Effect of Physical Environment and Prisoner's Behavior with the Implementation of Control Programs against the Incidence of TB in Makassar City

Haeruddin[1], A. Rizki Amelia[1], Samsualam[2], Ma'syari Arfah Tihurua[3]

[1,2,3]Department of Public Health, Universitas Muslim Indonesia, City of Makassar, Indonesia

Email: kikiarizkiamelia@yahoo.co.id

ABSTRACT: Purpose - To analyses the influence of physical environment and prisoner's behavior by the implementation of control programs on the incidence of TB in Makassar City.
Methods - Samples in this study were 90 people who were taken based on people having symptoms of pulmonary tuberculosis which included age, sex, level of education, occupation, and length of stay in prison, humidity, water temperature, room lighting, occupancy density, discharge behavior. Sputum / spit carelessly, smoking habits, cough / sneezing ethics, room contact with friends and implementation of control programs.
Results - The incidence of pulmonary TB ie from 90 respondents who suspected there were 41 respondents (45.6%). Variables that are significantly related to TB incidence are the discard phlegm on a reckless place variable, p = 0.008 (p <0.05). Discard phlegm on a reckless place against respondents affected by tuberculosis were 29 people (29%). Variable cough / sneezing ethics obtained p = 0.001 (p <0.05). More respondents were found when cough / sneezing was performed correctly on respondents who did not have tuberculosis in the amount of 25 people (52.1%). Variabel room contact with friends, p = 0.002 (p <0.05). Respondents of room contact with friends were bad for respondents who experienced tuberculosis, namely by 34 people (57.6%).
Conclusion - Discard phlegm on a reckless place, cough / sneezing ethics, room contact with friends are significantly related to TB incidence in Makassar City.

Keywords: Penitentiary, Pulmonary TB, Implementation of the TB Control Program, Prisoner's Behavior, Physical Environment

1. INTRODUCTION

Tuberculosis is a major health problem in the world. Within 20 years the World Health Organitation (WHO) with the countries incorporated in it sought to reduce pulmonary TB. Pulmonary tuberculosis is a contagious infectious disease caused by the bacterium Mycobacterium tuberculosis(Organization, 2017).

According to the Global Tuberculosis Report (2017), Tuberculosis is a global problem where the World Health Organization (WHO) in 2016 there were 10.4 million cases of tuberculosis (CI 8.8 million-12 million) which is equivalent to 120 cases per 100,000 population. Five countries with the highest incidence of cases are India, Indonesia, China, Philippines, and Pakistan. Most of the estimated TB incidents in 2016 were in the Southeast Asian Region

(45%), of which Indonesia was one of them and 25% occurred in the African Region (Organization, 2017).

Based on data from (WHO) in 2019, the estimated number of TB cases in Indonesia is 845,000 people. This number increased from the previous 843,000 people. This data places Indonesia as one of the contributing countries to 60% of all TB cases in the world. Of the estimated 845,000 people suffering from TB, only 68% were found and treated in 2018. Even though it increased from 53% in 2017, the number of cases found is still low (WHO, 2015).

Based on the Profile of the South Sulawesi provincial health office in 2016 positive smear TB cases by 83.33 per 100,000 population, the discovery of positive smear TB cases in 2017 decreased by 83.11 per 100,000 population. Cities with positive AFB smear tuberculosis in Makassar were 1,951 per 100,000 population (South Sulawesi Health Office, 2017). Based on data obtained from the prisoners' health department in the Makassar City Class I Entrepreneurship Institute in 2019-2020, there were 14 cases of smear positive pulmonary TB. Twelve people have been freed and recovered, the remaining two are still in the process of treatment until now (South Sulawesi Health Office, 2017).

The level of health of prisoners who have great potential and facilitate the spread of TB infections due to the duration and repeated exposure to Mycobacterium, and it is also mentioned that risk factors for getting new TB infections or reactivity from latent TB infectors such as physical environmental factors (air humidity, room ventilation, room temperature, room lighting, occupancy density, and building type), behavior (coughing behavior without being closed and expelling phlegm indiscriminately), distance between rooms, social interactions, contact history,smoking, and the presence of sufferers in a single room.

