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THE RISK OF KNOWLEDGE, SMOKING AND PATIENT'S CONTACT ON TUBERCULOSIS DISEASE IN PUUWATU HEALTH CENTRE IN KENDARI CITY

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Abstract

Background: Tuberculosis is a contagious disease that is still a problem in the world today, not only in developing countries but also in developed countries. Likewise in Kendari City in 2012 - 2017. Efforts that can be made to prevent the increasing number of tuberculosis cases in the future is to make predictions. This study aims to determine the time series analysis in predicting the incidence of tuberculosis by sex and working area of health centre in the city of Kendari in 2018-2022.
Methods: This type of research is quantitative descriptive with times series analysis design. The source of the research data was obtained from the Kendari City Health Institution, Southeast Sulawesi Province, namely the data on the case of pulmonary TB which included the gender and working area of the Health Centre in 2012 - 2017 in the city of Kendari to be processed and analyzed in time series using the trend method approach into 3 models. linear trend, quadratic trend, and an exponential trend.
Results: The results showed that the best model for the prediction of pulmonary TB cases in Kendari City was the quadratic model. Cases of tuberculosis by sex are predicted to decrease in the period 2018 to 2022, with an average decline with an average decrease of 79 cases in men and 286 cases in women. Pulmonary TB cases based on the health centre area are predicted to experience an increase in cases from 2018 until 2022 with the highest average increase being in the Kemaraya Health Centre area. While the highest average decrease in cases in the area of the Eye Health Center. It is expected to become information for policymakers so that prevention and promotion efforts can be made early to the community.
Conclusion: Based on the results of the study, the conclusion of this study is the Science, knowledge about risk and Patient Contact History is a risk factor for tuberculosis in the work area of Puuwatu Health Centre, Kendari City.

Keywords**: **Risk, Tuberculosis, Knowledge, Smoking, Contact, Income

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INTRODUCTION

Tuberculosis is a disease caused by germs (Mycobacterium Tuberculosis), which is an aerobic germ that can live mainly in the lungs or various other body organs. These germs also have high-fat content in the cell membrane, causing these bacteria to become resistant to acids and the growth of germs lasts a long time, these bacteria are not resistant to ultraviolet, therefore their transmission is mainly at night(1).

Patients with tuberculosis in the world globally in 2016 there were 10.4 million cases of TB incidence (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, the Philippines, and Pakistan. where also most of the estimated TB incidents in 2016 occurred in the Southeast Asia Region (45%) where Indonesia was one of them and 25% occurred in Africa(2).Based on WHO in the 2018 Global Tuberculosis Report, it is estimated that the incidence of Tuberculosis in Indonesia reached 842 thousand cases with a mortality rate of 107 thousand cases. This number makes Indonesia ranked third highest for Tuberculosis cases after India and China. This condition is certainly quite alarming because it has a major impact on the social and financial of patients, families, and communities(3).

In Indonesia, there were 420,994 cases in 2017. By sex, the number of new TB cases in 2017 in males is 1.4 times greater than in females. Even based on tuberculosis prevalence surveys the prevalence in men is 3 times higher than in women. Likewise, what happened in other countries. This is possible because men are more exposed to TB risk factors such as smoking and lack of compliance with taking medication. This survey found that of all the male participants who smoked as much as 68.5% and only 3.7% of the female participants smoked. Patients with Tuberculosis in Southeast Sulawesi have 11,151 new cases of AFB + TB consisting of 2,339 men and 1,548 women(4). Furthermore, basic health research data on the incidence of tuberculosis ranks Southeast Sulawesi as 17th which has the prevalence of tuberculosis(5).

Based on data from the Health Service Profile of Southeast Sulawesi Province, Tuberculosis cases from 17 districts in 2016 totaled 3,033 cases, in 2017 there were 3,116 cases and in 2018 there were 4,686 cases(6). Based on data from the Health Service Profile of Kendari City, there were 571 cases of tuberculosis in 2016, in 2017 there were 705 cases and in 2018 there were 693 cases. Then based on comparative data on the BTA + 2018 Case Detection Rate from 15 Puskesmas in Kendari City, the highest tuberculosis incidence was KemarayaPuskesmas's Work Area of 53 cases (55%), PuuwatuPuskesmas's Work Area of 60 Cases (43%), Region Poasia Community Health Center Worked 45 cases (35%), 39 cases (32%) in the Benu-Benua Community Health Center, 44 Perumnas Health Center Work Areas (22%). and followed by other lower Puskesmas(7). The problem of tuberculosis in the working area of Puuwatu Health Center in 2017 showed that there were 28 cases of tuberculosis (BTA-) patients and 104 cases of tuberculosis (BTA +) in total, 132 cases increased in 2018 with tuberculosis (BTA-) of 39 cases and tuberculosis (AFB +) as many as 123 cases in total there are 162 cases and in 2019 (January-April) patients with tuberculosis (AFB +) as many as 32 cases and tuberculosis (AFB) as many as 15 cases in total there are 47 cases(8).

