Vol.1 No.1
Issn:xxx-xxx
Penerbit: unpripress (Anggota Ikapi)

ANALYSIS OF SMOKING BEHAVIOR FACTORS WITH THE INCIDENCE OF PULMONARY TB AT NURDIN HAMZAH HOSPITAL EAST TANJUNG JABUNG

Alvendra Fikri Prayumi[1], Ermi Girsang[2], Dewi Riastawaty[3]
[1,2,] Master of Public Health (MKM) Study Program/Prima Indonesia University (Unpri) Medan
[3]Master of Public Health, Adiwangsa Jambi University, Jambi, Indonesia
*E-mail: riastawatydewi@gmail.com

ABSTRACT
The prevalence of BTA Positive Pulmonary TB in Indonesia is 257 per 100,000 population aged >15 years. In 2022, East Tanjung Jabung Regency will contribute 483 cases of pulmonary TB. This research is an analytical study with a cross sectional design to determine the analysis of factors in smoking behavior and the incidence of pulmonary tuberculosis at the Nurdin Hamzah Hospital, East Tanjung Jabung Regency. Samples were taken using the Slovin formula. The sampling technique was purposive sampling with a total of 145 respondents. The results of the study showed that there was a relationship between smoking status, age when starting smoking, quantity of smoking, duration of smoking, type of smoking, gender, nutritional status (body mass index) and education on the incidence of pulmonary TB. There is no relationship between age and occupation on the incidence of pulmonary TB. Health workers are expected to further increase health promotion regarding the dangers of smoking and its relationship to Tuberculosis for individuals, families and groups/communities.
Keywords*: smoking behavior, incidence of pulmonary TB*

INTRODUCTION
According to the World Health Organization (WHO) in its annual report "Global Tuberculosis Report 2021" tuberculosis cases claim more than 4000 lives per day, and 1.5 million lives every year. The number of people with Pulmonary TB in the world for newly diagnosed and reported cases has decreased from 7.1 million in 2019 to 5.8 million in 2020. Around 16 countries contributed undiagnosed cases from 2019 to 2020, including India (41%), Indonesia (14%), the Philippines (12%), China (8%) and 12 other countries contributed 93% of the total global decline of 1.3 million lives. From this reduction in diagnoses, it is known that India, Indonesia and the Philippines are the countries that have experienced the worst impact. In addition, reduced access to diagnosis and treatment of Pulmonary TB due to the Covid-19 pandemic has resulted in an increase in deaths worldwide.

Based on WHO data (2019), globally in 2018 it is estimated that ± 10 million people experienced Pulmonary TB, a number that has been relatively stable in recent years. It is known that there are ± 500 new cases with an average global disease of around 130 new cases per 100,000 population per year. Gender is related to the incidence of Pulmonary TB in all age groups but the highest burden is in men (aged ≥ 15 years) who contributed 57% of all Pulmonary TB cases in 2018. In comparison, women contributed 32% and children (aged ≤ 15 years) 11%. Indonesia ranks 3rd as one of the countries with the largest Pulmonary TB burden, namely 8% after India (27%) and China (9%) (WHO, 2019). Based on the 2013-2014 Tuberculosis Prevalence Survey, the prevalence of bacteriologically confirmed TB in Indonesia was 759 per 100,000 people aged 15 years and over and the prevalence of positive BTA TB was 257 per 100,000 people aged 15 years and over (Ministry of Health of the Republic of Indonesia, 2018). The incidence rate of Pulmonary TB in Indonesia in 2017 was 319 per 100,000 people and the mortality rate of Pulmonary TB sufferers was 40 per 100,000 people. The number of Pulmonary TB cases in 2018 was found to be 566,623 cases, an increase compared to all Pulmonary TB cases in 2017 which were 446,732 cases (Ministry of Health, 2019).

Jambi Province is one of the provinces in Indonesia that still faces challenges in handling tuberculosis cases. The results of the Riskesdas show that the prevalence of tuberculosis cases in Jambi Province was 0.27% in 2018. Based on the Jambi Province Health Profile, it was reported that in 2017 the incidence of tuberculosis was found in 4,408 cases of Pulmonary TB then increased to 5,377 cases in 2018, but in 2019 it decreased to 4,917 cases and in 2020 it decreased again to 3,001 cases due to lack of access to TB diagnosis in dealing with the Covid-19 pandemic. When viewed from the achievement of Treatment Coverage (TC) for Pulmonary TB cases in 2020 in Jambi Province, it was 21.94%, where these cases have not reached the minimum target that has been set at 85%. The percentage of Treatment Coverage (TC) for the district/city level throughout Jambi Province was obtained by Sarolangun Regency at (34.8%), Merangin (31.4%) and Sungai Penuh at (8.2%).

