

Analysis of the Behavior of WBP to Terminate the Pulmonary TB Transmission Chain in Medan and Lubuk Pakam Prison

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Abstract: Indonesia still holds the 2nd place in terms of the number of TB patients in the world. The prevalence of pulmonary TB in prisons is estimated to be 3 times higher than the general population. According to the report from the Department of Law and Human Rights of Sumatera Utara Province, from 2009 to 2011, the number of new pulmonary TB cases among the residents of prison/correctional facility tended to increase every year, an increase of an average of 7.2%. A research on the behavior of *Warga Binaan Pemasyarakatan* (WBP) is carried out to terminate the TB transmission (sputum, coughing, smoking, wearing masks, sleeping history and smoking) behavior. The type of this research is cross-sectional with the entire population of WBP in Medan and Lubuk Pakam Prison. The data collection is performed by interview using a questionnaire. The data analysis is conducted by univariate and bivariate. The results show there is a relationship of knowledge with cough behavior ($p = 0.011$) and wearing mask behavior ($p = 0.011$), there is a relationship between attitude and sleeping in one room behavior ($p = 0.032$). There is no relationship between knowledge and attitude with smoking behavior and throwing sputum behavior.

1 INTRODUCTION

Tuberculosis is still one of the public health problems in Indonesia. Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis* bacteria which mostly attacks the productive age groups and those who come from the weak economic groups. The number of TB cases in Indonesia is around 5% of the total TB patients in the world. The incidence of pulmonary TB is still high in the community; Indonesia still ranks second in the world with the highest number of patients. Reportedly, there are 1 million cases of pulmonary TB or 399 cases per 100,000 populations (WHO, 2016). The prevalence of pulmonary TB in prisons is estimated to be 3 times higher than the general population (Direktorat Jenderal Pemasyarakatan Kementerian Hukum dan HAM RI, 2012). A report from the Department of Law and Human Rights of Sumatera Utara Province states that from 2009 to 2011, the number of new pulmonary TB cases among the residents of prison / correctional facility tended to increase every year, an increase of an average of 7.2% (Direktorat Jenderal Pemasyarakatan Departemen Hukum dan Hak Asasi Manusia RI, 2016).

The majority of UPT Correctional Facilities residents exceed the capacity and do not have special infectious care rooms. This causes discomfort, inadequate environmental sanitation, increasing the susceptibility of transmission of various diseases, especially TB amongst the WBP and prisoners. Tuberculosis become the number four disease and the second largest cause of death in UPT Correctional Facilities according to the data of the Directorate General of Corrections in 2014 (Kemenkumham dan Kemenkes RI, 2015).

The quarterly data of the UPT Correctional Facilities in 2014 showed 3,623 of suspected TB and 734 of TB patients. The cure rate among new MDR TB patients is 41% in 2012 and 38% and 48% in 2013 and 2014, respectively. In 2014, there are 21 narcotics prisons and 5 general prisons which functioned as rehabilitation prisons for narcotics cases with 1,073 HIV patients in UPT Correctional Facilities in Indonesia (Kemenkumham dan Kemenkes RI, 2015). The high number of WBP and injecting drug users (IDU) and the increase in people with Human Immunodeficiency Virus (HIV) in several UPT Correctional Facilities will increase the number of morbidity and deaths due to TB (Kemenkumham dan Kemenkes RI, 2015).

In accordance with the data from the Directorate General of Corrections (Directorate General of PAS), in 2011 from all reports of all correctional facilities and prisons in Indonesia it is found there are 11% of TB cases from the suspected TB examined (911 / 7,972) and 66 people (0.8%) passed away due to TB. Other data from the Directorate General of PAS in 2011 report that TB ranks 4th out of 10 of the most diseases suffered by prisoners and is the second leading cause of death after HIV-AIDS (Direktorat Jenderal Pemasyarakatan Kementerian Hukum dan H.A.M RI, 2014).

The occurrence of TB in prisons is usually reported to be much higher than the average level reported in the general population. TB has been reported as the most common cause of death in prisons located in the country, even the risk of TB infection will be 100 times greater in prisons than in the community, due to prisons in Indonesia often exceeds its capacity and is overcrowded, with inadequate infrastructure and ineffective environmental and sanitation measures (WHO, 2002). In addition, the behavior of WBP, namely prisoners also play a role in the transmission of pulmonary TB. The intended behavior is attitude, knowledge, sexual behavior, and drug use.