Lapas in Makassar City Class I is one of the institutions under the auspices of the Ministry of Law and Human Rights (Kemenkumham) which is responsible for guiding prisoners. From the results of preliminary observations made in the Class I Prison of Makassar City it can be seen that the conditions of prisoners in the Class I Prison of Makassar City have exceeded the capacity (over capacity) where the capacity that should be occupied is 740 people. But the current number of prisoners occupied is 976 people with 9 rooms in each block consisting of 2 floors, 1 floor 5 rooms and each room in the occupant block varies depending on the size of the room while the ideal number of rooms is 5 people . For TB sufferers having a special room for isolation, the data obtained from the prisoners' health department at the Makassar City Class I Administration Institute in 2019-2020 contained 14 cases of smear positive pulmonary TB. Twelve people have been freed and recovered; the remaining two are still in the process of treatment until now. Besides sanitation and environmental conditions as well as unhealthy prisoner behavior patterns can be a disease transmission, one of which is pulmonary TB.

The purpose of this study to analyses the influence of physical environment and prisoner's behavior by the implementation of control programs on the incidence of TB in Makassar City.

2. METHOD

This type of research is a quantitative research. The population in this study were all Prisoners in Makassar City Class I correctional institutions, amounting to 976 people. The number of samples obtained was 90 prisoners. In sampling using Simple Random Sampling that is sampling by random. Criteria for inclusion of the sample are all prisoners who have symptoms of TB with complaints of cough for one week in a row.

Primary data were obtained by completing questionnaires by inmates. The variables studied included the dependent and independent variables, namely age, sex, level of education, occupation, length of stay in prison, humidity, air temperature, lighting, occupancy density, sputum / saliva in places, smoking habits, cough ethics / sneeze, room contact with friends and control implementation program. Secondary data was obtained from related institutions, namely from the Regional Office of Law and Human Rights (Kemenkumham) and Penitentiary (Lapas) Class I Makassar City as well as literature, books and journals related to the research conducted.

Data analysis was performed univariately and bivariately using computer software. Bivariate analysis was performed using the Chi-Square Test and analysis.

3. RESULTS

Table 1 shows that of the 90 respondents, most respondents aged 26-35 years were 39 respondents (43.3%), aged > 56 years were 29 respondents (32.2%), aged 36-45 years were 13 respondents (14.4%) and aged 46-55 years (10.0%). The 90 respondents who were all male, they were 90 respondents (100.0%). The number of elementary school education (33.3%), junior high school (15.6%), high school (35.6) and Academic / graduate (15.6). The unemployed / IRT respondents (11.1%), farmers (20.0%), laborers (18.9%), self-employed (32.2%), civil servants (4.4%) and students (8.9%). Then the long-term residents in prison < 2 years (71.1%) and $\geq$ 2 years (28.9%).

Table 1 Distribution Characteristic of Respondents

Characteristic	n (90)	%
Age		
26-35 years old	39	43.3
36-45 years	13	14.4
46-55 years	9	10.0
> 56 years	29	32.2
Sex		
Male	90	100.0
Girl	0	0
Education Level		
Elementary school	30	33.3
Middle School	14	15.6
High school	32	35.6
Academic / Bachelor Degree	14	15.6
Job		
Does not work	10	11.1
Farmers	18	20.0
Labor	17	18.9
entrepreneur	29	32.2
Civil servants	4	4,4
Student / student	8	8.9
Pension	4	4,4
Long been a prison occupant		
<2 years	64	71.1
≥2 years	26	28.9

