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Factors Influencing the Prevention of HIV Risk Behavior in Adolescents in Bukittinggi, Indonesia

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Abstract: The increasing number of HIV in adolescents is caused by risky behavior carried out by adolescents. In this study, HIV risk behavior in adolescents was seen from two factors: free sex behavior and drug consumption. Heterosexual behavior contributed 19.6% and injecting drug consumption by 0.9% as the cause of HIV in Indonesia. This study determined factors associated with the prevention of HIV risk behavior in Bukittinggi, West Sumatra, Indonesia. 362 students in grades X and IX from 5 public high schools in Bukittinggi participated in this study. From September 2020 to February 2021, a cross-sectional study with this research design was conducted. The information was gathered using a questionnaire that followed the Indonesian Health Demographic Survey Instrument's instructions (IDHS). Then, the data were analyzed by bivariate analysis using Chi-Squere test and multivariate analysis using logistic regression. This study found that HIV risk behavior in the risky category was 17.96%, the low level of knowledge was found to be 48.90%, the low attitude was 32.87%, bad peers was 24.03%, and poor parental communication was found to be 64.09%. According to the results of the bivariate analysis, knowledge and peers were connected with a p-value of 0.000 and an OR of 3.68, which meant that peers who were unreliable had 3.68-times greater likelihood of engaging in risky behavior. According to the results of the multivariate study, knowledge, peer influence, and parental communication all had an R2 value of 0.11%, which indicated that they could anticipate 11% of HIV risk behaviors. The lack of knowledge and poor peers provided the opportunities for HIV risk behavior in adolescents in Bukittinggi.

Keywords: parental communication, prevention of HIV risk behavior, knowledge, attitude, peers.

影响印度尼西亚武吉丁宜青少年艾滋病毒风险行为预防的因素

摘要:

青少年中越来越多的艾滋病毒是由青少年进行的危险行为引起的。在这项研究中，青少年的艾滋病病毒危险行为从两个因素来看：自由的性行为和吸毒。在印度尼西亚，异性恋行为占艾滋病毒的19.6%，注射吸毒占0.9%。本研究确定了与印度尼西亚西苏门答腊武吉丁宜预防艾滋病病毒危险行为相关的因素。来自武吉丁宜5所公立高中的362名X和IX年级学生参加了这项研究。从2020年9月到2021年2月，采用这种研究设计进行了横断面研究。这些信息是使用遵循印度尼西亚健康人口调查工具(IDHS)说明的问卷收集的。然后，通过使用卡方检验的双变量分析和使用逻辑回归的多变量分析来分析数据。本研究发现，高危人群中的艾滋病高危行为为17.96%，知识水平低下为48.90%，态度低下为32.87%，不良同伴为24.03%，父母沟通不畅为64.09%.根据双变量分析的结果，知识和同龄人的p值为0.000，或者为3.68，这

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意味着不可靠的同龄人从事危险行为的可能性要高3.68倍。根据多变量研究结果，知识、同伴影响和父母沟通的R2值为0.11%，这表明他们可以预测11%的艾滋病病毒危险行为。缺乏知识和贫穷的同伴为武吉丁宜青少年的艾滋病毒风险行为提供了机会。

关键词：父母沟通、预防艾滋病高危行为、知识、态度、同伴。

1. Introduction

The crucial time in a person's life is adolescence. Teenagers are those between the ages of 10 and 19, according to the World Health Organization (WHO) [1]. Between childhood and adulthood, adolescence is a developmental transitional stage that is marked by biological, cognitive, and socioemotional changes. Sexuality is one of the health behaviors that heavily influences adolescent health.

In 2020, United Nations International Children Emergency Fund (UNICEF) released that 1.75 million [1.16 million-2.3 million] adolescents between the ages of 10 and 19 were living with HIV worldwide [2]. Approximately 4% of adolescents have HIV-AIDS (PLWHA), and about 11% of new adults have HIV infections. The highest number of HIV-positive adolescents in the world is found in sub-Saharan Africa and South Asia. Of the 1.6 million youths living with HIV, approximately 1.5 million (89%) live in sub-Saharan Africa. Meanwhile, nearly 1.8 million adolescents live with HIV, 80% of whom live in sub-Saharan Africa [3].

Additionally, according to the United Nations Population Fund (UNFPA) [4], adolescents between the ages of 10 and 24 make up more than a quarter of the Asian and Pacific population. Most sexually active adolescents in Asia and the Pacific participate in premarital sexual conduct. Teenagers are therefore more likely to experience negative consequences, such as early pregnancy, unintended pregnancy, unsafe abortion, STDs, and HIV.

