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Relationship between Knowledge and Attitudes Regarding Preventive Behaviors for Sexually Transmitted Infections Among Prisoners in Ambon City's Women's Correctional Institution

Zahra Hansuri[1], Fauzan Tuankotta[1], Fathiyatul Khair[1], Alessandra Flowrence Saija[2], Amanda Gracia Manuputty[3]

[1]Faculty of Medicine, Universitas Pattimura, Ambon, Maluku, Indonesia
[2]Department of Bioethics and Humanities, Faculty of Medicine, Universitas Pattimura, Ambon, Maluku, Indonesia
[3]Department of Dermatology and Venereology, Faculty of Medicine, Universitas Pattimura, Ambon, Maluku Indonesia
*E-mail: amanda.manuputty@lecturer.unpatti.ac.id

Abstract

Sexually transmitted infections (STIs) are diseases that are transmitted through sexual intercourse, whether vaginal, anal, or oral. STIs cases specifically target key groups such as FSWs (female sex workers), MSM (men who have sex with men), WSW (women who have sex with women), injecting drug users and prisoners in correctional institutions who are closely related to risky sexual behavior. Risky sexual behavior in these groups is often caused by low knowledge about the dangers and impacts of STIs. Preventing the transmission of STIs is very important to control their spread. Good knowledge and attitudes about STIs can improve effective preventive behaviors. This research aims to determine the relationship between knowledge and attitude towards STIs prevention behavior in Ambon City's Class III Women's Correctional Institution. This research used a cross-sectional design with a total sampling technique, involving 68 female inmates. Data were collected through a questionnaire containing questions about knowledge, attitudes, and STIs prevention behavior. The results showed that 44 respondents (64.7%) had good knowledge of STIs, 50 respondents (73.5%) had a supportive attitude towards STIs, and 58 respondents (85.3%) had good STIs prevention behavior. The results of bivariate analysis using the Fisher exact test showed a significant relationship between knowledge and prevention behavior (p=0.003) and between attitude and STIs prevention behavior (p=0.017). Good knowledge and attitudes towards STIs correlate with better prevention behaviors. Therefore, it is important to improve knowledge and attitudes that support STIs prevention in prisons.

Keywords: STIs, Female Prisoners, Preventive Behavior, Knowledge, Attitude

1. Introduction

Every day, about one million people in the world are affected by Sexually Transmitted Infections (STIs).[1] In Indonesia, a report from the Ministry of Health shows that from 2005 to September 2022, there were 493,118 HIV cases and 142,000 AIDS cases.[2] In the first quarter of 2023, the highest STIs cases were reported in vaginal body discharge (3,903 cases) and urethral body discharge (1.240 cases), as well as proctitis cervicitis (4,084 cases) and early syphilis (2,981 cases).[3] Based on data from the Central Bureau of Statistics of Maluku Province in 2020, 544 cases of STIs were recorded, with Ambon city contributing the highest number of cases with 344 cases.[4] Although this figure decreased compared to the previous year, STIs cases, especially HIV, have increased every year. Data from the Maluku Provincial Health Office shows that in 2023, there will be 731 HIV cases.[5] The increase in STIs and HIV/AIDS cases is largely due to high-risk sexual behavior, especially in groups such as female sex workers (FSW), male sex workers (MSM), and female sex workers (WSW), as well as injecting drug users and prisoners in correctional institutions.[6,7] In Indonesia, there are 32 women's correctional institutions, one of which is in Ambon City, which in 2023 housed 67 inmates. Among these inmates, 2 are HIV positive and 4 are infected with syphilis.[8] Sexually transmitted infections among female prisoners are caused by risky

behaviors, such as same-sex sex, frequent partner changes, and shared syringe use.[9] In addition, some prisoners may have been infected before entering the prison, for example those who work as sex workers.[10,11] Limited access to health services in prisons exacerbates this situation, leading to many undetected cases of STIs.[12] The impact of STIs is not only felt by prisoners but can also be transmitted to their children.[13] Therefore, it is important to improve prisoners' knowledge and attitudes about STIs and their prevention. This study will examine the relationship between inmates' knowledge and attitude towards STIs prevention behavior.

2. Methods

This study used quantitative observational and analytical survey methods, with a cross-sectional approach. This research was conducted in May 2024 at the Women's Correctional Institution Class III Ambon City. The population in this study was all female prisoners who fit the inclusion and exclusion criteria of the research subjects. This study used total sampling with a sample size of 68 people.