Table 2 shows that the humidity variable obtained p = 0.168 (p> 0.05) there is no relationship between Humidity and the incidence of tuberculosis. More respondents were found that humidity fulfilled the requirements of respondents who did not experience tuberculosis, namely 36 people (50.7%). At room temperature, the result is p = 0.631 (p> 0.05), which means there is no correlation between room temperature and the incidence of tuberculosis. It was found that more respondents that room temperature met the requirements of respondents who did not experience tuberculosis in the amount of 25 people (52.1%). At occupancy density p = 0.344 (p> 0.05) is obtained, which means there is no occupancy density relationship to the incidence of tuberculosis. It was found by the results of respondents that occupancy density fulfilled the requirements of respondents who experienced and did not experience tuberculosis in the amount of 25 people (50%). In the discard phlegm on a reckless place variable, p = 0.008 (p <0.05), which means there is a relationship between discard phlegm on a reckless place and the incidence of tuberculosis. The results of respondents who found discard phlegm on a reckless place against respondents affected by tuberculosis were 29 people (29%). In smoking habit, p = 0.672 (p> 0.05) is obtained, which means there is no correlation between smoking habit and tuberculosis incidence. It found more respondents with smoking habits than respondents who did not experience tuberculosis in the amount of 40 people (55.6%). In cough / sneezing ethics obtained p = 0.001 (p <0.05) which means that there is a cough / sneezing ethics relationship to the incidence of tuberculosis. More respondents were found when cough / sneezing was performed correctly on respondents who did not have tuberculosis in the amount of 25 people (52.1%). In room contact with friends, p = 0.002 (p <0.05) means that there is a relationship between room contact with friends and the incidence of tuberculosis. It was found that more respondents of room contact with friends were bad for respondents who experienced tuberculosis, namely by 34 people (57.6%). The implementation of control programs obtained p = 0.898 (p> 0.05) which means that there is no correlation between the Implementation of Control Programs and the incidence of tuberculosis. Found more respondents good implementation of control programs of respondents who did not have tuberculosis that is equal to 48 people (54.5%).

Table 2 Effect of Physical Environment and Prisoner's Behavior with the Implementation of Control Programs against the Incidence of TB in Makassar City

Variabel	TB incident				total		P
	Yes		Not				
	n (41)	% (45.6)	n (49)	% (54.4)	n (90)	% (100)	0.168
Humidity							
Not eligible	6	31.6	13	68.4	19	21.11	
Qualify	35	49.3	36	50.7	71	78.89	
Room temperature							
Not eligible	18	42.9	24	57.1	42	46.67	0.631
Qualify	23	47.9	25	52.1	48	53.33	
Room Lighting							
Not eligible	41	45.6	49	54.4	90	100.0	NA
Occupancy Density							
Not eligible	16	40.0	24	60.0	40	44.44	0.344
Qualify	25	50.0%	25	50.0%	50	55.56	
Discard Phlegm on a Reckless Place							
Bad	29	58.0	21	42.0	50	55.56	0.008
Well	12	30.0	28	70.0	40	44.44	
Smoking habit							

Do not smoke	9	50.0	9	50.0	18	20.00	0.672
Smoke	32	44.4	40	55.6	72	80.00	
Cough / Sneezing Ethics							
Bad	16	76.2	5	23.8	21	23.33	0.001
Well	25	36.2	44	63.8	69	76.67	
Room Contact With Friends							
Bad	34	57.6	25	42.4	59	65.56	0.002
Well	7	22.6	24	77.4	31	34.44	
Implementation of Control Programs							
Bad	1	50.0	1	50.0	2	2.22	0.898
Well	40	45.5	48	54.5	88	97.78	

4. DISCUSSION

Humidity

Based on the results of research conducted at the Class I Correctional Institution of Makassar City, it turns out that many prisoners have a room with air humidity that does not meet the requirements as much as 31.6% while the most are prisoners with air humidity that meet the requirements as much as 49.3%.

This study is not in line with previous studies that there is a relationship between humidity with the incidence of pulmonary TB in the working area of Semarang City Kedungmundu Health Center (p value = 0.032) and the OR value = 4.033 shows that respondents whose humidity does not meet the requirements have a risk of 4.033 times greater suffering from TB than respondents whose humidity is eligible (Rosiana, 2013).

Humidity is the moisture content of air in the room. Humid environmental conditions are a good medium for the development of pathogenic bacteria. The measurement of humidity in this study using a thermohygrometer then the results obtained were compared with Permenkes No.1077 of 2011 which stated that the humidity requirements in the room ie with the standard meet the requirements if the room humidity is 40% -60%. While the humidity <40% or> 60% is said to not meet the requirements. Humidity that meets the requirements is not at risk of disease transmission, especially pulmonary TB disease (Permenkes R.I. No. 1077/Menkes/Per/V/2011 Tentang Pedoman Penyehatan Udara Dalam Ruang Rumah, 2011). In this case the air quality in the respondent's environment can meet the requirements (good). Because the room with poor air quality may contain Mycobacterium Tuberculosis bacteria, so there is a risk of pulmonary TB occurring 3 times greater than a house where the air does not contain Mycobacterium Tuberculosis due to tuberculosis infection initiated by someone inhaling Mycobacteroium Tuberculosis bacilli.