The incidence of TB in Tanjung Jabung Timur Regency, where in 2018 there were 1,164 cases with a cured treatment result of 76.05%, complete treatment of 59.97% and Drop Out of 8.7%. While in 2019 there were 1,321 cases with a cured treatment result of 71.3%, complete treatment of 49.1% and Drop Out of 7.2% (Dinkes Jambi, 2018). Judging from the number of cases of Pulmonary TB above, Tanjung Jabung Timur Regency, Jambi has 17 health centers, there are 3 Health Centers with the highest incidence of Pulmonary TB cases in 2019, namely in the Muara Sabak Barat Health Center as many as 121 cases in the Dendang Health Center as many as 117 cases, and in the Simpang Pandan Health Center as many as 96 cases. Based on the results of treatment in 2019 at the Muara Sabak Barat Tanjung Jabung Timur Jambi Health Center, it was found that patients with a complete treatment rate were 39.58%. Based on this, it can be seen that the cure rate is still below the Ministry of Health standard, which is 88% (Jambi Health Office, 2019). In 2022, Tanjung Jabung Timur Regency contributed 483 cases of Pulmonary TB (Indonesian Ministry of Health, 2023)

Based on data from the Central Statistics Agency for Jambi Province, the Percentage of Smoking in the population aged over 15 years in 2021 was 27.47%, down from 2020 which was 28.1% and 2019 which was 28.54%. However, in 2022, the population of Jambi aged over 15 years increased again by 28.62%. This is a shared responsibility in reducing this figure, the target is because the target of the Medium-Term Development Plan (RPJMN) for the prevalence of smoking in children and adolescents is 8.7% from the initial 9.4% in 2024. Based on the description above, the researcher is interested in researching "Analysis of Smoking Behavior Factors with Pulmonary TB Incidents at Nurdin Hamzah Regional Hospital, Tanjung Jabung Timur"

LITERATURE REVIEW

Definition of Pulmonary Tuberculosis (TB)

Pulmonary Tuberculosis or Pulmonary TB is an infectious disease caused by the *Mycobacterium Tuberculosis bacteria* . There are several species *of Mycobacterium,* including: *Mycobacterium Tuberculosis, Mycobacterium Africanum, Mycobacterium Bovis, Mycobacterium Lepare.* Except for *Mycobacterium tuberculosis* , bacteria from the genus *Mycobacterium* that can cause respiratory disorders are called MOTT (except Mycobacterium tuberculosis) and sometimes interfere with the diagnosis and treatment of Pulmonary TB. (Ministry of Health of the Republic of Indonesia, 2018).

Smoking and Pulmonary TB

Cigarettes are rolls of tobacco (approximately the size of a little finger) wrapped in nipah leaves or paper (KBBI, 2020). According to PP. RI. No. 109 (2012), cigarettes are tobacco products that are used by burning and inhaling the smoke and/or inhaling the smoke produced from the nicotiana tabacum, nicotinia rustica, and other species or their synthesis plants whose smoke contains nicotine and tar with or without additives.

Smoking is burning tobacco which is then inhaled. According to (Hilda Kakuhes, 2020) the

limits for smoking behavior are divided into 2, namely, smoking and not smoking. Smoking is the main cause of chronic and obstructive lung diseases, such as bronchitis and emphysema. Smoking is also associated with influenza and other pneumonia. In patients with pulmonary TB, smoking will further damage the inflammation in the lungs and result in a longer healing process and can increase susceptibility to chronic cough, phlegm production and hoarseness. The habit of smoking increases the risk of developing pulmonary TB by 2.2 times (Muaz, 2014).

Smoking Status

Smoking status can be divided into 3, namely:

a. Active Smokers

Active smokers are people who often consume cigarettes in small amounts, even if only 1 cigarette a day, or people who smoke even though it is not a daily activity or just trying it out (P2PTM Ministry of Health of the Republic of Indonesia, 2019)

b. Passive Smokers

Not a smoker but someone who inhales someone else's cigarette smoke or someone who is in a closed room with the smoker (P2PTM Ministry of Health of the Republic of Indonesia, 2019).

