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Factors Associated with the Behavior of Men who Have Sex with Men in the Prevention of Human Immunodeficiency Virus Transmission

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Abstract

BACKGROUND: The prevalence of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) transmission caused by the behavior of men who have sex with men (MSM) is still a concern.

AIM: The purpose of this study was to determine the factors associated with MSM behavior in relation to the prevention of HIV transmission.

METHODS: This study used a cross-sectional design. The total sample was 176 respondents determined using consecutive sampling technique. The variables consist of demographic data, knowledge, attitude, beliefs, the accessibility of the health facilities, health-related skills, peer support, health-care provider support, and the prevention behavior concerning HIV transmission. The data were obtained using a questionnaire and it was analyzed using Chi-square and ordinal logistic regression.

RESULTS: From the sample of 176 MSM, the behavior of the prevention of HIV transmission was 43.75%, which is a moderate level. Through ordinal logistic regression, we found that knowledge (odds ratio [OR]: 1.171, confidence interval [CI]: 0.414–1.929) and peer support (OR: 1.902, CI: 0.721, 3.082) are more likely to prevent HIV transmission.

CONCLUSION: Knowledge and peer support are known to be very important factors concerning the behavior engaged in the prevention of HIV transmission. Increasing the level of knowledge and increasing the youth networks in the form of groups as a form of support can be promoted by nurses, health workers, and the community to prevent HIV transmission.

Introduction

Human immunodeficiency virus (HIV) is a disease that attacks the human immune system which affects its level of performance in the body. The infection caused by HIV can rapidly progress to the deadly acquired immune deficiency syndrome (AIDS) [1]. Health problems are caused by a condition that puts the person at risk, such as sexual behavior. This behavior results in the transmission of HIV to key populations and a high risk of becoming infected with HIV in the next few years [2]. One of the key populations that are at high risk of contracting HIV/AIDS is men who have sex with men (MSM) by as much as 21%. This is because most of them change sexual partners without using condoms and lubricant and perform oral and anal sex unprotected [3]. This allows for the easy transmission of HIV to other people through sexual transmission and sexual contact.

MSM account for 57% of new HIV infections in West Europe and North America with an increase in HIV infections reaching 8–17%. The HIV prevention strategy of condom use is only taken up by 13–16% rather than the 20–23% standard [4]. Indonesia is the fifth country in Asia in terms of the high risk of contracting HIV with the standard of HIV prevention behavior in MSM at 20–40% rather than the standard set of 70–89% [5]. The highest percentage was reported in the 25–49 age group with 70.2% HIV ratio among men and women by 2:1 [3].

A previous study showed that the transmission of HIV among MSM can be influenced by many factors, namely, a lack of knowledge, age, and the unavailability of condoms [6], [7], [8], [9]. In this study, researchers used the theoretical approach of Green and Kreuter [10] regarding a peer support and health education approach. This needs to be done because of the association between teenagers and unsafe sexual intercourse, such as not using condoms.

The low use of condoms and the lack of HIV/AIDS prevention measures by MSM have necessitated a change in health behavior. Health behavior is a form of activity to maintain and improve health, which can be both observed directly or cannot be observed [11]. In an effort to launch a government program to reduce the prevalence of HIV/AIDS in the MSM population, the main activity of the government

targeted 80% of the key population, namely, MSM. This means that they can implement the program effectively. It is expected that as a result, 60% of MSM will behave in a healthy manner using condoms [12]. Risky sexual behavior conducted by MSM is still concerning. It is necessary to determine the factors of MSM behavior in relation to HIV transmission. This needs to be done to be able to determine further policies.

Materials and Methods

Study design

A cross-sectional study was undertaken.

Setting and sample

This study was conducted from April to June 2019 in the MSM community in Surabaya, Indonesia. This research was conducted by determining the reachable population of 315 respondents which was then screened based on the inclusion and exclusion criteria determined by the researcher. The respondents then gave their informed consent as evidence of their willingness to participate in the study. The total sample in this study was 176 respondents determined based on purposive sampling. The inclusion criteria were MSM aged 25–55 years old, having a partner (male or female) and MSM that have been identified as being HIV positive. The exclusion criteria were respondents who were unable to follow through with the research process up to the point of completion and/or those suffering from an illness who were required to be hospitalized.

