EVALUATION OF COMPLIANCE WITH TUBERCULOSIS PATIENTS IN CONSUMING ANTI-TUBERCULOSIS MEDICINE (OAT) IN OUTPATIENT PATIENTS AT THE HEALTH CENTER WHEN

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ABSTRACT

This study aims to find out the patient's compliance level, the characteristics of pulmonary TB patients, and to find out the factors that affect compliance in outpatients at Kabila Health Center. The study was conducted using a quantitative approach, the population in this study is all outpatient tuberculosis patients at Kabila Health Center involving 28 sampling techniques used in this study are total sampling.This study is a descriptive study conducted observationally using research instruments, namely, The Informed Consent Form and the MMAS-8 Questionnaire.

Data analysis is done using descriptive data analysis. From the results of the search of patient characteristics consisting of gender, age, education, and work, patients in Kabila health centers have a high level of adherence in the use of drugs for the healing process of TB disease. It can be seen in the results of the above study where the patient's compliance rate obtained a high category of 23 people or 82.14% low 5 or 17.85%.

Keywords: *Compliance, Tuberculosis, Consuming OATS*.

INTRODUCTION

Tuberculosis (TB) It is an infectious disease that is a major cause of poor health, one of the top 10 causes of death worldwide. The number of incidences and prevalence of pulmonary TB disease has never stopped around the world. According to the World Health Organization (WHO), Indonesia is one of the countries with the largest TB burden among 8 countries, namely India (27%), China (9%), Indonesia (8%), the Philippines (6%), Pakistan (5%).), Nigeria (4%), Bangladesh (4%) and South Africa (3%) of the world.[1]

Pulmonary TB cases in Indonesia reached 93,000 people die every year, the five highest provinces with TB sufferers are West Java 0.7%, Papua 0.6%, DKI Jakarta 0.6%, Gorontalo 0.5%, Banten 0.4%, and West Papua 0.4 %. TB cases in 2016, the highest number was in West Java province as many as 52,328 cases among men as many as 29,429 people and women 22, 899 people.[2]

According to data from the Gorontalo Provincial Health Office, new cases were found in pulmonary TB patients in

Gorontalo Province in 2018, the most in Bone Bolango Regency as many as 0.81% of cases, Gorontalo City as much as 0.24% of cases, Boalemo Regency 0.30% of cases, District of Gorontalo North Gorontalo 0.65% of cases and the least cases in Pohuwato District as much as 0.12%.[3]

Based on data from the Bone Bolango Health Service, there were 115% cases of pulmonary TB disease, the most patients suffered by age >61 years. Puskesmas Kabila is the fourth in Bone Bolango district as the Puskesmas that contributes the most cases of 52 pulmonary TB patients with a percentage of 8.13%. For now, based on data from the Kabila Health Center in 2020, pulmonary TB found in Kabila District is 28 people, with the most visits 22 cases, the village with the most patients is Padengo Village (5 cases), Tumbihe (4 cases), and the least cases are in North Oluhuta village (1 case) [4]

Pulmonary TB disease is influenced by several risk factors including the immune system, nutrition, lifestyle, and direct contact with pulmonary TB sufferers. There are still challenges that need to be considered, namely the increasing cases of pulmonary TB caused by the lack of adherence to treatment.This causes pulmonary TB patient compliance is an important matter where treatment will be effective if the patient can comply with the rules in drug use. Factors that can affect a person's level of adherence to taking medication, namely: age, occupation, free time, supervision, type of drug, drug dose, knowledge, attitude and counseling from health workers. [5]

The success of pulmonary TB treatment depends on the patient's knowledge and support from the family. Many compliance studies have been carried out in Indonesia, but this research has not been optimal in all provinces in Indonesia, including Gorontalo, precisely at the Kabila Health Center.[3]

The high incidence of TB in the world is caused, among others, by non-adherence to treatment programs.In addition, in the study, 21.2% of patients who did not comply with pulmonary TB treatment experienced medical drug resistance (MDR). The high number of pulmonary TB cases at the Kabila Health Center and the absence of an overview of the level of adherence to pulmonary TB treatment in outpatients at the Kabila Health Center prompted a study on Evaluation of Tuberculosis Patient Compliance in Consuming Anti Tuberculosis Drugs (OAT) in Outpatients at the Kabila Health Center. , so that it is hoped that through this study an overview of the adherence to treatment of pulmonary TB patients and the factors that influence it can be obtained that can be used as input by health workers in an effort to improve adherence to treatment of pulmonary TB patients at the Kabila Health Center, Kabila Bone Bolango District.