METHODS

This study is an Analytical study with a cross-sectional design to determine the Analysis of Smoking Behavior Factors with Pulmonary TB Incidence at Nurdin Hamzah Regional Hospital, Tanjung Jabung Timur. Samples were taken using the Slovin formula. The sampling technique was purposive sampling. Data collection used a questionnaire by filling out the questionnaire. The study was conducted at Nurdin Hamzah Regional Hospital, Tanjung Jabung Timur. Data analysis was carried out using Multivariate analysis, which aims to explain or describe the characteristics of each research variable by producing a frequency distribution and percentage of each variable.

RESULTS

Bivariate Analysis

Table 1. Bivariate Analysis

No	Variables	Pulmonary TB Cases				N	%	*p-value*
		Case		Not a case				
		N	%	N	%			
I	**Smoking status**							
1.	Active	11	17.7	51	82.3	62	100	0.006
2.	Passive	9	22.5	31	77.5	40	100	
3.	Non-smoker	0	0	43	100	43	100	
II	**Age of starting smoking**							
1.	<!5 years	11	100	0	0	11	100	0,000
2.	>15 years	0	0	29	100	29	100	
3.	Do not smoke	9	8.6	96	91.4	105	100	
III	**Quantity of smoking**							
1.	Light	0	0	61	100	61	100	0,000
2.	Medium	0	0	37	100	37	100	
3.	Heavy	11	100	0	0	11	100	

4.	No smoking	9	25.0	27	75.0	36	100	
IV	**Long time smoking**							
1.	<10 years	0	0	72	100	72	100	0,000
2.	>10 years	11	35.5	20	64.5	31	100	
3.	Do not smoke	9	21.4	33	78.6	42	100	
V	**Types of cigarettes**							
1.	Kretek	11	26.2	31	73.8	42	100	0,000
2.	White	0	0	67	100	67	100	
3.	Do not smoke	9	25.0	27	75.0	36	100	
VI	**Gender**							
1.	Man	11	10.1	98	89.9	109	100	0.049
2.	Woman	9	29.0	27	75.0	36	100	
VII	**IMT**							
1.	Skinny	11	27.5	29	72.5	40	100	0,000
2.	Normal	0	0	60	100	60	100	
3.	Fat	9	20.0	36	80.0	45	100	
VIII	**Education**							
1.	Not finished SD	4	21.1	15	78,9	19	100	0,000
2.	Low	16	57.1	12	42.9	28	100	
3.	Currently	0	0	98	100	98	100	
IX	**Age**							
1.	15-51 years	10	10.9	82	89.1	92	100	0.274
2.	>51 years	10	18.9	43	81.1	53	100	
X	**Work**							
1.	Work	11	12.1	80	87.9	91	100	0.600
2.	Doesn't work	9	16.7	45	83.3	54	100	
	Amount	**20**	**13.8**	**125**	**86.2**	**145**	**100**	

Multivariate Analysis

Table 2. Bivariate Selection Results of Independent Variables with Dependent Variables

Independent Variable	Sig (P-value)	Information
Smoking status	0.006	Candidate
Age of starting smoking	0,000	Candidate
Quantity of smoking	0,000	Candidate
Smoking duration	0,000	Candidate
Types of cigarettes	0,000	Candidate
Gender	0.049	Candidate
IMT	0,000	Candidate
Education	0,000	Candidate
Age	0.274	Not a Candidate
Work	0.600	Not a Candidate

a. Model 1

Table 3. Analysis of the Relationship between Independent Variables and Dependent Variables Based on Test Regression Multivariate Logistics (Method Enter)

Independent Variable	Sig (P-value)
Smoking status	0,000
Age of starting smoking	0,000

Quantity of smoking	0.006
Smoking duration	0,000
Types of cigarettes	0.001
Gender	0.028
IMT	0.001
Education	0.006