Variables

Independent variables

The demographic data in this study were the age of the respondent divided into three categories, namely, 25–35 years old, 36–45 years old, and 46–55 years old. The education level variable consisted of four categories, namely, elementary school, junior high school, senior high school, and university. Furthermore, marriage was divided into three categories, namely, married, not married, and partnered. The length of their HIV diagnosis was divided into two categories, namely, <1 year and more than 1 year.

The researcher was adopted the knowledge questionnaire from Adanan [13], Pratama [14]. The questionnaire consisted of 10 items using a nominal scale of “yes” and “no.” The score was divided into three categories (good: 76–100%, moderate: 75–56%, and poor: ≤55%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.920. The attitude questionnaire was adopted from Basen and Fisher [15], Kambu [16]. The questionnaire consisted of nine question items measured using a Likert scale (strongly agree-strongly disagree). The score was divided into two categories (good: ≥25 and less <25). Validity and reliability were determined using Cronbach’s alpha with a score of 0.762. The belief questionnaire was adopted from Shively *et al*. [17]. The questionnaire consisted of 19 items measured using a Likert scale (very sure-not sure). The score was divided into three categories (good: 76–100%, moderate: 75–56%, and less: ≤55%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.737.

The questionnaire on the accessibility of the health facility was adopted from Irianti [18]. The questionnaire consisted of three items using a nominal scale of “yes” and “no” with two categories (affordable: >50% and not affordable: ≤50%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.671. The health-related skills questionnaire was adopted from Puspah [19]. The questionnaire consisted of five items using a Likert scale (always-never). The score was divided into three categories (good: 76–100%, moderate: 75–56%, and less: ≤55%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.671. The peer support questionnaire was adopted from Puspah [19], Holliday [20]. The questionnaire consisted of four items using a Likert scale (always-never). The score was divided into three categories (good: 76–100%, moderate: 75–56%, and less: ≤55%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.812. The health-care provider support questionnaire was adopted from Putri [21]. The questionnaire consisted of six items using a nominal scale of “yes” and “no.” The score was divided into two categories (good: 51–100% and less: ≤1–50%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.614.

Dependent variable

The prevention of HIV transmission questionnaire was adopted from Bare and Smeltzer [1], Kambu [16]. The questionnaire consisted of eight items using a nominal scale of “yes” and “no.” The score was divided into two categories (good: ≥60% and less: <60%). The validity and reliability test selected was Cronbach’s alpha with a score of 0.634.

Data analysis

The data analysis process in this study was assisted by the STATA 16.1 version software. The analysis used Chi-square and binary logistic regression with a confidence interval (CI) of 95% (0.05).

Ethical considerations

This research was declared to have passed the ethical test from the Health Research Ethics Commission in the Faculty of Nursing of Universitas Airlangga, Indonesia, with number 1493-KEPK.

Results

The demographic characteristics of the respondents showed that most of the respondents were aged 25–35 years old whose latest level of education was that of senior high school. The marital status characteristic indicated that more than 50% of respondents were unmarried and that they'd had a diagnosis of HIV for <1 year (Table 1).

Table 1: Demographic characteristics of the respondents (n = 176)

Characteristics	n	%
Age		
25–35 years old	103	58.52
36–45 years old	58	32.95
46–55 years old	15	8.52
Level of education		
Elementary school	3	1.70
Junior high school	20	11.36
Senior high school	98	55.68
University	55	31.25
Marital status		
Married	52	29.55
Not married	107	60.80
Partner	17	9.66
Time since HIV diagnosis		
<1 year	117	66.48
More than 1 year	59	33.52

The results show that most respondents engaged in the prevention of HIV/AIDS transmission in the moderate category and that almost 70% of respondents had good knowledge about HIV/AIDS. This study also shows that most respondents have a good attitude, good beliefs, and indicate that the accessibility of the health facility is affordable. The respondents in this study also have good health-related skills, peer support, and health-care providers (Table 2).