Room temperature

The results of research conducted at the Class I Correctional Institution of Makassar City turned out that many prisoners had rooms with room temperature that did not meet the requirements of 42.9% while the most were prisoners with room temperature that met the requirements of 47.9%.

From the results obtained that there is no significant relationship because the room temperature carried out by researchers is quite stable between normal limits, some rooms use fans that cause air circulation in the room so that the room temperature remains good.

The results of this study are in line with the results of a previous study conducted by Herlina (2015) stating that the respondent's home temperature did not have a relationship (p = 0.677) with the incidence of pulmonary tuberculosis in the Wori village Wori puskesmas working area. The temperature is very influential in the growth of Mycobacterium Tuberculosis

bacilli, where the growth rate of the bacilli is determined based on the temperature of the surrounding air (Butiop et al., 2015). This condition is closely related to air circulation inside the house which is directly related to outside air of the house and does not meet health requirements due to ventilation area that is less than 10% of the floor area. One effort to maintain the temperature of the house is to install adequate ventilation which is 10% of the floor area. Good circulation is expected to maintain the temperature of the house and manipulate the transmission of positive smear pulmonary tuberculosis in the home. The results of this study are the same as the results of research conducted by Imam Bachtiar, Erniwati Ibrahim, and Ruslam (2012) in Bima City, NTB Province, that the relationship between temperature variables statistically has no relationship (p = 0.5) (Bachtiar et al., 2012).

The results of this study are not in line with research conducted by Fatimah (2008) which states that temperature has a significant relationship with the incidence of pulmonary TB where a person who lives in a house with an air temperature does not meet the risk of having a risk where p = 0.029 and OR = 2.674 times greater to suffer from pulmonary TB compared to someone who lives at home with a temperature that meets the requirements (Fatimah, 2008).

There is a temperature range preferred by the bacterium Mycobacterium tuberculosis, ie at that temperature range there is an optimum temperature that allows the bacteria to grow quickly. The temperature referred to in this study is the temperature in the room where respondents often spend their time measured directly using a thermohygrometer. The results that have been obtained are then compared with Minister of Health Regulation No.1077 of 2011 which states that the room temperature requirement in the house is 18 ° C-30 ° C (Permenkes R.I. No. 1077/Menkes/Per/V/2011 Tentang Pedoman Penyehatan Udara Dalam Ruang Rumah, 2011). Based on the results of measurements obtained room temperature in Makassar City Class I Penitentiary can meet the requirements where the temperature obtained at the time of measurement is between 18 ° C-30 ° C.

Room Lighting

The results of research show that many prisoners had rooms with lighting that did not meet the requirements of 100.0%. This study is in line with research conducted by Izzati et al (2015), found that the lighting conditions of homes that do not meet the requirements are at risk 3.5 times more likely to suffer from pulmonary TB compared with those who meet the requirements (Izzati et al., 2015). Another study conducted by Kurniasari et al (2012), obtained the results of inadequate home lighting conditions having a 3.7-fold risk of suffering from pulmonary TB (Kurniasari & Cahyo, 2012). Natural lighting that does not meet the requirements can cause bacteria, especially tuberculosis (TB) bacteria to multiply.

The level of lighting does not meet the requirements because there is a strict security system through the shape of the building and the environment in prisons that are modified in such a way that no WBP is able to get out of the prison. Prison dense residential buildings with only one to two ventilation holes and one door as a source of natural light from outside. The whole prison environment is surrounded by layered fences and walls that are taller than the height of the building. These conditions can be influenced by the level of natural lighting received in the room. In addition, the level of room lighting is also influenced by the location of the building of each block.

Natural lighting is obtained from the sun's rays that enter through vents or windows in the walls of the house or from tiled glass. Adequate sunlight is an important factor in human health because sunlight can kill bacteria that are not good for the human body in the house, one of which is Mycobacterium tuberculosis. Sunlight can also kill pathogenic bacteria that

cause various other diseases, besides the ultraviolet rays in sunlight can kill mites. Lack of sunlight entering the house tends to cause the air to become moist and the room to become dark so that bacteria can hold for days to months in the house (Fahreza et al., 2012).