In 2018, there were 46,659 HIV-positive cases recorded in Indonesia, 3.1% (1,446) of whom were teenagers (15–19 years old. The three risk factors with the highest prevalence were MSM (20.4%), heterosexual (19.6%), and IDU (0.9%), respectively [5]. According to the report from the Bukittinggi Health Office, in 2017, there were 130 cases of HIV in Bukittinggi, with 15 of those infections occurring in people between the ages of 15 and 19. In 2018, there were 78 cases, 8 of which included people between the ages of 15 and 19. Then, in 2019, there were 65 new HIV diagnoses, and there were 11 cases among people aged 15 to 19 [6].

The results of research conducted by Muntean *et al.* [7] showed that lack of prevention of sexual behavior became a factor causing the increasing number of HIV cases. This was brought on by the limited knowledge we had of HIV preventive strategies. Many adolescents do not receive adequate HIV and sex education [8]. The results of a population-based survey in East and South Africa from 2011–2016 showed that only 36% of girls and 30% of boys in East and South Africa between 2011 and 2016 had an accurate and thorough knowledge of HIV [9].

The lack of understanding HIV among teenagers is mentioned by the Ministry of Health of the Republic of Indonesia [10]. They claim that teenagers do not recognize the value of understanding reproductive health and refraining from free sex to prevent HIV transmission. The information that a person continuously should understand experience might be understood as knowledge [11].

Several factors that influence HIV risk behavior include the results of a study by Henok et al. [12], showing that 93% of participants had good knowledge about risky sexual behavior and the use of condoms, and 71% of participants had positive attitudes toward condom use. Furthermore, peers also play a significant part in the social development and growth of adolescents. Peer-to-peer sharing of information about reproductive health can help adolescents become more knowledgeable [13]. These findings support the claim made by Widman et al. [14] that peers impact teenagers' sex awareness.

Another related factor is parental communication, which is, according to Rukundo [15], adolescents do not discuss with their parents because the parents work and have little time to talk with their children, especially about sexual problems and HIV/AIDS, while some of them are left with a housemaid who became their friend to discuss.

The availability of complete data on the factors influencing HIV risk behavior in adolescents provides opportunities to prevent this problem. However, there was no study available in the literature on the prevention of HIV risk behaviors. Therefore, this study determined the factors associated with preventing HIV risk behavior in Bukittinggi, West Sumatra Province, Indonesia.

2. Methods

2.1. Design, Sample, and Study Setting

This study used a cross-sectional design, which was conducted at five public senior high schools (SMA) in

Bukittinggi, a part of the Province of West Sumatra, Indonesia. The city of Bukittinggi has an area of 25.2 km².

This study was conducted using the formula for the survey design. This study involved 362 students, selected by purposive sampling from grades X and IX, who had met the research criteria, such as the approval from the principal. Then, all students filled out the informed consent, lived in Bukittinggi, and were 15–19 years old.

All teenagers participated in all activities carried out at school without disturbing the school activities. A team consisting of a field coordinator, 3 enumerators, and 5 teachers approved by the principal conducted the research. The data collection was carried out from September 2020 to February 2021.

2.2. Variables

Demographic data included the characteristics of the adolescents, such as age and gender. Questionnaires were distributed to all the students. The 2017 Indonesian Health Demographic Survey (IDHS) instrument, which included 7 HIV risk behavior questions, 23 knowledge questions, 10 attitude questions, 16 questions about peers, and 14 questions regarding parental communication, was utilized by researchers to identify HIV risk behaviors. This research was approved by the Ethics Committee of the Faculty of Medicine, Andalas University, number: 342/KEP/FK/2020.

2.3. Data Analysis

The SPSS software was employed to analyze the quantitative data. Descriptive data are presented in the form of frequency and percentage. A chi-square test was conducted to identify the relationship between factors influencing HIV risk behavior with a significance limit (α) = 0.05. The variables included in the multivariate analysis were variables with a p-value of 0.25. Multivariate analysis used logistic regression to find a model that can predict variables influencing HIV risk behavior.