Definition Tuberculosis (TB) is an acute or chronic infection caused by the bacterium Mycobacterium tuberculosis[6]

These germs usually enter the human body through the air (breathing) into the lungs, then the germs spread from the lungs to other body organs through the blood. , lymph nodes, respiratory tract spreads directly to other body organs In 2014 pulmonary TB patients in the world have reached 9.6 million with a ratio of 3.2 million suffered by women, 5.4 million suffered by men and 1 million suffered by children -child. It was reported that there are 3 countries with the most pulmonary TB sufferers compared to other countries with the percentage of China (23%), India (10%), Indonesia (10%). Of all cases of pulmonary TB in the world found 480.

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The pulmonary TB treatment success rate (TSR) shows that the success of pulmonary TB treatment in Indonesia has reached 74%. Papua Province is the province with the lowest TSR with 24%, followed by North Sumatra 25%, Jambi 31%, Yogyakarta 44% and the highest TSR level is in Gorontalo with a TSR of 96%[1]

Tuberculosis (TB) is caused by bacteria from the Mycobacterium group, namely Mycobacterium tuberculosis. There are several species of Mycobacterium, including: M. tuberculosis, M. africanum, M. bovis, M. leprae, and so on which are also known as Acid Resistant Bacteria (BTA). The general characteristics of pulmonary TB germs include the following:

a. Rod shaped 1–10 microns long, 0.2–0.6 microns wide.
b. Acid-resistant in staining by the ZiehlNeelsen method.
c. Requires special media for culture, including Lowenstein Jensen, Ogawa.
d. Germs appear in the form of red rods when examined under a microscope.
e. Resistant to low temperatures so that it can survive for a long time at temperatures between 40ºC to minus 70oC.
f. Germs are very sensitive to heat, sunlight and ultraviolet light.
g. Direct exposure to ultraviolet light causes most germs to die within a few minutes.
h. In sputum at temperatures between 30 – 37ºC it will die in approximately 1 week.
i. Germs can be dormant ("sleeping" / not growing).

Primary infection of pulmonary TB is initiated by the alveolar implantation of the organism (Mycobacterium tuberculosis) in fairly small droplets of 1-5 mm. The small size is useful for avoiding the cilia of epithelial cells from the upper respiratory tract so that organisms can reach the alveolar surface. The organisms can then multiply once attached to the surface of the alveoli. These events trigger the arrival of macrophages in the lungs to digest and eliminate organisms. Macrophages will be activated by CD4 lymphocyte cells through the secretion of interferon gamma. A large number of activated macrophages surround dense caseoses of necrotic areas as part of cell-mediated immunity. If a person has a good immune system, the bacteria that will infect can be eliminated by macrophage cells.[7]

But on the contrary, bacteria can multiply and multiply when a person does not have a good enough immune system. Macrophage cells eventually burst and bacteria will release a lot of stale Determination of disease classification and patient type is useful and aims to determine the appropriate treatment mix, correct case registration, standardize processes and data collection, determine pulmonary TB treatment priorities, analysis of treatment outcomes cohorts, and monitor progress and evaluate program effectiveness accurately at district, provincial, national, regional and global levels. Mycobacterium tuberculosis is carried in airborne particles called droplet nuclei with a diameter of 1 to 5 microns.[8]

Infectious droplet nuclei are produced when a pulmonary TB patient coughs and sneezes. These tiny particles can remain in the air for several hours, allowing the bacteria to be transmitted to other people. The process depends on the surrounding environmental conditions, if the environmental conditions support the occurrence of transmission, the bacteria can be easily transmitted. The factors that influence the possibility of transmitting Mycobacterium tuberculosis are the immunity of the exposed individual, the

number of tuberculosis bacilli that are eliminated through coughing or sneezing by pulmonary TB patients, environmental factors that affect the concentration of bacterial organisms, and the distance, frequency and duration of exposure. The longer the duration of exposure, the higher the risk of transmission. Likewise, the higher the frequency of exposure and the closer the exposure distance can increase transmission.[9]