Occupancy Density

The results of research show that many prisoners had rooms with occupancy density that did not meet the requirements as much as 45.6% while the most were prisoners with residential density who met the requirements as much as 50.0%. From the results obtained that there is no significant relationship because the room occupied by prisoners can meet the requirements because the area of the prison being studied there are 2 blocks where there are some rooms where the number of prisoners there are less than normal limits and more than or equal to normal limits.

This study is in line with previous studies conducted by Rosiana (2013) from the results of the chi-square test, which obtained p = value of 0.163 (> 0.05) (Rosiana, 2013). then Ho is accepted, meaning that there is no relationship between the density of residential bedrooms with the incidence of pulmonary TB in the working area of the Kedungmundu Health Center in Semarang. The results of this study are also in line with what was done by Rikhal Nurul Pertiwi et al (2012), as well as the results of research conducted by Susiani Wulandari (2011). The results of Rikhal urul Pertiwi et al (2012) stated that occupancy density did not have a significant relationship with the incidence of pulmonary TB disease where p=0.781 and OR = 0.857 (Pertiwi, 2012; S. Wulandari, 2012).

Based on data from researchers, it can be concluded that Makassar City Class I Lapas has over capacity (excess capacity) which should only accommodate 740 inmates, but now it is inhabited by 976 inmates. So that the Class I Lapas of Makassar City experienced a high occupancy density. however, there are some rooms occupied by respondents that have occupancy density that meets the requirements.

The results of this study are in line with research by A. Rizki Amelia, et al in 2018 which states that there is a relationship between population density and the incidence of pulmonary TB in families in their homes (Amelia et al., 2018). Dense occupants in one room will give effect to the occupants. The size of the room area of a house is closely related to the incidence of pulmonary tuberculosis. Besides that, the association of prevention of pulmonary tuberculosis by Bradbury came to the statistical conclusion that the greatest incidence of pulmonary tuberculosis was caused by a state of the house that did not meet the requirements of the room area. Occupancy density is determined based on the number of occupants of the house per floor area of the room. The minimum area per person is relatively dependent on the quality of the building and the facilities available.

Throwing Phlegm / spit in the Careless Place

The results of research conducted at the Class I Correctional Institution of Makassar City turned out to be a lot of prisoners who had 58.0% bad spit / spit discharge behavior while 30.0% of those with good sputum / spit discharge behavior.

This study is in line with research conducted by Suluh G (2012) in Kupang City, found that there was a significant relationship between the habit of removing sputum with the incidence of pulmonary TB (+) with a value of p = 0.0001; OR = 53,958 because the p value <0.05 and research conducted by Wulandari (2015) in Kendal district also found that there was a significant relationship between the habit of removing sputum in any place with a risk of pulmonary TB incidence with a value of p = 0.016; OR = 4,402 (Suluh, 2012; A. A. Wulandari et al., 2015). This study is also in line with research conducted by Nofi, et al (2019) The habit of removing sputum in any place with pulmonary TB incidence obtained p-

value = 0.001 with an odds ratio (OR) of 4.750 with 95% confidence interval (CI) 2.008-11,236 (Yigibalom et al., 2019). The results of this test indicate that the value of p <0, 05 thus it can be stated that not removing phlegm in a closed container is a risk factor between the habit of removing any sputum with the incidence of pulmonary TB. The magnitude of the relationship between the habit of indiscriminate expectoration with pulmonary TB incidence can be seen from the OR value of 4,750 which means that respondents who have the habit of indiscriminate expectoration or not in a closed container have a 4.750 times greater chance of suffering from pulmonary TB compared to respondents who do not have the habit remove any phlegm or disposed of in a closed container.

This study is not in line with previous studies conducted by Putri, et al (2018) from the results obtained p = value of 0.481 (<0.05) (Putri et al., 2018). This means that sputum removal behavior is not related to the incidence of pulmonary tuberculosis because it has the habit of removing sputum in either place inside or outside the block, storing sputum in pots or with isolating liquid, in the gutters of the detention environment and removing phlegm using tissue and in a special container but kept for several days in a room.

Sputum expulsion is an activity to remove phlegm or spit from the mouth carried out by someone. Removing sputum or spitting in any place can increase the spread of pulmonary TB germs, because TB germs can live and have the opportunity to transmit germs if sputum or spit is removed anywhere.