DISCUSSION

Relationship Between Smoking Status and Pulmonary TB Incidence

Based on the research that has been conducted, it can be seen that the p-value (0.006 <0.05) means that there is a relationship between smoking status and the incidence of pulmonary TB. This result is also in line with research conducted by (Fransisca, 2019) with a design case control found that the largest percentage of smokers was in the case group of 57.9%. The same thing is also found in the results of research conducted by (Anggraeni, 2018) with a case control design which reported that the largest proportion was in the group cases were smokers as much as 83.3%. This matter in line with research conducted by (Kakuhes, Hilda., Sepklin AS Sekeon., Budi Ratag, 2020), reported that there is a significant relationship between smoking and TB. Lungs (p value 0.003 OR 3.701) has a meaning that smoking has a 3.701 times greater risk to get positive BTA pulmonary TB when compared to people who do not smoke. This research is also strengthened by research from Laos with a case control study design. in 2019 reported that active smokers were 1.73 times more at risk of contracting TB. Positive BTA Lungs compared to non-smokers (95% CI 1.00 – 2.98) (Petersen, Anne Berit., et all, 2019).

Relationship between Age of Starting Smoking and Incidence of Pulmonary TB

Based on the research, it is known that the p value (0.000<0.05) means that there is a relationship between the age of starting smoking and the incidence of Pulmonary TB. The results of this study are in accordance with (Ministry of Health of the Republic of Indonesia, 2014) which reports that almost 80% of smokers start smoking at an early age. reached 19 years. The results of this study are in line with research in overseas using a case-control study design, reported that there was a relationship significant between age starting smoking ≤ 16 years with p value 0.041 (Ozturk, Ayse Bilge., et all, 2014). In contrast to research conducted by (Romlah, Laila, 2015) who reported that the age of starting smoking was protective against the incidence of pulmonary TB.

An article from America reported that someone who first started smoking feels effects that are far from pleasant. This is because nicotine contained in cigarettes have a toxic effect on first-time use. such as dizziness, nausea, and even vomiting. However, when someone continues to force themselves to smoke, the body will create more nicotine receptors which cause nicotine intake to increase and the body will physiologically depend on nicotine. As a result, smokers will experience the effects of addiction to consuming cigarettes. The effects of addiction can be in the form of impaired ability to concentrate, irritability, weight gain, depressed mood, anxiety, difficulty sleeping, and a constant desire to smoke. Symptoms These usually peak within a few days and subside within a month, but vary. in everyone who consumes it (Rose, Cristhine Ann, 2019).

Relationship between Smoking Quantity and Pulmonary TB Incidence

Based on the research, it is known that the p-value (0.000<0.05) means that there is a relationship between the quantity of smoking and the incidence of pulmonary TB. This research is in line with with research conducted by (Murfikin, Fakhmi., Ari Pristiana Dewi., Rismadevi Woferst, 2013) who reported that the highest frequency of cigarettes was in the group cases (21-31 cigarettes) in 1 day, namely 63.6%. The results of statistical tests show that the quantity of smoking in the heavy smoker category (≥ 20 cigarettes per day) is significantly associated with the incidence of positive BTA pulmonary TB and the risk of contracting BTA Positive Pulmonary TB is 3,731 times greater compared to non-smokers. Someone who smokes more and more cigarettes such as a heavy smoker (≥ 20 cigarettes per

day) then the greater the possibility of accumulation of addictive substances in the contents of cigarettes which will directly enter the body so that it can damage the defense mechanism of the lungs. Cigarette smoke caused by burning cigarettes will damage the vibrating hairs that function to resist infection. Airway resistance will increase because of the cigarette smoke that is caused, causing blood vessels in the lungs to leak easily and will easily damage macrophages which are cells that can phagocytose bacteria. So that it can cause Mycbacterium tuberculosis bacteria are still present in the body (Riza, Luluk Listiarini., Dyah (Mahendrasari Sukendra, 2017). Cigarette smoke causes pathological changes in the lungs of a smoker or someone who inhale cigarette smoke through a number of different mechanisms. Cigarette smoke will coat central respiratory tract so that it can damage the cilia. Smoking can also cause many abnormalities in the inflammatory and immune systems in the lungs. In particular, smoke Smoking causes inflammatory cells to produce an enzyme called lastase, which then break down elastin, an important protein that lines the walls of the air sacs. In addition, the oxidants in cigarette smoke can inactivates a separate protective enzyme called alpha, antitrypsin which blocks the action of destructive elastase .