The results of the bivariate analysis using Chi-square show that the variables length of time since HIV diagnosis, knowledge, the accessibility of the health facility, peer support, and health-care support have a significant relationship with the prevention of HIV transmission. However, the variables of age, level of education, marital status, attitude, beliefs, and health-related skills did not have a significant relationship with prevention of HIV/AIDS transmission (Table 3).

The results of the multivariate analysis using ordinal regression logistic showed that knowledge and peer support had a significant relationship with the prevention of HIV transmission. The respondents with moderate knowledge about HIV were 1171 times more likely to engage in HIV transmission prevention (p: 0.002; odds ratio [OR]: 1.171; CI: 0.414, 1.929). The respondents with less peer support were 1902 times more likely to do engage in preventative HIV/AIDS transmission (p: 0.002; OR: 1.902; CI: 0.721, 3.082). However, the respondent's ability to reach the health facilities and health-care support did not have a

Table 2: Description of the variables (n = 176)

Characteristics	n	%
Prevention		
Good	76	43.18
Moderate	77	43.75
Less	23	13.07
Knowledge		
Good	123	69.89
Moderate	45	25.57
Less	8	4.55
Attitude		
Good	135	76.70
Less	41	23.30
Beliefs		
Good	115	65.34
Moderate	59	33.52
Less	2	1.14
Accessibility of the health facility		
Affordable	169	96.02
Not affordable	7	3.98
Health-related skills		
Good	132	75.00
Moderate	41	23.30
Less	3	1.70
Peer support		
Good	102	57.95
Moderate	60	34.09
Less	14	7.95
Health-care provider support		
Good	154	87.50
Moderate	14	7.95
Less	8	4.55

Table 3: Bivariate analysis (n = 176)

Variables	Prevention of HIV/AIDS transmission						p	χ^2
	Good		Moderate		Less			
	n	%	n	%	n	%		
Age								
25–35	40	22.73	47	26.70	16	9.09	0.207	5.89
36–45	28	15.91	23	13.07	7	3.98		
46–55	8	4.55	7	3.98	0	0		
Level of education								
Elementary school	1	0.57	1	0.57	1	0.57	0.805	3.03
Junior high school	9	5.11	7	3.98	4	2.27		
Senior high school	43	24.43	45	25.57	10	5.68		
University	23	13.07	24	13.64	8	4.55		
Marital status								
Married	19	10.80	24	13.64	9	5.11	0.324	4.65
Not married	51	28.98	46	26.14	10	5.68		
Partner	6	3.41	7	3.98	4	2.27		
Time since HIV diagnosis								
<1 year	46	26.14	50	28.41	21	11.93	0.022	7.65**
More than 1 year	30	17.05	27	15.34	2	1.14		
Knowledge								
Good	63	35.80	51	28.98	9	5.11	0.001	17.65***
Moderate	12	6.82	21	11.93	12	6.82		
Less	1	0.57	5	2.84	2	1.14		
Attitude								
Good	60	34.09	61	34.66	14	7.95	0.156	3.71
Less	16	9.09	16	9.09	9	5.11		
Beliefs								
Good	54	30.68	50	28.41	11	6.25	0.153	6.69
Moderate	21	11.93	27	15.34	11	6.25		
Less	1	0.57	0	0	1	0.57		
Accessibility of the health facility								
Affordable	74	42.05	76	43.18	19	10.80	0.002	12.64***
Not affordable	2	1.14	1	0.57	4	2.27		
Health-related skills								
Good	58	32.95	59	33.52	15	8.52	0.735	2.00
Moderate	17	9.66	17	9.66	7	3.98		
Less	1	0.57	1	0.57	1	0.57		
Peer support								
Good	50	28.41	41	23.30	11	6.25	0.006	14.37***
Moderate	23	13.07	31	17.61	6	3.41		
Less	3	1.70	5	2.84	6	3.41		
Health-care support								
Good	70	39.77	67	38.07	17	9.66	0.022	11.43**
Moderate	6	3.41	5	2.84	3	1.70		
Less	0	0	5	2.84	3	1.70		

χ^2: Chi-square; *p < 0.1; **p < 0.05; ***p < 0.01.

significant relationship with the prevention of HIV/AIDS transmission (Table 4).