Knowledge is the basis for taking tuberculosis prevention and treatment. Ignorance of the community will hinder attitudes and actions towards the prevention and eradication of tuberculosis as a sick person until it can eventually become a source of transmission and spread of tuberculosis to those around him(9, 10). Smoking behavior is a habit that is commonly found in daily life. Lifestyle or lifestyle is interesting as a health problem, minimally considered a risk factor for

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various diseases, one of which is tuberculosis(11). Housemate is a history of someone in contact with active pulmonary TB sufferers/living together continuously. Household contact with pulmonary TB sufferers is indirectly related to the dose-response because the longer a person contacts smear-positive pulmonary TB patients the more the risk of developing pulmonary TB disease. A patient with positive phlegm often infects his family members. Thus it is clear that family is close contact. The incubation period for TB germs starts from the entry of germs until the infection is estimated to be 6 months to 2 years(12).

METHOD

This type of research is an observational analytic study using a case-control study design that is a study used to determine risk factors or health problems that are suspected to have a close relationship with a disease that occurs in the community(13). This type of research is a way to compare cases and control groups based on their papillary status (retrospectives) to analyze the risk between knowledge, smoking behavior, patient contact history, family income with the incidence of tuberculosis. The case population in this study were respondents who suffered from tuberculosis in the Puuwatu Community Health Center in January-April 2019, as many as 47 people and the control population in this study were healthy residents who did not have clinical symptoms of tuberculosis. The sample is part of the number and characteristics possessed by the population which is calculated using the sample formula and obtained as many as 42 people. Thus the number of samples in this study 42 people suffering from tuberculosis (case group) and 42 people not suffering from tuberculosis (control group), a total of 84 respondents. The sampling technique used is simple random sampling, which is simple random sampling, where each population has an equal chance of being selected as a respondent.

Data collection was carried out using questionnaire sheets to obtain data on tuberculosis events, knowledge, smoking behavior, patient contact history, and family income. Data processing obtained from questionnaires and observations in the field were processed using a computer program with the steps of editing, coding, entry, and tabulating. Analysis of research data consisted of univariate and bivariate analysis. The univariate analysis aims to explain or describe the characteristics of each research variable that results in the frequency distribution and percentage of each variable or proportion. While bivariate analysis aims to measure the risk of independent variables on the dependent variable using Odds Ratio (OR). The processed data is then presented in the form of a distribution table accompanied by a narrative that explains the contents of the table.

RESULT

The results of the univariate analysis showed that of the 84 respondents categorized the most respondents for gender were male, namely 73 people (86.9%), for the age group was 20-35 years (40.55), for employment were entrepreneurs, 44 people (52.4%) and for education is the high school level of 65 people (77.1%).

Table 1 shows that out of 42 respondents in the case group 21 respondents (50.0%) with less knowledge and 21 people (50.0%) with good knowledge, 22 people (52.4%) smoked and 20 people (47, 6%) did not smoke, 31 people (73.8%) had a contact history and 11 people (26.2%) had no contact history. While in 42 respondents in the group obtained 81 respondents (42.9%) with less knowledge and 24 people (57.1%) with good knowledge, 7 people (16.7%) smoked and 35 people (83.3%) not smoking, 17 people (40.5%) have a contact history and 25 people (59.5%) have no contact history.

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Table 1. Results of univariate analysisvariable	Tuberculosis				OR	LL - UP
	Case		Control			
	n	%	n	%		
Knowledge						
Less	21	50,0	18	42,9	1,333	LL = 0,564
Good	21	50,0	24	57,1		UL = 3.150
Smoking Behavior						
Smoke	22	52,4	7	16,7	5,500	LL = 1,998
Not Smoke	20	47,6	35	83,3		UL = 15,139
Patient's Contact History						
Risk	31	73,8	17	40,5	4,144	LL = 1,646
No Risk	11	26,2	25	59,5		UL = 10,435