Relationship between Long-term Smoking and Pulmonary TB Incidence

Based on the research results, it is known that the p-value (0.000<0.05) means that there is a relationship between the length of smoking and the incidence of pulmonary TB. The longest smoking period is ≥ 10 years with a percentage of 32.6% which supported by (Wahyudi, 2017) who reported that the greatest frequency was the length of time smoking ≥ 10 years with a frequency of 121 respondents (55.3%). The results of the statistical test showed that smoking duration ≥ 10 years was significantly related. This can be seen from the p value of 0.000 <0.05. This study is in line with a study conducted in Iran with a case-control design, reporting that smoking ≥ 10 years had a 1.6 times greater risk of developing BTA Positive Pulmonary TB (95% CI: 1.2 - 9.8) (Naini, Roya Alavi., et all, 2012).

Relationship between Type of Cigarette and Incidence of Pulmonary TB

Based on the research results, it is known that the p-value (0.000<0.05) means that there is a relationship between the type of cigarette and the incidence of pulmonary TB. Pulmonary TB is an infectious disease caused by bacteria called Mycobacterium Tuberculosis. The main symptom of pulmonary TB patients is coughing up phlegm for 2 days. weeks or more. In addition to coughing up phlegm for more than 2 weeks, additional symptoms can arise such as phlegm mixed with blood, coughing up blood, shortness of breath, weakness, decreased appetite, weight loss, malaise, night sweats without physical activity, fever for more than one month (Ministry of Health of the Republic of Indonesia, 2018). A healthy person can get Pulmonary TB if infected with Mycobacterium Tuberculosis which is transmitted through droplets that come out of coughs, sneezes, and saliva of people infected with BTA Positive Pulmonary TB. One of the risk factors for Pulmonary TB is smoking behavior. Types of cigarettes smoked It is still controversial whether it is significantly related or not. In this study, it was found that most of the case groups were smokers with the type of cigarette smoked being kretek cigarettes (37.2%) which is in line with the study conducted by (SR, Dwi Sarwani., Sri Nurlela, 2012) which reported that the type of cigarette smoked most by smokers in the case group was 76.5%. The statistical results showed that kretek cigarettes had a 5.511 times greater risk of contracting BTA Positive Pulmonary TB compared to non-smokers.

Relationship between Gender and the incidence of Pulmonary TB

Based on the research, it is known that the p-value (0.049<0.05) means that there is a relationship between gender and the incidence of pulmonary TB which is in line with the research. conducted by (Dotulong, Jendra, F,J., et al., 2015), who reported that gender The majority of those suffering from pulmonary TB were male, as many as 22 respondents (56.4%). The results of the bivariate analysis showed that male gender was 4.822 times more at risk. risk of contracting pulmonary TB compared to females. This study supported by research conducted in Mexico which reported that out of 623 pulmonary TB patients, 256 (41.1%) were women. Overall, the incidence of pulmonary TB is 58% higher in men (31.79 cases per 100,000 population per year) compared to women (20.13 cases per 100,000

population per year who received p value 0.001 ≤ 0.05). TB mortality is also higher in men (3.2 per 100,000 population). per year) than in women (1.1 per 100,000 population per year, p value 0.0003).

Relationship between Body Mass Index (BMI) and Pulmonary TB Incidence

From the research, it is known that the p-value (0.000<0.05) means that there is a relationship between BMI and the incidence of pulmonary TB. This research is in line with research conducted in Korea with a design A retrospective cohort reported that among 304,202 people, 3,835 (1.26%) incident cases TB was detected. The incidence of TB decreased with increasing BMI. After adjusting for age, sex, gender, household income, smoking status, alcohol use, and diabetes, TB risk lower in those who are overweight and obese, compared with respondents whose BMI is within the normal range. The risk of developing TB for participants with obesity almost 2.5 times lower compared to those with normal BMI (RR 0.40; 95% CI 0.30 - 0.54). This study can be interpreted that obesity is protective against the occurrence of positive BTA pulmonary TB (Kim, Soo Jung., et all, 2017).

This research is also supported by research conducted in Taipei with a design Retrospective cohort, reported that of the 1,869 reported TB cases there were 1,608 cases which was analyzed. Based on the results of the stepwise logistic regression analysis, it shows that After controlling for age, sex, clinical findings, and comorbidities, the risk of all-cause mortality was significantly higher for underweight patients (RR 1.66; 95% CI, 1.21 - 2.30; p value = 0.002) compared to respondents with normal body weight Being overweight was not significantly associated with all-cause mortality in TB patients. Only being underweight was significantly associated with greater risk high levels of TB-specific and non-TB-specific deaths during TB treatment. The deaths This higher rate among underweight TB patients may be due to decreased immunity and greater severity of TB infection in this population. Body weight less able to suppress lymphocyte stimulation and reduce the secretion of Th1 cytokines (Th1 cytokines interleukin-2, interferon-γ, and tumor necrosis factor-α), which can contribute to the burden of infection higher TB and increase the severity of TB disease in respondents with severe underweight (Yen, Yung Feng., et all, 2016).