Table 4: Multivariate analysis (n = 176)

Variables	Prevention of HIV/AIDS transmission		
	p-value	OR	95% CI
Time since HIV diagnosis			
<1 year		0.000	
More than 1 year	0.193	−0.423	(−1.061, 0.214)
Knowledge			
Good		0.000	
Moderate	0.002	1.171***	(0.414, 1.929)
Less	0.044	1.448**	(0.036, 2.859)
Accessibility of the health facility			
Affordable		0.000	
Not affordable	0.305	0.896	(−0.817, 2.609)
Peer support			
Good		0.000	
Moderate	0.716	0.118	(−0.518, 0.754)
Less	0.002	1.902***	(0.721, 3.082)
Health-care support			
Good		0.000	
Moderate	0.716	0.118	(−0.518, 0.754)
Less	0.002	1.902*	(0.721, 3.082)

OR: Odds ratio; CI: Confidence interval; *p < 0.1; **p < 0.05; ***p < 0.01.

Discussion

In this study, it was found that knowledge and peer support were the most dominant factors in HIV transmission prevention behavior among MSM. Knowledge is an important factor in the prevention of HIV transmission. With good knowledge about HIV, MSM can engage in good and safe behavior related to sexual intercourse. The previous research has also shown there to be a positive relationship between knowledge and HIV transmission prevention behavior [14], [22], [23], [24], [25], [26]. In addition, with good knowledge, the respondents can find out about the prevention of HIV transmission such as the use of condoms. This shows that behavior is influenced by knowledge [10]. Knowledge is a cognitive domain that is very important in relation to the formation of one's actions if the acceptance of new behavior or the adoption of behavior is based on knowledge [11]. Good knowledge of HIV must also be possessed by the community and the individual's family. This can have an impact on the acceptance of people living with HIV (PLWH) in the community, as well as combating low stigma and discrimination [27]. Therefore, knowledge is important when it comes to preventing HIV transmission and combating stigma and discrimination. It can have an impact on improving the quality of life of PLHW.

The HIV transmission prevention behavior of MSM is also influenced by peer support. In addition, support can also come from the family. In this case, peer support is a more dominant factor because in relationships because it is very much influenced by their peers. Teenagers or MSM are closer to their peers and can talk about the problems that they are experiencing. Meanwhile, MSM cannot tell openly talk to their families due to the possibility of family rejection [28]. Interpersonal influencing factors refer to the people in their closest environment, namely, their peers. The support provided by their peers is considered due to them having a lot of experience and the potential to shape individual behavior [29]. Peer support has the potential to shape individual behavior in terms of taking action in the prevention of HIV/AIDS transmission. MSM who are members of a community will get support, guidance, and/or advice from their peers. Peer support has benefits such as increasing one's self-confidence when managing the disease, especially HIV [30]. Peer support can be instrumental, rewarding, and informative. In this study, the majority of MSM obtained peer support through information support. The previous research has shown that the information support provided includes providing information, advice, suggestions, or feedback [22].

The reinforcement in this study shows that the knowledge of HIV is still a major factor in the HIV transmission prevention behavior of MSM and/or PLWH. In addition, this study also found that peer support is an important thing as it can have a positive influence on MSM when it comes to conducting good behavior as it can prevent HIV transmission. The role of nurses as educators can play an important role in providing good information, as well as the formation of a group of peers that can become a medium for approaching and sharing information. This is also in accordance with Green's and Kreuter theory which states that an approach through health education can result in behavior change. However, the researcher realizes that this study has the limitation of involving MSM only respondents. The development of the type of respondent can provide a more varied description and information.

Conclusion

Knowledge and peer support are the dominant factors in HIV transmission prevention behavior among MSM. Having good knowledge about HIV and being supported by cooperative peers can have a positive impact on MSM. An approach to health education through one's peers can be pursued as well as the formation of networks and groups by nurses and other health workers. Furthermore, it is hoped that the government and policy-makers in health governance will pay attention to the role of peer support as a form of media in society to form good behavior, especially among MSM and PLWH.

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