of preventive behavior is a sequence that starts from individual awareness and self-efficacy that a person is (or will be) sexually and needs to plan prevention, then explores relevant prevention information; detect and sequence information[43].

A person is more likely to have an HIV test when they consider themselves to be at risk of becoming infected with HIV or STI, or had contact with a person infected with HIV[52]. This shows that personalizing HIV risk among MSM can be a determining factor for a person to not carrying out HIV infection risk behaviors and is willing to access health services for treatment, care and health status examination[43]. By the result of this research that older MSM tend to have mature ways of thinking and accurate information regarding the risk of HIV infection related to their sexual behavior and number of sexual partners, so they decide to take an HIV test as an effort to maintain their health condition.

In this study, the respondent was involved in the MSM peer community and HIV/AIDS program. To increase awareness and knowledge about HIV testing, a community-based approach is needed[53]. Incorporating the MSM needs and characteristics communicated by the community members and also including intervention content about sexual risk behaviors of the MSM is a potentially intervention strategy for increasing HIV testing among MSM. Peer community were effective at reaching MSM communities, identifying MSM living with HIV, linking them to care, and have abilities to understand of MSM characteristics and needs for HIV testing[54]. HIV testing among MSM is the most important way to prevent transmission in this group like the WHO recommendation that all MSM have to be tested for HIV at least once a year[13].

Based on research results, elderly MSM tend to have mature thinking and accurate information regarding the risk of contracting HIV related to their sexual behavior and number of sexual partners. They then identify the level of vulnerability or high risk of being infected with HIV so they decide to carry out an HIV test as an effort to maintain their health condition. Person with perceived risk and susceptibility to disease will cause the individual to take preventive health actions[55]. These preventive actions can take the form of various things, such as accessing health services to avoiding high-risk behaviors for HIV infection

during sexual intercourse. So, information strengthening can be developed for young MSM who tend to ignore preventative action and feel fine even when engaging in risky sexual behavior. Developing and strengthening rooted communities so that they can reach young MSM who do not dare to access health services because they are hindered by fear of being stigmatized.

Based on the conceptual framework that developed from TPB, this research contributes to an understanding of the behavior to take an HIV test by personal initiative, determined by how MSM perceive their vulnerability and risk of being infected with HIV[56]. perception of high risk hiv infected is related to their sexual behavior[57]. In this study, MSM who have high-risk sexual behavior tend to have low understanding and low awareness of controlling their behavior, but with good knowledge they will control their sexual behavior so as not to become infected with HIV.

This research is a cross-sectional study which has its limitations, therefore causal conclusions cannot be drawn between independent and dependent variables. This study was conducted in 2019, so there is a possibility of an increase in personal HIV testing initiatives and the comprehension level of HIV in the current MSM population. However, since the lack of available information on personal initiatives to conduct population-based HIV testing in Indonesia, this study may become the basis of future population-based HIV testing research. Respondents for this study were recruited from the central city of Semarang, so they tend to have access to HIV/AIDS programs, services, and information, compared to different settings of other locations in Indonesia. Therefore, it is unlikely to generalize the results of the study to the MSM population which has different regional characteristics, policies, and poor service availability. In addition, by being involved in the HIV/AIDS and MSM peer community, respondents can increase their information and knowledge on HIV/AIDS, so that information bias may occur due to respondents who choose ideal answers. This will lead to an under-sampling of the MSM population condition which has not been exposed to MSM peer community, HIV/AIDS programs, services, and information, as well as those who do not have determinants related to personal initiatives to access HIV/AIDS and VCT services. To lessen the bias, interviews for clarifying answers will be carried out by using confirmation questions.

Conclusion

Based on sociodemographic characteristics this research showed that MSM with aged 25-34 years old, having higher education (Academy and University), MSM who owned an independent business or worked freelance, never married and living in urban area exhibited the highest personal initiative. Based on HIV and STIs test-related characteristics, those MSM who were tested 4-6 months ago, had >5 HIV tests, had STI tests, had STI tests 4-5 times, were considered vulnerable to HIV infection, and had STI symptoms in the last 6 months. This finding suggested understanding and promoting personal initiative in various contexts.
This study also discovered that sexual behavior among MSM was correlated with the personal initiative to take HIV testing. There is a need to increase the collaboration and involvement of organizations working with MSM to promote factors that can improve access to HIV testing in the MSM group (male sex partners and mostly have female partners, having oral sex only with non-permanent sex partners or for imbalance, not having group sex, non-violence during sexual intercourse, consistently using condoms, using lubricants, avoiding sex when drunk, and not using stimulants). Besides, it must integrate a personalized approach to HIV infection risk with social support and MSM needs to taking an HIV test. Further investigation should emphasize among homosexuals because they do not have the initiative to take an HIV test (OR 0.29).

Ethical considerations

This research was approved by the Institutional Ethics Committee of Institute of Health Sciences Bhakti Wiyata Kediri (Number: 361/H25.8/KEPK/DL/2019)

Availability of data and materials

All the data that used for this research are available from the corresponding author.

Conflict of interest

The authors declare that have no competing interests.

Authors' contributions

The author contributions are as follows: Conceptualisation FNS and NAP; Writing of the original draft FNS; Writing – reviewing and editing FNS, NAP, SS, RD. All the authors proofread the manuscript and approved the final version.

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