Relationship between Education and Pulmonary TB Incidence

Based on the research results, it is known that the p-value (0.000<0.05) means that there is a relationship between education and the incidence of pulmonary TB. The results of this study are in line with the results research conducted by (Purba, M, 2016) which reported that there was no relationship significant relationship between education and the incidence of pulmonary tuberculosis. A person's knowledge of health is usually obtained from their level of education. From At this level of education, a person will understand what the requirements are for a house to meet health and knowledge about pulmonary TB disease. If someone has obtained sufficient knowledge about health will then understand how to behave in life clean and healthy so as to avoid pulmonary TB disease. Usually the level of education affects the type of work done.

Relationship between age and incidence of pulmonary TB

In this study, it was found that the p value (0.274>0.05) means that there is no relationship between age and the incidence of pulmonary TB. This is not in line with research. conducted by (Korua, Elisa S., et al., 2015), reported that there were 33 respondents (64.7%) of the case group aged 15 – 55 years. In line with research that conducted by (Jaya, 2017) stated that there is no relationship between age and the incidence of Relapsed Pulmonary TB (experiencing a relapse) with a p value of 0.309 OR 2.79 CI 0.54 – 14.1. There is no relationship between age and the incidence of Pulmonary TB because Pulmonary TB can occur at any age if the body experiences malnutrition and decreased immunity so that it cannot fight the bacterial infection that causes Pulmonary TB (Aditama, TY, 2018). The relationship between age and the incidence of Pulmonary TB with Positive BTA is still controversial between statistically related or not. As reported in a research article that conducted by (Versitaria, U, H., Kusnoputranto, H, 2011), reported that the age related to the incidence of positive BTA pulmonary TB which obtained a p value of 0.025 ≤ 0.05.

The diagnosis of active TB disease is based on clinical, epidemiological, radiological, and bacteriological. Unbalanced sputum production in the elderly can cause difficulty in obtaining specimens for smears and acid-fast bacillus cultures to aid in diagnosis. In addition, the interpretation of clinical and radiological parameters can also be complicated in elderly. There is a common perception that elderly TB patients present with nonspecific or fewer classic TB symptoms, but meta-analysis did not show significant differences between elderly and young TB patients with regard to the prevalence of cough, sputum production, weight loss, malaise. Chest X-ray, however, may vary between TB patients young and elderly (Wang, Shu Hua., et all, 2012).

Relationship of Work to the Incidence of Pulmonary TB

Based on the research results, it is known that the p-value (0.0600>0.05) means that there is no relationship between work and the incidence of pulmonary TB. The results of this study are in line with research conducted by (Rukmini., UW Chatarina, 2014) which reported that TB sufferers are more often found in those who do not work. This study is in line with research conducted by (Nahumury, Reinhard, 2015) reporting that someone who does not work has a chance of getting TB in terms of non-compliance in treatment of 3.318 times greater when compared to someone who works with a p value of 0.01. Poverty is often associated with TB disease. The data obtained from (WHO, 2018) states that there are 90% of pulmonary TB sufferers who are included in low economic status or poverty. Poverty and pulmonary TB are reciprocal in nature where because Pulmonary TB is the root of poverty, and because of poverty someone suffers from Pulmonary TB. High-income families will be able to better maintain the cleanliness of the home environment, provide good drinking water, buy food in sufficient quantity and quality for the family, and pay for necessary medical care. While families with low or poor economy have difficulty in obtaining healthy housing, healthy food and difficult access to medical services.

CONCLUSION

1. There is a relationship between smoking status and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
2. There is a relationship between the age of starting smoking and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
3. There is a relationship between the quantity of smoking and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
4. There is a long-term relationship between smoking and the incidence of pulmonary TB in P Nurdin Hamzah Regional Hospital, East Tanjung Jabung
5. There is a relationship between the type of cigarette and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
6. There is no relationship between age and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
7. There is a relationship between gender and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
8. There is a relationship between body mass index (BMI) and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
9. There is a relationship between education level and the incidence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung
10. There is no work-related relationship with the occurrence of pulmonary TB at Nurdin Hamzah Regional Hospital, East Tanjung Jabung

ACKNOWLEDGEMENT

To be input for Nurdin Hamzah Tanjung Jabung Timur Regional Hospital in improving public health services, especially in the management of P2 and Promkes programs to improve public knowledge about the behavior of the dangers of smoking in the community in their work area. And for the Health Service, further improve the management of the Pulmonary TB control program with more innovative methods so that it can reduce the incidence of Pulmonary TB.