Statistical test results OR (odds ratio) on the knowledge variable obtained an OR value of 1,333 with a range of lower limit values of 0.564 and upper limit of 3,150 at a confidence interval (Cl) of 95% with a value of more than the value 1 so knowledge is a risk factor for tuberculosis in the Puuwatu Community Health Center in Kendari City. In the smoking behavior variable obtained an OR value of 5,500 with a range of lower limit values of 1.998 and upper limit of 15.139 at a confidence interval (Cl) of 95% with a value of more than the value 1 so smoking behavior is a risk factor for tuberculosis in the Puuwatu Public Health Center in Kendari City. In the patient contact, history variable obtained an OR value of 4.144 with a range of lower limit values of 1.646 and upper limit of 10.435 at a confidence interval (Cl) of 95% with a value of more than the value 1 so that the patient's contact history is a risk factor for tuberculosis in the Puuwatu Health Center Work Area Kendari City.

DISCUSSION

Knowledge is the basis for taking tuberculosis prevention and treatment. Ignorance of the community will hinder attitudes and actions towards the prevention and eradication of tuberculosis as a sick person so that it can eventually become a source of transmission and spread of tuberculosis for people around them.

The bivariate analysis shows that respondents who have less knowledge and suffer from tuberculosis are caused because respondents do not know how to prevent or avoid the disease. After all, it is caused by a lack of knowledge, another factor is that the ventilation of the house owned by the respondent not eligible which causes bacteria to easily enter the house. Furthermore, respondents who have less knowledge but do not suffer from tuberculosis show that even though knowledge is lacking, when the respondent is well ventilated, good lighting and shelter are not dense occupations and are good when talking to tuberculosis sufferers, they will be avoided. Transmission of tuberculosis. Respondents who have good knowledge but suffer from tuberculosis are caused because although the respondents have good knowledge because they are caused by the immune system of the respondent is less, the respondent will be easy to be affected by the disease, one of them is tuberculosis. Another factor is that because the house owned by the respondent does not have good ventilation, it will be

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easy for the bacteria to live and cause disease. while respondents who have good knowledge but do not suffer from tuberculosis. It is known that despite having good knowledge but when influenced by other factors such as inadequate ventilation so that bacteria will easily enter the house in addition to lack of lighting, lack of lighting into the room, especially sunlight in addition to being less comfortable, is also a medium or a place that is good for living and developing germs, one of which is tuberculosis. Another factor is also the type of work, when working in a dusty environment that will be affected and affect the occurrence of disorders of the respiratory tract that can increase morbidity, especially the onset of symptoms of respiratory disease and generally tuberculosis. The same research results show that knowledge about the transmission of pulmonary TB disease (p = 0,000), the results of the study revealed that poor knowledge about the causes of TB, transmission, symptoms, and prevention are often associated with poor treatment-seeking behavior. A person's tendency to seek treatment depends on knowledge about and the perceived risk of TB(14). Knowledge includes the ability to recognize symptoms, identify causes, and routes of transmission, and understand the availability of drugs(15). Besides, better knowledge can improve medication adherence for patients with pulmonary tuberculosis(16).

A person's behavior related to tuberculosis is a behavior that affects or makes someone easily infected or infected with tuberculosis germs such as the habit of opening a window every day, closing the mouth when coughing or sneezing, spitting carelessly, smoking, and habit of drying a mattress or pillow. Smoking can be known to have an association with an increased risk of getting lung cancer, coronary heart disease, chronic bronchitis, bladder cancer. Smoking also increases the risk of contracting tuberculosis 2.2 times. The prevalence of smoking in almost all developing countries more than 50% occurs in adult men, while women smokers less than 5%(17).

The bivariate analysis shows that respondents who were smoking and suffer from tuberculosis were one of the risk factors that can be a cause of someone affected by tuberculosis, people who smoke their lungs are easily infected by microbes. Therefore, when the person is exposed to microorganisms that cause tuberculosis, the microorganisms will easily multiply in the person's lungs. Besides, more often sleep until late at night will reduce a person's immune system because of the lack of time to rest it will be susceptible to disease. While respondents who have smoking behavior but do not suffer from tuberculosis, this happens because although a person has a history of smoking because they have very good knowledge about tuberculosis, a person will not be easily affected by tuberculosis, other than that if the living environment conditions are not dense the population will avoid tuberculosis transmission. Then the study also found respondents who have the behavior of not smoking but suffering from tuberculosis. It is known that although the behavior of not smoking, due to other factors such as exposure to contact history in patients with tuberculosis through cigarette smoke, for example, a person will also be susceptible to tuberculosis. While respondents do not have smoking behavior and do not suffer from tuberculosis. This is because of the factors of knowledge, the environment, good ventilation, and even bacteria, one of which is tuberculosis will not easily enter and attack one's immune system.