Smoking habit
The results of research show that many prisoners had poor smoking habits as much as 50.0% while prisoners with good smoking habits were as much as 44.4%. This study is not in line with the results of research conducted by Setiarni, Sutomo & Hariyono (2011) who said that there is a relationship between smoking habits with the incidence of TB in adults with a value (p = 0.011). people who have the habit of smoking increase the risk of getting TB by 2,407 which means people who have the habit of smoking increase the risk of getting TB as much as 2,407 times compared to people who don't smoke (Setiarni et al., 2011). The results of this study are also not in line with research conducted by Saida & Syamsir (2019) by using a statistical test using chi square obtained p = 0.007. which means that the p value is smaller than the value of $\alpha = 0.05$ (Saida & Syamsiar, 2020).

Smoking can interfere with the effectiveness of some respiratory defense activities. The results of cigarette smoke can stimulate mucus formation and ciliary movement (Widyasari, 2012). smoking people are more at risk of suffering from tuberculosis because of the toxic content such as tar which is inhaled from cigarette smoke (Widyasari, 2012). The smoking habit is an activity of smoking cigarettes which is done repeatedly, regularly and is difficult to remove with the habit of smoking ≥10 cigarettes / day. smoking not only causes disease in smokers themselves, but also for those around them, where exposure to cigarette smoke often occurs in the house / room.This smoking habit also has different conditions than nonsmokers. Smokers have cavities in the lungs that make it easier to get positive sputum smears. The higher the smear found in sputum, the more it infects the lungs and increases the risk of transmission. pulmonary TB disease to the surrounding environment) (D. H. Wulandari, 2018).

Cough / sneezing ethics
The results of research show that many prisoners had bad coughing / sneezing behavior as much as 76.2% while prisoners with good cough / sneezing ethics were as much as 36.2%. The results of this study are in line with the study of masdalene in the Class I State Detention Center in Medan, stating that the habit of not being coughed is associated with the incidence

of pulmonary TB (p = 0.003). This shows the risk of transmission of pulmonary tuberculosis with a habit of coughing up not closing the mouth will spread very high disease-causing bacteria.

According to the results of previous studies conducted by Putri, et al (2018) Cough behavior is a risk factor for the incidence of pulmonary TB (Putri et al., 2018) . Of the values (OR = 3.972; 95% CI = 1,288-8,440; p = 0.022) related to cough behavior with the incidence of pulmonary TB. And it can be seen that respondents who have bad coughing behaviors have a risk of transmitting pulmonary TB disease of WBP 3,297 times compared to respondents who have bad coughing behaviors (51.3%) by not closing their mouths and not washing their hands using soap.

Ethics when sneezing and coughing to avoid spreading the virus. sneezing and coughing do not contain harmful germs. However, germs and viruses can come from the oral cavity that is released when sneezing and coughing is done. This is most likely to form a colony that causes infection.

Room Contacts with Friends

The results of research show that a lot of prisoners who had room contacts with bad friends as much as 57.6% while prisoners with room contact with good friends as much as 22.6%. This study is in line with that conducted by Eka Fitriani (2013) which shows that there is a relationship between household contact variables with the incidence of pulmonary tuberculosis where p = 0.001 (Fitriani, 2013). Likewise with the results of research that are in line with previous studies conducted by Herlina, et al (2015) showed that bivariate statistical analysis showed that the household contact variable had a significant relationship (p <0.005) with the incidence of pulmonary tuberculosis. A contact history is important in the study of pulmonary tuberculosis (Butiop et al., 2015).

In the etiology of tuberculosis, mycobacterium tuberculosis is very small, aerobic, can last a long time in dry sputum, other excreta and can easily be expressed by inhalation of sputum grains through coughing, sneezing or talking (droplet infection). So that frequent contact with patients with active tuberculosis will cause infection or exposure to healthy people.

Implementation of Control Programs

The results of research show that many prisoners had a poor control program implementation of 50.0% while prisoners with a good implementation of the control program were 45.5%. The results of this study are in line with previous studies conducted by Lestari, et al (2018) which showed that there was a significant relationship between the implementation of the control program and tuberculosis with a value of p = 0.001 (Muslimah, 2019). The TB control program is very important for the other four components so that it can be implemented continuously. This commitment must first be translated into policy formulation and then formulated into financial and human resources and administrative support. With TB control, priority is given to the poor and other vulnerable groups to TB.