The data used in this study were primary data collected through questionnaires, consisting of instruments assessing knowledge of sexually transmitted infections (STIs), attitudes toward STIs, and STIs prevention behaviors. The knowledge and attitude questionnaires were developed by the researchers based on relevant literature and the study objectives, and were tested for validity and reliability prior to use. The knowledge questionnaire consisted of 30 true/false items and was categorized as good (76–100% correct answers), fair (56–76%), or poor (<56%).[14] Knowledge scores were calculated as the percentage of correct responses out of the total possible score. To classify knowledge levels, this study adopted a percentage-based categorization approach commonly used in health behavior and Knowledge–Attitude–Practice (KAP) research. Several international studies apply Bloom's cut-off points, categorizing scores of ≥80% as good, 60–79% as moderate, and <60% as poor.[15] Similar percentage based classification principles have been widely used in the international literature to facilitate the interpretation of knowledge levels. Based on these principles and the design of the questionnaire used in this study, knowledge was classified as good (76–100%), moderate (56–75%), and poor (<56%). The selected cut-off points were intended to support descriptive interpretation rather than to imply a universally standardized classification.

Attitudes toward sexually transmitted infections were assessed using a 20-item questionnaire with a four-point Likert scale (strongly agree, agree, disagree, and strongly disagree). The questionnaire included both favorable and unfavorable statements. Each item was scored from 1 to 4, resulting in a total score ranging from 20 to 80. Negative items were reverse-scored prior to analysis. Attitude levels were categorized using a percentage-based approach. Respondents scoring 80–100% of the maximum score (64–80) were classified as having a supportive attitude, while those scoring below 80% (<64) were categorized as having a less supportive attitude.[16] This categorization approach is commonly applied in KAP studies to facilitate standardized interpretation.[14]

Preventive behavior toward sexually transmitted infections was measured using an 11-item questionnaire adapted from Hidayat H and Mindayani S (2022).[17] All items were negatively worded (unfavorable) and required dichotomous responses (yes/no). Responses were scored as 1 for "no" and 0 for "yes," yielding a total possible score ranging from 0 to 11, with higher scores indicating better preventive behavior.

The cut-off point for preventive behavior was determined using the sample mean score. Participants scoring above the mean were categorized as having good preventive behavior, whereas those scoring below the mean were classified as having poor preventive behavior. The use of a mean-based cut-off is commonly applied in behavioral research when standardized thresholds are not available, particularly for dichotomous questionnaires.[17]

The questionnaires that have been distributed to respondents contain several identities of respondents, history or STIs disease status, that has been carried out clinical examination and laboratory examination at the local health center by a doctor. The data collected will then be analyzed using the Fisher-exact test, which aims to assess the relationship between the dependent variable, namely STIs prevention behavior, and the independent variables, namely knowledge and attitude. The ethical recommendation of the study was issued by the Ethics Commission of FK UNPATTI with letter number 059/FK KOM.ETIK/VIII/2024.

3. Result

The characteristics of prisoners are categorized as follows: Based on age, there are 5 categories: late adolescents aged 17-25 years (8.8%), early adults aged 26-35 years (27.9%), late adults aged 36 45 years (23.5%), early elderly aged 46-55 years (33.8%), and late elderly aged >56 years (5.9%). Based on occupation before entering the prison, out of 68 prisoners, 46 were working, and 22 were not working. Based on education, 34 inmates (50%) had a high school education, 23 people (33.8%) had a bachelor's degree, 2 people (3%) had a diploma, 3 people (4.4%) had a junior high school education, 1 person (1.5%) had no schooling, and 5 people (7.4%) had a master's degree. In terms of marital status, the majority of prisoners 48 people (70.6%) were married, 14 people (20.6%) were not married, 4 people (5.9%) were divorced alive, and 2 people (2.9%) were divorced dead.

Other characteristics based on length of stay in prison were that 58 prisoners (85.3%) had stayed in prison for more than 6 months, indicating the majority had a long prison term. In terms of STIs history, 64 prisoners (94.1%) had no history of STIs, while 4 people (5.9%) had a history of STIs, with testing limited to HIV and syphilis. Based on participation in general health counseling, 48 prisoners (70.6%) attended health counseling conducted by the Passo Health Center in November 2023, which also included STIs screening (HIV and syphilis). This counseling was attended only by prisoners who had been in prison for more than 6 months and did not specifically address STIs.

The distribution of knowledge, attitude, and behavior of prisoners can be seen in Table 1. Of the total 68 inmates, 44 people (64.7%) had good knowledge about STIs, 24 people (35.3%) had moderate knowledge, and there were no inmates who had poor knowledge. Furthermore, 50 prisoners (73.5%) had a supportive attitude about STIs prevention and 18 people (26.5%) had not supportive attitude. Meanwhile, 58 prisoners (85.3%) had good STIs prevention behavior, while 10 others (14.7%) had poor STIs prevention behavior. Based on the Fisher-exact analysis test in Table 3, it was found that there was a significant relationship between knowledge and STIs prevention behavior. The study shows that there are 42 respondents who have good knowledge and good behavior.