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The discovery of tuberculosis sufferers is done passively, meaning that the screening of suspected sufferers is carried out on those who come to visit the health service unit. This passive discovery is supported by active counseling, both by health workers and the community, to increase the scope of the discovery of suspected sufferers. This method is commonly known as Passive Case Finding. In addition, all contacts of smear-positive pulmonary tuberculosis patients with the same symptoms should be tested for sputum. A health worker is expected to find suspected sufferers as early as possible, considering that Tuberculosis is an infectious disease that can cause death. All suspected patients must be examined 3 sputum specimens within 2 consecutive days, namely SPS The diagnosis of pulmonary TB in adults is confirmed by the discovery of pulmonary TB bacteria. In the national pulmonary TB program, the discovery of AFB through microscopic examination of sputum is the main diagnosis. Other examinations such as chest X-ray, culture examination and sensitivity test can be used to support the diagnosis as long as it is in accordance with the indications. In addition, it is not justified to make a diagnosis of pulmonary TB only based on a chest x-ray examination because it does not always give a typical picture of pulmonary TB, so that overdiagnosis often occurs.[10]

Diagnosis of pulmonary TB includes: Examination of microscopic sputum serves to establish the diagnosis, assess the success of treatment and determine the potential for transmission. Sputum examination for diagnosis is carried out by collecting 3 samples of sputum tests collected in two consecutive visits in the form of Sputum In the Morning-Time (SPS):

S (Time): Sputum is collected when a suspected pulmonary TB patient comes for the first visit to a health care facility (fasyankes). On returning home, the patient allegedly brought a phlegm pot to collect the morning phlegm on the second day.

P (Morning): sputum is collected at home on the morning of the second day, immediately after waking up. The pots were brought and handed over to the officers at the health facilities.

S (Time): phlegm is collected at the health facility on the second day, when giving up phlegm in the morning. 2014 National Guidelines for Tuberculosis Control[9]

1. Cure patients and improve productivity and quality   life.
2. Preventing death due to pulmonary TB or its adverse effects.
3. Prevent the recurrence of pulmonary TB.
4. Reducing the transmission of pulmonary TB.
5. Preventing the occurrence and transmission of drug-resistant pulmonary TB

Anti Tuberculosis Drugs (OAT) is the most important component in the treatment of pulmonary TB. Pulmonary TB treatment is one of the most efficient efforts to prevent further spread of pulmonary TB germs. By principle: [8]

1. Treatment is given in the form of an appropriate OAT combination containing at least 4 kinds of drugs to prevent its occurrence.
2. Given in the right dose.
3. Swallowed regularly and supervised directly by the PMO (Drug Swallowing

Supervisor) until completion of treatment.

Treatment is given in a sufficient period of time divided into early stages and advanced stages to prevent recurrence.[9]

Isoniazid, known as INH, is tuberculostatic and tuberculosid with a MIC (minimum inhibitory level) of about 0.025-0.05 g/mL. Its bactericidal effect is only seen in bacteria that are actively growing. The mechanism of action of isoniazid is not known, but there is an opinion that its main effect is to inhibit the biosynthesis of mycolic acid (mycolic acid), which is an important constituent of the cell wall of mycobacterium.[9]

The recommended daily dose is 5 mg/kg BW, while for intermittent treatment 3 times a week is given at a dose of 10 mg/kg BW. Minor side effects of INH can include signs of peripheral nerve poisoning, tingling and muscle pain or impaired consciousness. This effect can be reduced by giving pyridoxine (vitamin B6 at a dose of 5-10 mg per day or with vitamin B complex). Disorders resembling pyridoxine deficiency (syndroma pellagra), and various skin disorders, including itching. If these side effects occur, the administration of OAT can be continued according to the dose.[11]

Rifampicin is bactericidal, can kill semidormant (persister) bacteria that cannot be killed by isoniazid. Rifampicin is primarily active against growing cells. It acts by inhibiting DNA-dependent RNA polymerase from mycobacteria and other microorganisms by suppressing the initiation of chain formation in RNA synthesis. The dose of rifampin 10 mg/kg BW is given for daily or intermittent treatment 3 times a week.[9]

Mild side effects of rifampin can include skin syndrome (itchy redness), flu syndrome (fever, chills, bone pain), stomach syndrome (abdominal pain, nausea, vomiting, sometimes diarrhea). Mild side effects often occur with periodic administration and may resolve on their own or require only symptomatic treatment. Rifampicin can cause a red color in urine, sweat, tears and saliva. These results must be notified to the patient so that the patient does not worry. The red color occurs due to drug metabolism and is harmless.[12]

Pyrazinamide is bactericidal, can kill germs that are in cells in an acidic environment. The mechanism of action of this drug is not known with certainty. The recommended daily dose is 25 mg/kg BW, while for intermittent treatment 3 times a week is given at a dose of 35 mg/kg BW. [13]