5. CONCLUSION

The incidence of pulmonary TB ie from 90 respondents who suspected there were 41 respondents (45.6%). Variables that are significantly related to TB incidence are the discard phlegm on a reckless place variable, p = 0.008 (p <0.05). Discard phlegm on a reckless place against respondents affected by tuberculosis were 29 people (29%). Variable cough / sneezing ethics obtained p = 0.001 (p <0.05). More respondents were found when cough / sneezing was performed correctly on respondents who did not have tuberculosis in the amount of 25 people (52.1%). Variabel room contact with friends, p = 0.002 (p <0.05).

Respondents of room contact with friends were bad for respondents who experienced tuberculosis, namely by 34 people (57.6%).

Suggestion for LAPAS Makassar City Class I to always pay attention to smear TB patients or Suspeck and contact persons so that there is no disease transmission process and counseling is needed to the detainees regarding pulmonary tuberculosis pulmonary transmission behavior, including: behavior of sputum spreading on the spot, batk ethics / sneezing and room contact with friends, so as to minimize TB transmission between prisoners in prison. Then, for prisoners to improve personal hygiene and limit contact with pulmonary TB sufferers as an effort to prevent themselves against pulmonary TB disease.

6. REFERENCE

[1] Amelia, A. R., Amiruddin, R., Arsunan, A. A., Bahar, B., Hasnik, S., & Rahardjo, S. P. (2018). Environmental analysis related to pulmonary TB incidence in work area of puskesmas kaluku bodoa Makassar City. *Indian Journal of Public Health Research & Development*, *9*(8), 1512–1517.

[2] Bachtiar, I., Ibrahim, E., & Ruslam. (2012). *Hubungan perilaku dan kondisi lingkungan fisik rumah dengan kejadian TB paru di kota Bima Profinsi NTB*. Universitas Hasanuddin.

[3] Butiop, H. M., Kandou, G. D., & Palandeng, H. M. F. (2015). Relationship of Housemate, Area of Ventilation, and Room Temperature with the Occurrence of Lung Tuberculosis in Wori Village. *Journal of Community and Tropical Medicine*, *3*(4a), 241–248.

[4] Fahreza, E. U., Waluyo, H., & Novitasari, A. (2012). Hubungan antara Kualitas Fisik Rumah dan Kejadian Tuberkulosis Paru dengan Basil Tahan Asam Positif di Balai Kesehatan Paru Masyarakat Semarang. *Jurnal Kedokteran Muhammadiyah*, *1*(1).

[5] Fatimah, S. (2008). *Faktor Kesehatan Lingkungan Rumah Yang Berhubungan Dengan Kejadian Tb Paru Di Kabupaten Cilacap (Kecamatan: Sidareja, Cipari, Kedungreja, Patimuan, Gandrungmangu, Bantarsari) Tahun 2008* [Masters, Universitas Diponegoro]. http://eprints.undip.ac.id/24695/

[6] Fitriani, E. (2013). Faktor Risiko Yang Berhubungan Dengan Kejadian Tuberkulosis Paru (Studi Kasus di Puskesmas Ketanggungan Kabupaten Brebes Tahun 2012). *Unnes Journal of Public Health*, *2*(1).

[7] Izzati, S., Basyar, M., & Nazar, J. (2015). Faktor Risiko yang Berhubungan dengan Kejadian Tuberkulosis Paru di Wilayah Kerja Puskesmas Andalas Tahun 2013. *Jurnal Kesehatan Andalas*, *4*(1).

[8] Permenkes R.I. No. 1077/Menkes/Per/V/2011 tentang Pedoman Penyehatan Udara Dalam Ruang Rumah, (2011).

[9] Kurniasari, R. A. S., & Cahyo, K. (2012). Faktor risiko kejadian tuberkulosis paru di Kecamatan Baturetno Kabupaten Wonogiri. *Media Kesehatan Masyarakat Indonesia*, *11*(2), 198–204.