Table 1. Demographic Characteristics of Respondents

Classification		n=68	%
Age	17-25	6	8.8
	26-35	19	27.9
	36-45	18	23.5
	46-55	22	33.8
	>56	3	5.9
Occupation	Civil servant	15	22.1
	House wife	19	27.9
	Self-employed	6	8.8
	Not working	22	32.4
	Other	6	8.8
Education	Not in school	1	1.5
	Elementary school	0	0
	Junior high school	3	4.4
	Senior high school	34	50.0
	Diploma	2	3.0
	S1	23	33.8
	S2	5	7.4
Marital status	Unmarried	14	20.6
	Married	48	70.6
	Living divorce	4	5.9
	Death divorce	2	2.9
Length of time in prison	<6 months	10	14.7
	>6 months	58	85.3
Previous history of STIs	Yes	4	5.9
	No	64	94.1
General health counseling	Followed	48	70.6
	Did not participated	20	29.4

Table 2. Distribution of Knowledge, Attitude, and Behavior

Variable	n	%
Knowledge		
Good	44	64.7%
Moderate	24	35.3%
Poor	0	0%
Attitude		
Supportive	50	73.5%
Not supportive	18	26.5%
Preventive behavior		
Good	58	85.3%
Poor	10	14.7%

Then respondents who have good knowledge but have poor behavior are 2 respondents. Meanwhile, the results of the analysis test between attitude and behavior variables also have significant results with a p value of 0.017 ($p<0.05$) which means there is a relationship between attitude and STIs prevention behavior. Based on the table, there were 46 respondents who had a supportive attitude and good prevention behavior. Then, respondents with a supportive attitude but had poor preventive behavior were 4 people.

Table 3. Relationship between knowledge and attitude towards STIs prevention behavior

Variables	STIs prevention behavior				*p*
	Good		Poor		
	n	%	n	%	
Knowledge of inmates					0.003
Good	42	95.5%	2	4.5%	
Moderate	16	66.7%	8	33.3%	
Attitude of inmates					
Supportive	46	92.0%	4	8%	0.017
Not supportive	12	66.7%	6	33.3%	

4. Discussion

This study categorized the knowledge of prisoners into three categories: good, sufficient, and deficient. However, the results show that there are only two categories, namely good and sufficient, with no prisoners with insufficient knowledge. This indicates that female prisoners have fairly high knowledge, influenced by individual factors such as age and gender, as well as external factors such as education, occupation, and environment.[18]

Most of the inmates at Ambon Class III Women's Correctional Institution are high school and bachelor's graduates, which strengthens their health knowledge.[19] A similar study by Sari et al.[20] found that 98% of inmates at Kendari City Class IIA Correctional Institution had sufficient knowledge about HIV/AIDS, while Noraziah et al.[21] reported 33.3% of respondents had high knowledge and 35.0% of respondents had moderate knowledge about STIs in women's shelters which was also influenced by the level of education. The distribution of prisoners' attitudes towards STIs prevention was grouped into two categories: supportive and not supportive of STIs prevention. This attitude is influenced by various factors such as age, experience, education, knowledge, occupation, marital status, culture, and social environment.[22]

Research by Aulia et al.[23] shows that attitudes are formed from perceptions obtained through understanding or experience, which then affect STIs prevention behavior. Respondents who have an understanding of STIs tend to have a positive attitude and good prevention behavior. Research by Vonny.[24] also shows that a positive attitude increases the willingness to prevent STIs.

This study found that 85.3% of prisoners had good STIs prevention behavior. This indicates that the majority of female inmates at the Ambon City Class III Women's Correctional Institution in 2024 have good STIs prevention behavior. Behavior formation is influenced by predisposing factors such as knowledge, attitudes, cultural values, and social norms.[25] Higher knowledge of disease risk tends to increase preventive behavior.[26] These results are in line with research by Staton et al.[27] which showed a decrease in risky sexual behavior in female inmates at Appalachian Prison after a 3-month STIs and HIV-related educational intervention.

This study showed a significant relationship between knowledge about STIs and STIs prevention behavior among inmates at LPP Class III Ambon in 2024. This means that good STIs prevention behavior is influenced by good knowledge as well. These results are in line with Vonny's research[24] which found a significant relationship between knowledge and STIs prevention behavior in women of childbearing age at Puskesmas Bengkulu City, where 78.9% of the population had good

knowledge and behavior. Research by Jelena et al.[28] also showed that prisoners with low knowledge of HIV/AIDS (55%) tended to have poor STIs prevention behavior due to a lack of information before entering prison and low levels of education. However, research by Hilda et al.[17] at LPP Class II B Padang found that there was no significant relationship between knowledge and HIV/AIDS prevention behavior, although prisoners had good knowledge. This is thought to be due to social pressure in the prison environment.