The research results are in line with revealing that smoking is a common habit among men living in both rural and urban parts of India, being generally more common in urban than in rural areas. In rural areas, "beedi" smoking is more common mainly because it is cheaper than cigarettes. The results of the analysis obtained an odds ratio of 2.48 which concluded that smoking is a risk factor for tuberculosis(18). It is estimated that, worldwide, 1.3 billion people

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consume tobacco and that most of them live in underdeveloped or developing countries, where the tuberculosis rates are also higher(19). Therefore, the greatest impact of smoking in terms of public health issues related to infection is probably the increase in the risk of tuberculosis. Some systematic reviews and meta-analyses of observational studies have shown an unfavorable association between the global epidemics of tuberculosis and smoking, exposure to tobacco smoke having been associated with tuberculosis infection, active tuberculosis, and tuberculosis-related mortality(20).

The most dominant variable or indicator for predicting tuberculosis is the contact history of patients with tuberculosis patients. This is indeed often encountered because the main factor a person can become infected is breathing air containing droplets containing germs transmitted by people with tuberculosis. History of contact in question, among others, once lived at home with tuberculosis patients, so that the possibility of tuberculosis germ droplets that come out through sneezing or coughing patients can be inhaled together with oxygen in the air in the house by other family members so it is very easy for the transmission process. But not all get a history of contact will contract tuberculosis, depending on how strong a person's immune system is not easy to cause symptoms of tuberculosis.

Bivariate analysis results obtained respondents who have a contact history of patients who are at risk and suffering from tuberculosis. It is known that some case respondents have no household contact or have a history of low-risk contacts but suffer from tuberculosis, this shows that some of the tuberculosis transmission occurs due to contacts from outside the home. The most potential environment for transmission outside the home is the environment/place of work. There are several reasons, namely, the workplace is a specific environment with a population that is concentrated at the same time and place, workers generally live around companies in dense housing and an unhealthy environment. Furthermore, respondents who have a history of contact with patients who are at risk but do not suffer from tuberculosis, are caused by factors of the immune system that they have are very good although the respondent talks directly to the patient due to the immune system that is very well owned by the respondent will not be easily affected by transmission, other factors also because the knowledge of respondents about how to prevent tuberculosis is very good, the respondents will not be easy to get the disease, one of them is tuberculosis. Then respondents with a contact history of patients who are not at risk but suffering from tuberculosis. This happens because the immune system of the respondent is very lacking which facilitates the disease will easily enter the body, another factor is that the respondent lives in a densely populated area. Furthermore respondents with a contact history of patients who are not at risk and do not suffer it is known that from the control group found some respondents who have a history of contact at risk or have household contact but do not suffer from tuberculosis, this is due to the awareness of the respondents in preventing disease by implementing early prevention because there are family members who were previously affected by the disease so that they are alerts such as the use of glass and cutlery, do not expose phlegm carelessly and keep your mouth shut when coughing or sneezing, besides, some respondents also have a residential density and home lighting that meets the requirements to avoid the risk of causing tuberculosis.

Consistent research results revealed that contact with patients had a 2.96 risk of contracting tuberculosis. Contact with a patient is common in the closest person or the person treating the patient(21). Other studies also reveal that contacts exposed to patients with TB, in a variety of settings, are at substantial risk of LTBI and active TB. The incidence of new cases is highest in the first year and remains above background incidence for at least 5 yrs after exposure to

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a patient with TB. The prevalence of TB among contacts may overestimate the true prevalence of the disease among contacts(22).

CONCLUSION

Based on the results of the study, the conclusion of this study is the Science, knowledge about risk and Patient Contact History is a risk factor for tuberculosis in the work area of Puuwatu Health Center, Kendari City. In general, respondents' knowledge about TB is low, it is known from many respondents who do not know how to avoid or avoid diseases as well as other factors such as houses that do not meet health requirements to facilitate the transmission of pulmonary TB. Besides, the smoking habits of respondents who are supported by the habit of sleeping late at night while smoking will reduce the immune system due to lack of rest time so they will be easily attacked by TB disease. Furthermore, some respondents do not have household contacts or who have low-risk contacts but who suffer from tuberculosis, this shows that some TB transmission occurs due to contacts from outside the home. The most potential environment for transmission outside the home is the Workplace.

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