Prisoners are a special group that has a high risk of TB, the TB matter in prisons are expected to be high due to the condition of the prison facilitates the spread of TB infection due to the duration and repeated exposure to *Mycobacterium tuberculosis* as a result of late detection of cases, lack of isolation space (special space for suspected TB), inaccurate treatment of infectious TB cases, high turnover of prisoners or detainees through inter-prison transfers, free prisoners and recidivists, poor ventilation and lack of direct sunlight and poor sanitation hygiene (Departemen Hukum dan HAM Republik Indonesia, 2008).

2 METHODS

The study is conducted in Medan and Lubuk Pakam Prison. Using a cross-sectional study design that examines the relationship of knowledge and attitudes toward the behavior of terminating pulmonary TB transmission (coughing, expectoration, wearing masks, smoking and sharing a room). The population is all WBP with pulmonary TB in Medan and Lubuk Pakam Prison. Data collection is carried out by interviews using questionnaires. The size of the sample is the number population of 59 respondents. Data analysis is performed by univariate and chi-square test, variables with $p < 0.05$ are stated to have a relationship.

3 RESULT

3.1 Cough Behaviour

As seen on the Table 1, the proportion of respondents' knowledge with bad cough behavior is greater with low knowledge (43.3%) than high knowledge (10.3%), but inversely the proportional to respondents with good cough behavior, the high knowledge is higher (89.7%) compared to low knowledge (56.7%). But in contrast, a good attitude is higher than poor attitude toward bad and good cough behavior. Based on the chi-square test, there is a significant relationship between knowledge and cough behavior ($p = 0.001$), while attitude does not have a significant relationship with cough behavior ($p = 0.0683$).

Table 1: The relationship of knowledge and attitudes with cough behavior.

Variable	Cough Behavior				Total		<i>p</i>	RP	95% CI
	Bad		Good		f	%			
	f	%	f	%					
Knowledge*									
Low	13	43.3	17	56.7	30	100	0.011	6.627	1.640-26.777
High	3	10.3	26	89.7	29	100			
Attitude									
Good	12	30	28	70	40	100	0.683	1.607	0.441-5.680
Poor	4	21.1	15	78.9	19	100			

Based on the result, knowledge has an influence on the cough behavior of WBP, the higher the knowledge of WBP, the better the cough behavior. This is in line with research performed by Agustina (2017) in Surabaya, which obtained p -value = 0.018

which means there is a difference in knowledge in the family who live together. Lack of knowledge and access to information causes a person to have limited knowledge about the dangers of unhealthy behavior so there is less motivation to adopt healthy behavior.

For example, those who are less exposed to warnings about smoking, poor eating habits, and lack of exercise are likely not to understand the potential of long-term danger of unhealthy behavior.

3.2 Sputum Disposal Behavior

Based on the Table 2, the proportion of high knowledge is greater than low knowledge in WBP with bad sputum disposal behavior, while WBP with good sputum behavior, the proportion of low knowledge is greater than high knowledge. Compared with attitude, bad sputum removal behavior is relatively the same, while good sputum removal behavior is higher than bad attitude. Based on the chi-square test, there is no significant relationship between knowledge and attitudes toward sputum removal behavior.

Although the result shows that there is no significant relationship, however, there are significant differences, therefore it could be

concluded that the better the attitude of a person, the better their sputum removal behaviour.

3.3 Smoking Behavior

As shown in the Table 3, the proportion of knowledge on smoking and non-smoking behavior is relatively the same, whereas, in attitudes, the proportion of good attitudes is greater than the poor attitudes. Based on the chi-square test, it is found that there is no significant relationship between knowledge ($p = 0.905$) and attitude ($p = 0.653$) with smoking behavior.

Based on the result of the study, the fact that knowledge does not affect smoking behavior can be caused by various things, the majority of WBP are smokers so that it can affect the actions of other WBP, despite having high knowledge but because the environment encourages smoking, the non-smoking WBP eventually becomes smokers.

Table 2: Relationship of knowledge and attitudes with sputum disposal behavior.

Variable	Sputum Disposal Behavior				Total		<i>p</i>	<i>RP</i>	95 % <i>CI</i>
	Bad		Good		<i>f</i>	%			
	<i>f</i>	%	<i>f</i>	%					
Knowledge*									
Low	4	13.3	26	86.7	30	100	0.465	0.484	0.125-1.871
High	7	24.1	22	75.9	29	100			
Attitude									
Good	6	31.6	13	68.4	19	100	0.149	0.310	0.081-1.190
Poor	5	12.5	35	87.5	40	100			

Table 3: The Relationship of knowledge and attitudes with smoking behavior.