REFERENCES

Aditama, TY (20 18). Tuberculosis Diagnosis, Therapy, and Its Problems. Jakarta: Indonesian Doctors Association Publishing Foundation

Anggraeni, DE (2018). Clinical Symptoms of Tuberculosis in Families of BTA Tuberculosis Patients Positive. Higea Journal Of Public Health, 95.

Apriyani., Mujianto, E., Habibi, M., 2018. The Effect of Lighting and Smoking History on the Incidence of Tuberculosis in the Work Area of the Temindung Health Center UPT, Samarinda City in 2018. E-ISSN, volume 4(2), 53-60.

BPS Jambi Province . 20 21. Population Statistics Data of Jambi Province in 20 20. Jambi City

Burusie, Abay, et all. (2020). Effect of Smoking on Tuberculosis Treatment Outcomes: A Systematic Review and Meta-Analysis. PLOS ONE.

CDC. (2013). Tobacco statistical data. http://www.cdc.gov/tobacco/data_statistic/fact_sheet/tobacco_industry/hookahs/indexhtm

Corona, ME Jimenez., et all. (2006). Gender Differential of Pulmonary Tuberculosis Transmission and Reactivation in an endemic area. Thorax.

Jambi Health Office . 2018. Jambi City Health Profile 2017. Jambi City

Jambi Health Office . 2019. Jambi City Health Profile 2018. Jambi City

Directorate of P2PTM. 2019. BMI threshold table for Indonesia. Ministry of Health of the Republic of Indonesia. 2019. http://www.p2ptm.kemkes.go.id/infographic-p2ptm/obesitas/tabel-batasambang-indeks-massa-tubuh-imt

Dotulong JFJ, Sapulete MR, Kandou GD. 2015. Relationship of Risk Factors Age, Gender and Housing Density with the Incidence of Pulmonary Tuberculosis in Wori Village, Wori District. Journal of Community and Tropical Medicine. 2015; Volume III (Number 2)

Fazira and Nurfita. 2020. The Relationship between House Ventilation, Residential Density and Smoking Behavior with the Incidence of Pulmonary Tuberculosis (TB) in Gunungkidul Regency in 2019. Yogyakarta: Ahmad Dahlan University.

Fransisca, M. d. (2019). Risk Factors for Tuberculosis Incidence. Health Journal, 254.

Haris D. R, et al. (2014). Association of Smoking Behavior to Conversion Incidents in Pulmonary TB Patients at Hospitals and Public Lung Health Centers in Makassar City. Epidemiology Department, FKM UNHAS.

Hartina, S., Asrifuddin, A., & Kandou, GD (2019). Analysis of Risk Factors for Pulmonary TB Incidents in the Working Area of Girian Weru Health Center, Bitung City. KESMAS, 8(6).

Jaya, HD (2017). Factors Associated with Relapse of Pulmonary Tuberculosis in Patients at the Special Lung Hospital of South Sumatra Province in 2015-2016. JPP (Palembang Health Journal) Vol 12 No. 1, 75.

KBBI . 2020. Online version of the dictionary (Online). https://kbbi.web.id/didik

Ministry of Health of the Republic of Indonesia. (2014). National Guidelines for TB Control. Jakarta: Directorate General Disease Control and Environmental Health.

Ministry of Health of the Republic of Indonesia. (2014). Smoking Behavior of Indonesian Society Based on Riskesdas 2007 and 2013. Jakarta: Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2018). Data and Information Center of the Ministry of Health of the Republic of Indonesia About Tuberculosis. South Jakarta: Ministry of Health.

Ministry of Health of the Republic of Indonesia. 2023. Prevalence of Pulmonary TB in Tanjabtim Regency 2022. Jakarta: Ministry of Health of the Republic of Indonesia

Ministry of Health of the Republic of Indonesia. 2019. Indonesian Health Profile Year 2018. Jakarta . Ministry of R I Health

Kim, Soo Jung, et all. (2017). The Association of Body Mass Index With Incidence of The Tuberculosis in Korea. European Respiratory Journal.