3. Research Results

Table 1 shows that most of the respondents were at the age of 16 (48.9%). Most of them were female, and 53% of them were in grade XI. Moreover, more than 80% of respondents in the HIV risk behavior variable exhibited no risky behavior toward HIV, whereas just about 20% of respondents did. Secondly, this study indicated that more than 50% of the respondents had outstanding knowledge related to the knowledge and attitudes toward avoiding HIV risk behavior among teenagers. Regarding views toward avoiding HIV risk behavior in teenagers, it was discovered that more than 70% of the respondents had a positive attitude in this regard. Following that, about 25% of respondents in the peer variable had negative peers, and over 75% had positive peers. More than 35% of parents were found to have adequate communication, whereas roughly 65% did not, on reducing HIV risk behavior.

Table 1 Characteristics of the respondents

Variable names	f = 362	%
Gender		
Male	147	40.61
Female	215	59.39
Age		
14 years old	1	0.28
15 years old	77	21.27
16 years old	177	48.90
17 years old	101	27.90
18 years old	6	1.66
Grade		
X	170	46.96
XI	192	53.04
HIV risk behavior		
Not risky	297	82.04
Risky	65	17.96
Knowledge about preventing HIV risk behaviors in adolescents		
High	185	51.10
Low	177	48.90
Attitudes toward preventing the HIV risk behaviors in adolescents		
Good	243	67.13
Not good	119	32.87
Culture		
Good	269	74.31
Not good	93	25.69
Peers		
Good	275	75.97
Not good	87	24.03
Communication between adolescents and their parents		
Good	130	35.91
Not good	232	64.09
Information media		
Well exposed	215	59.39
Not exposed well	147	40.61

Table 2 Analysis of the relationship between knowledge, attitudes, peers, parental communication on prevention of HIV risk behavior

Variables	HIV risk behaviors				χ^2	P	OR	(95%CI)
	Not risky		Risky					
	f	%	f	%				
Knowledge about preventing HIV risk behaviors in adolescents								
High	135	72.97	50	27.03	21.13	0.000	0.25	0.12–0.47
Low	162	91.53	15	8.47				
Attitudes toward preventing HIV risk behaviors in adolescents								
Good	198	81.48	45	18.52	0.16	0.690	0.88	0.47–1.63
Not good	99	83.19	20	16.81				

Continuation of Table 2

Peers								
Good	240	87.27	35	12.73	21.94	0.000	3.68	1.99–6.75
Not good	57	65.52	30	34.48				
Communication between adolescents and their parents								
Good	102	78.46	28	21.54	1.86	0.172	0.68	0.38–1.23
Not good	195	84.05	37	15.95				

Table 2 displays that the knowledge variable had a significant relationship to HIV risk behavior with p = 0.000, OR = 0.25 (95% CI: 0.12–0.47). Similarly, the outside variable of peer showed a significant relationship to HIV risk behavior with p = 0.000, OR = 3.68 (95% CI: 1, 99–6.75). This explains why teens who have negative peer influence are 3.68 times more likely to engage in risky behavior than teens who have positive peer influence.

Table 3 Multivariate analysis of knowledge and HIV-risk behavior involving peer and parental communication

Variables	**HIV-Risk Behavior**			
	Model 1 OR (CI 95%)	**Model 2 OR (CI 95%)**	**Model 3 OR (CI 95%)**	**Model 4 OR (CI 95%)**
Knowledge about the prevention of HIV risk behavior in adolescents				
High	0.25 (0.13–0.46)	0.27 (0.14–0.52)	0.26 (0.14–0.48)	0.28 (0.15–0.53)
Low				
Peers				
Good		3.29 (1.84–5.93)		3.30 (1.84–5.94)
Not good				
Adolescents' communication with parents				
Good			0.81 (0.46–1.42)	0,81 (0.45–1.43)
Not good				
N	362	362	362	362
R2	0,07	0,11	0,07	0,11
AIC	322.64	309.11	324.11	310.53

Table 3 shows that Model 4 describes the relationship between knowledge about preventing adolescent HIV risk behavior and HIV risk behavior by involving peer and parental communication variables. The results of the analysis showed that there was no significant relationship between knowledge about preventing adolescent HIV risk behavior and HIV risk behavior. The variable of peers showed an OR value of 3.30 (95% CI 1.84–5.94). Adolescents who have bad peers were 3.30 times more likely to have HIV risk behaviors. This analysis obtained an R^2 value of 0.11, meaning that Model 4 could predict the occurrence of HIV risk behavior by 11% while 89% was influenced by other factors.