[10] Muslimah, D. D. L. (2019). Physical Environmental Factors and Its Association with the Existence of Mycobacterium Tuberculosis: A Study in The Working Region of Perak Timur Public Health Center. *Jurnal Kesehatan Lingkungan*, *11*(1), 26–34. https://doi.org/10.20473/jkl.v11i1.2019.26-34

[11] Organization, W. H. (2017). *Geneva: WHO; 2017. Global Tuberculosis Report, 2017*. World Health Organization. Global Tuberculosis Report.

[12] Pertiwi, R. N. (2012). Hubungan antara karakteristik individu, praktik hygiene dan sanitasi lingkungan dengan kejadian tuberculosis di Kecamatan Semarang Utara Tahun 2011. *Jurnal Kesehatan Masyarakat Universitas Diponegoro*, *1*(2), 18811.

[13] Putri, E. A., Martini, M., & Saraswati, L. D. (2018). Faktor Risiko Tuberkulosis Paru Pada Warga Binaan Pemasyarakatan di Lembaga Pemasyarakatan Kelas I Semarang. *Jurnal Kesehatan Masyarakat (e-Journal)*, *6*(1), 245–252.

[14] Rosiana, A. M. (2013). Hubungan antara kondisi fisik rumah dengan kejadian tuberkulosis paru di wilayah kerja Puskesmas Kedungmundu Kota Semarang. *Unnes Journal of Public Health*, *2*(1).

[15] Saida, S., & Syamsiar, S. (2020). Hubungan Kebiasaan Merokok dan Kondisi Lingkungan dengan Kejadian Tuberkulosis Paru di Wilayah Kerja Puskesmas Guali Tahun 2016. *Medula*, *7*(1).

[16] Setiarni, S. M., Sutomo, A. H., & Hariyono, W. (2011). Hubungan antara tingkat pengetahuan, status ekonomi dan kebiasaan merokok dengan kejadian tuberkulosis paru pada orang dewasa di wilayah kerja puskesmas tuan-tuan kabupaten ketapang kalimantan barat. *Kes Mas: Jurnal Fakultas Kesehatan Masyarakat Universitas Ahmad Daulan*, *5*(3), 25008.

[17] South Sulawesi Health Office. (2017). *South Sulawesi Health Profile in 2016*. South Sulawesi Province Health Office.

[18] Suluh, G. D. (2012). *Analisis Faktor Resiko Lingkungan Fisik Dalam Rumah Dan Praktik Pencegahan Terhadap Kejadian Tuberkulosis Paru Di Kecamatan Kota Lama Dan Kecamatan Kepala Lima Kota Kupang*. Universitas Diponegoro.

[19] WHO. (2015). *The selection and use of essential medicines: Report of the WHO Expert Committee on Selection and Use of Essential Medicines, 2019 (including the 21st WHO Model List of Essential Medicines and the 7th WHO Model List of Essential Medicines for Children)*. World Health Organization.

[20] Widyasari, R. N. (2012). Hubungan antara jenis kepribadian, riwayat diabetes mellitus dan riwayat paparan merokok dengan kejadian TB paru dewasa di Wilayah Kecamatan Semarang Utara Tahun 2011. *Jurnal Kesehatan Masyarakat Universitas Diponegoro*, *1*(2), 18848.

[21] Wulandari, A. A., Nurjazuli, N., & Adi, M. S. (2015). Faktor risiko dan potensi penularan tuberkulosis paru di Kabupaten Kendal, Jawa Tengah. *Jurnal Kesehatan Lingkungan Indonesia*, *14*(1), 7–13.

[22] Wulandari, D. H. (2018). Analisis Faktor-Faktor yang Berhubungan dengan Kepatuhan Pasien Tuberkulosis Paru Tahap Lanjutan Untuk Minum Obat di RS Rumah Sehat Terpadu Tahun 2015. *Jurnal Administrasi Rumah Sakit Indonesia*, *2*(1).

[23] Wulandari, S. (2012). Hubungan lingkungan fisik rumah dengan kejadian tuberkulosis paru. *Unnes Journal of Public Health*, *1*(1).

[24] Yigibalom, N., Sulistiyani, S., & Nurjazuli, N. (2019). Faktor Risiko Kebiasaan Tinggal di Rumah Etnis dan Membuang Dahak Sembarang pada Kejadian TB Paru Di Kabupaten Jayawijaya, Papua. *Jurnal Kesehatan Lingkungan Indonesia*, *18*(1), 1–7.