According to Bloom's theory,[29] that knowledge starts from recognition and understanding that needs to be taught early by families and schools. However, if knowledge is not followed by good behavior, other factors such as intention and social control, according to Planned Behavioral theory,[30] can influence it. Although prisoners have good STIs prevention knowledge and behavior, the incidence of STIs continues to increase, indicating the need for further cooperation in breaking the chain of STIs spread, especially since diagnosis in prisons is still limited to syphilis and HIV.

This study also showed a significant relationship between prisoners' attitudes towards STIs and STIs prevention behavior at LPP Class III Ambon in 2024. This indicates that a supportive attitude is closely related to good STIs prevention behavior. These results are in line with research by Hoang et al.[31] who found that residents in the Vietnamese border had a positive attitude towards HIV/AIDS prevention, thanks to government counseling through mass media. Research by Feny et al.[32] also found high supportive attitudes towards STIs prevention among women aged 15-49 years in Indonesia. However, Abdulsalam et al.[33] study in Ogboso Prison, Nigeria, revealed that although inmates had good knowledge and attitudes, misconceptions about HIV/AIDS transmission led to ineffective prevention behaviors and discrimination against PLWHA.

Attitude, as a predisposition to action, can predict a person's behavior. According to the theory of Reasoned Action (TRA),[30] behavioral intentions are determined by a person's attitude, which is influenced by subjective norms and the social environment. The social environment ranging from the interpersonal level to government policies can influence an individual's attitude towards STIs prevention.[34] Sociodemographic factors such as education level, economic status, access to the internet, and living in urban areas also influence information gathering, thus forming a positive attitude towards STIs prevention.[32]

Although only 4 of 68 inmates were diagnosed with sexually transmitted infections (STIs), this finding should be interpreted with caution, as several types of STIs may be asymptomatic and therefore remain undetected without laboratory-based early screening. This condition indicates the possibility of undiagnosed STIs cases within the correctional facility.

The findings of this study are consistent with systematic literature reviews reporting that the prevalence of STIs among incarcerated populations is generally higher than in the general population.[35] These reviews emphasize the importance of routine STIs screening, particularly through comprehensive screening approaches for all inmates, as this strategy has been shown to improve case detection. Therefore, regular health examinations and integrated management are essential measures for STIs control in correctional settings.

This study has several limitations. The cross-sectional design precludes the assessment of causal relationships. In addition, the absence of comprehensive laboratory-based STIs testing and the restriction to a single correctional facility may limit the generalizability of the findings.

Multivariable analysis to control for potential confounding variables was not performed due to the relatively small sample size and the exploratory nature of the study. Several factors, including age, education level, duration of incarceration, prior STIs history, and exposure to health counseling, may have influenced the observed associations. Therefore, the findings should be interpreted as associative rather than causal.

Future studies are recommended to employ longitudinal study designs, involve larger sample sizes across multiple locations, and combine questionnaire-based data with laboratory examinations to obtain a more accurate assessment of STIs prevalence.

5. Conclusion

The results of this study showed that the majority of inmates in Ambon Class III Women's Correctional Institution had good knowledge (64.7%) and supportive attitudes (73.5%) towards sexually transmitted infections (STIs), which were significantly associated with positive STIs prevention behavior (85.3%). This finding confirms that knowledge and attitude are key factors in promoting effective STIs prevention behavior in a closed environment such as a correctional institution.

Therefore, more systematic and sustainable efforts are needed from various parties, especially the Ministry of Law and Human Rights, the Health Office, and non-governmental organizations, to develop evidence-based intervention programs that not only improve the knowledge and attitudes of prisoners but also take into account the limited access to health services in prisons.

These interventions should include curriculum-based sexual health education tailored to the education level and needs of prisoners, skills training, for healthy decision-making, as well as the provision of comprehensive reproductive health services including regular STIs screening, counseling, and appropriate treatment. It is also important to engage prison officers as agents of change through intensive training, so as to create a supportive social environment for STIs prevention. To strengthen these results on a national and international scale, further research with a longitudinal design and mixed methods (quantitative and qualitative) is recommended to understand the dynamics of STIs prevention behavior change and the structural and cultural barriers faced by female prisoners in different parts of Indonesia. Thus, a holistic and multisectoral approach to STIs prevention in prisons can be realized more effectively and sustainably.

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