4. Discussion

A total of 362 respondents from a sample of 5 SMAN Bukittinggi locations participated in this study. A questionnaire from the 2017 IDHS was used in this study, which was conducted from September 2020 to February 2021. The findings revealed that most study's adolescent participants did not exhibit any HIV risk behavior, but the findings also revealed that certain adolescents did exhibit HIV risk behavior that made the disease problematic for both the youth and their families. This study's fascinating finding was that some respondents had experienced dating behavior from their boyfriends that included holding hands, hugging, kissing lips, and even touching sensitive places. Additionally, it was discovered that a small percentage of respondents had premarital sex as well as attempted to use drugs and other psychoactive substances. The findings of this study are corroborated by the results of interviews with various teenagers, who claimed that the intention of trial and error and the influence of peers caused their desire to have sexual encounters [16].

Another surprising finding from this study was that there were nearly equal numbers of high and low categories for awareness about HIV risk behavior avoidance. Teenagers were aware of changes that affect both men and women, but those that continued to cause concern included the possibility of teenage pregnancy and women being able to become pregnant after just one sexual encounter. Many youngsters are still unaware of the possibility of getting HIV through condom use, though. According to the study's findings, adolescents who are more knowledgeable about reducing HIV risk behavior exhibit less risk behavior than those who are less knowledgeable. Adolescents who have adequate knowledge are more equipped to make adjustments in themselves, especially those that reduce their risk of contracting HIV. This is confirmed by research findings showing a 3,621-times correlation between good behavior and knowledge [17].

It was discovered that adolescents who had a good attitude were more prevalent than those who did not in

relation to the variable of HIV risk prevention attitude. The fascinating thing about the attitude variable was that it represented how people felt about using contraceptives during sex to stop HIV transmission. Additionally, there was still a stigma associated with HIV-positive individuals being placed in quarantine.

Additionally, it was discovered that the presence of peers played a significant impact on the social growth and lives of teenagers. Teenagers were comfortable discussing sexual matters with their friends and turned to their peers as a forum for doing so. Additionally, negative peers also showed a substantial correlation with HIV risk behavior. Findings showed that friends had a damaging influence on students by sharing pornographic content and inviting them to watch it, and those students then adopted this bad behavior. In this survey, it was discovered that most respondents had poor or infrequent communication with their parents because they still did not value their children's viewpoints. Furthermore, discussing sexuality with parents was still regarded as inappropriate. In actuality, parental dialog around sexual health was crucial. The parental interaction is crucial for monitoring and constantly being with teenagers, as well as for supplementing the knowledge they learn in school [18]. Parental communication elements are not significantly correlated because adolescents' concealment about dating and sexual activity is frequently a result of their fear of family conflicts [19, 20]. As a result, adolescents tend to seek advice from various sources (other youth, media) that are suitable to help them make good decisions.

Additionally, the outcomes of the multivariate study revealed that it was intriguing that the prevention of HIV risk behavior could be predicted by a mix of education, peer influence, and parental communication. The improvement in teenagers' knowledge is supported by supportive peers and excellent parental communication. Studies from the United States and sub-Saharan Africa demonstrated the beneficial effects of effective sexual health education on adolescent reproductive health. Education may result in later sexual emergence and fewer sexual partners in later life [21]. However, the benefits are also strongly related to the initial parent-child conversation time, including the frequency and content of the conversation [22].

Unfortunately, this study had some limitations. HIV risk behavior indicators use two indicators, namely free sex and drug consumption, while same-sex sexual behavior such as male sex has not been studied, this is because the teenagers who are the sample are teenagers who are still in school, making it difficult to get male sex behavior. Information about HIV risk behavior was collected by distributing questionnaires, so that it was potential to be biased during the data collection because it was related to the confidentiality of the respondents' behavior. However, to avoid biases during the data collection, all respondents were well explained. In addition to limitations, this study had several strengths, such as the sample size in this study was relatively large, so it was critical in controlling the quality of research.

5. Conclusion

This study assessed knowledge, attitudes, peers, parental communication on HIV risk behavior in adolescents. The percentage of HIV risk behavior in adolescents is quite high and the influencing factors are knowledge and peers. This is because adolescence is a period of searching for identity and adolescents gather more with peers. Furthermore, during adolescence sexual intercourse with parents, this is because they rarely talk about sexuality to their parents. This study suggests that future research needs to be concerned with other determinants that influence HIV risk behavior such as media information. The existence of appropriate and much needed programs for adolescents so that they can reduce HIV rates, especially in adolescents.

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