Muaz. 2014. Factors Affecting the Incidence of Positive Acid-Fast Bacilli Pulmonary Tuberculosis in Community Health Centers in Serang District, Serang City in 2014. Jakarta: Syarif Hidayatullah State Islamic University.

Murfikin, Fakhmi., Ari Pristiana Dewi., Rismadevi Woferst. (2013). Relationship between Habits and Smoking with Pulmonary TB Incidence in the Sidomulyo Health Center Working Area. 4.

Nahumury, Reinhard. (2015). Factors Affecting TB Patient Treatment Compliance Lungs in Bethesda Hospital Yogyakarta. Duta Wacana Christian University Thesis.

Naini, Roya Alavi, et all. (2012). Association Between Tuberculosis and Smoking. Int J High Risk Behavior Addict.

Ozturk, Ayse Bilge, et all. (2014). Effect of Smoking and Indoor Air Pollution on the Risk of Tuberculosis: Smoking, Indoor Air Pollution and Tuberculosis. Thoracic Tuber.

Government Regulation of the Republic of Indonesia Number 109 of 2012 concerning the Protection of Materials Containing Addictive Substances in the Form of Tobacco Products for Health, (2012).

Indonesian Pulmonologist Association. (20 21). Tuberculosis: Guidelines for Diagnosis and Management. Indonesian Pulmonologist Association . Jakarta: PDPI.

Petersen, Anne Berit., et all. (2019). Smoked Tobacco, Air Pollution, and Tuberculosis in LAO PDR: Findings from a National Sample. Int J Environ Rest Public Health.

Purba, M. (2016). Analysis of the Relationship between Environmental Sanitation Conditions and Population Behavior with Dengue Hemorrhagic Fever (DHF) Vector Density in Sangatta District North Kutai Timur Regency, East Kalimantan Province. Thesis.

Rao, Sukhesh. (2009). Tuberculosis and Patient Gender: An Analysis and Its Implications in Tuberculosis Control. Indian Lung.

Riza, Luluk Listiarini., Dyah Mahendrasari Sukendra. (2017). The Relationship between Smoking Behavior and the Incidence of Failure to Convert Pulmonary Tuberculosis Patients at the Community Lung Health Center (BKPM) in Semarang Region. Public Health Perspective Journal.

Romlah, Laila. (2015). The Relationship between Smoking Behavior and the Incidence of Tuberculosis Lung Disease in the Working Area of Setu Health Center, South Tangerang City. THESIS.

Rose, Cristine Ann . (2019). Smoking Tobacco. Encyclopedia Britannica.

Rukmini., UW Chatarina. (2014). Incidence of Adult Pulmonary TB in Indonesia (Data Analysis)

SR, Dwi Sarwani., Sri Nurlela. (2012). Smoking and Pulmonary Tuberculosis (Case Study at RS. Margono Soekarjo Purwkerto). Proceedings of the National Health Seminar, 5.

Versitaria, U, H., Kusnoputranto, H. (2011). Pulmonary Tuberculosis in Palembang, South Sumatra. Public Health Journal Vol 5 No 5.

Wahyudi, Wahid Tri. (2017). The Relationship between Smoking Behavior and the Incidence of Pulmonary TB in Long-term Inpatient Health Centers in 2015. Holistic Health Journal, 119.

Wang, Shu Hua., et all. (2012). The Influence of Increasing Age on Susceptibility of The Ederly to Tuberculosis. Open Longevity Science, 80.

WHO . (2018). Global Tuberculosis Report. Geneva.

WHO. 2019. Global Tuberculosis Report 2019. Geneva: World Health Organization . https://apps.who.int/iris/bitstream/handle/10665/329368/9789241565714-eng.pdf?ua=1

WHO. 2020. Global Youth Tobacco Survey. Geneva : World Health Organization . https://www.who.int/

Yen, Yung Feng., et all. (2016). Association of Body Mass Index With Tuberculosis Mortality. A p opulation Based Follow Up Study. Medicine.

Zuriya , Y. 2016. Relationship between Host and Environmental Factors with the Incidence of Pulmonary TB in the Pamulang Health Center Work Area in 2016. Jakarta: Syarif Hidayatullah State Islamic University