Variable	Smoking Behaviour				Total		<i>p</i>	<i>RP</i>	95% <i>CI</i>
	Smoking		Non-Smoking		<i>f</i>	%			
	<i>f</i>	%	<i>f</i>	%					
Knowledge									
Low	13	43.3	17	56.7	30	100	0.905	0.819	0.294-2.285
High	14	48.3	15	51.7	29	100			
Attitude									
Good	10	52.6	9	47.4	19	100	0.653	0.665	0.222-1.993
Poor	17	42.5	23	57.5	40	100			

3.4 Mask Wearing Behavior

Based on the Table 4, the proportion of low knowledge (43.3%) is greater than high knowledge (10.3%) in the behavior of not wearing mask, inversely the proportional of the behavior of wearing mask, the proportion of high knowledge (89.7%) is

greater than low knowledge (56.7%), the value of p on the square-test = 0.01 which means there is a significant relationship between knowledge and the use of masks. The proportion of good attitudes is higher than poor attitudes. Based on the square-test, attitude does not have a significant relationship with the use of masks ($p = 0.683$).

This result is in line with Yulastuti (2014) on their study in Runkital Dr. Ramelan Surabaya, the study obtained a value of $p = 0.001$ on knowledge, means there is an influence of knowledge about TB with the use of masks. Information exposure will result in more knowledge than people who have not been exposed to the information. The respondents' environment that supports information exposure will support TB prevention. Good knowledge will influence the prevention of pulmonary TB transmission behavior, one of which is the behavior of wearing masks. Knowledge is one important factor that is very necessary in developing themselves, because the higher the knowledge, the easier it is to develop and receive information that comes from outside.

3.5 Sharing a Room Behavior

As seen on the Table 5, the proportion of high knowledge is greater than low knowledge in WBP with sharing a room behavior at risk, whereas WBP who is not at risk, low knowledge is greater than high knowledge, this shows knowledge has no influence in determining behavior. Furthermore, based on the chi-square test, the value of $p = 0.152$ is obtained, meaning there is no relationship between knowledge with sharing a room behavior and other factors that cause a lot of high knowledge but have a risk because of the placement in one room unintentionally with patients with pulmonary TB. Although, previously the patient is isolated despite having high knowledge

but due to regulations they finally have to share the same room with patients with pulmonary TB.

The proportion of good attitudes is equally higher at risk and non-risk WBP. The value of $p = 0.032$, which means there is a significant relationship between attitude and sharing a room behavior. Knowledge is one of the factors that influence a person's attitude. The higher the knowledge possessed, the more it will contribute to the formation of a good attitude. The formation of attitudes cannot be separated from the factors that influence it such as personal experience, culture, other people who are considered important, the mass media, and emotional factors of the individual. From the result, it is noted that most of the attitudes and knowledge on WBP included in both categories. Thus, it can be seen that the action of wearing a mask for people who are not infected with pulmonary TB will be better on WBP who are behaving well.

Based on a study of Herdayati & Rosalina (2013), it is obtained a value of $p = <0.0001$ which means there is a relationship between the presence of TB people in detention with TB transmission in prison. The presence of TB patients in detention rooms used to describe the number of AFB + in the environment is known to be significantly related whereas people who live in a room with TB patients have a risk of 14,802 times higher.

Table 4: The Relationship of knowledge and attitudes with mask wearing behavior.

Variable	Mask Wearing				Total		p	RP	95% CI
	No		Yes		f	%			
	f	%	f	%					
Knowledge*									
Low	13	43.3	17	56.7	30	100	0.01	6.627	1.640-26.777
High	3	10.3	26	89.7	29	100	1		
Attitude									
Good	4	21.1	15	78.9	19	100	0.68	1.607	0.441-5.860
Poor	12	30	28	70	40	100	3		

Table 5: Relationship of knowledge and attitudes with sharing a room behavior.

Variable	Sharing a Room Behaviour				Total		p	RP	95% CI
	Risk		No-Risk		f	%			
	f	%	f	%					
Knowledge*									
Low	9	30	21	70	30	100	0.152	2.500	0.859-7.273
High	15	51.7	14	48.3	29	100			
Attitude									
Good	12	63.2	7	36.8	19	100	0.032	4.000	1.265-12.653
Poor	12	30	28	70	40	100			

4 CONCLUSIONS

There is a relationship between knowledge and cough behavior ($p = 0.01$) and mask wearing behavior ($p = 0.01$). There is a relationship between attitudes with sharing a behavior ($p = 0.03$). There is no relationship between knowledge with smoking behavior ($p = 0.90$), sputum disposal behavior ($p = 0.46$) and sharing a room behavior ($p = 0,12$). There is no relationship between attitude and coughing behavior ($p = 0.68$), sputum disposal behavior ($p = 0.14$), smoking behavior ($p = 0.65$), mask wearing behavior ($p = 0.68$).

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