The main side effect of taking pyrazinamide is hepatitis. Joint pain can also occur and sometimes can cause attacks of gouty arthritis which may be due to reduced excretion and accumulation of uric acid, sometimes hypersensitivity reactions such as fever, nausea, redness and other skin reactions occur.[13]

Ethambutol is bacteriostatic. This drug works by inhibiting the entry (incorporation) of mycolic acid into the cell wall of bacteria. The recommended daily dose is 15 mg/kg BW, while for intermittent treatment 3 times a week, a dose of 30 mg/kg BW is used.[12]

Ethambutol can cause visual disturbances in the form of reduced visual acuity, color blindness for red and green colors. However, the ocular poisoning depends on the dose used. Side effects are rare when the dose is 15-25 mg/kg BW per day or 30 mg/kg BW given three times a week.[12]

Streptomycin is bactericidal with the mechanism of action of inhibiting the protein synthesis of microbial cells, namely changing the shape of the 30S section, resulting in misreading of the mRNA code. The recommended daily dose is 15 mg/kg

BW, while for intermittent treatment 3 times a week, the same dose is used. [12]

Patients aged up to 60 years the dose is 0.75 grams / day while for those aged 60 years or more given 0.50 grams / day. The main side effect of streptomycin is damage to the eighth nerve related to balance and hearing. The risk of these side effects will increase with the increase in the dose used and the age of the patient. Damage to the balance apparatus usually occurs in the first 2 months with signs of ringing in the ears (tinnitus), dizziness and loss of balance. This situation can be reversed if the drug is stopped immediately or the dose is reduced to 0.25 g, if the treatment is continued, the damage to the balance apparatus will get worse and persist (loss of balance and deafness).[12]

Treatment category 1 2(HRZE)/4(HR)3 The combination of OAT consists of Isoniazid (H), Rifampicin (R), Pyrazinamide (Z), and Ethambutol (E). The regimen was given daily for 2 months (2HRZE) in the intensive stage, while Isoniazid (H) and Rifampicin (R) were given 3 times a week for 4 months (4(HR)3) in the advanced stage. This OAT combination is given to new patients:

a. New patient with smear positive pulmonary TB
b. Pulmonary TB patient smear negative positive chest X-ray
c. Extra pulmonary TB patients

Treatment category 2 2(HRZE)S/(HRZE) / 5(HR)3E3. The incentive phase is given for 3 months consisting of 2 months with HRZE Iisoniazid (H), Rifampicin (R), Pyrazinamide (Z), Ethambutol (E) every day. After that, it was continued with a follow-up phase for 5 months with HRE Isoniazid (H), Rifampicin (R), Ethambutol (E) given three times a week.[14]

Latest Pulmonary TB Treatment

1. In patients with multidrug-resistant tuberculosis or rifampin (MDR/RR-TB) regimens, all three Group A agents and at least one Group B agent must be included to ensure that treatment is initiated with at least four TB agents that are likely to be effective, and that at least three agents are included for the remainder of the treatment. treatment if Bedaquiline is discontinued. If only one or two Group A agents are used, both Group B agents must be included. If a regimen cannot be established with agents from Groups A and B alone, Group C agents are added to complete it. (Conditional recommendation, very low certainty in effect estimates). Kanamycin and capreomycin should not be included in the treatment of MDR/RR-TB patients on longer regimens. (Conditional recommendation, very low certainty in effect estimates).[14]

2. Levofloxacin or moxifloxacin should be included in the treatment of MDR RR-TB in patients on a longer regimen. *(Strong recommendation, moderate certainty in effect estimates)*[14]

3. Bedaquiline should be included in the older multidrug-resistant TB (MDR-TB) regimen for patients 18 years of age or older. (Strong recommendation, moderate certainty in effect estimates) Bedaquiline may also be included in longer MDR-TB regimens for elderly patients 6–17year.*(Conditional recommendation, very low certainty in effect estimates)*[14]

4. Linezolid should be included in the treatment of MDR/RR-TB patients on longer regimens. *(Strong*

recommendation, certainty is in effect estimates)[14]

5. Clofazimine and cycloserine or terizidone were included in the treatment of MDR/RR-TB patients on a longer regimen. *(Conditional recommendation, very low certainty in effect estimates).*[14]

Adherence to therapy is an important component in the treatment of chronic diseases. The term therapeutic adherence is defined as the extent to which a person's behavior with a treatment regimen is agreed upon by a health care provider.[17]

Adherence to medication has always been a problem for patients. Non-adherence is more common in elderly patients than younger patients. This non-adherence causes a decrease in the therapeutic benefit to the patient. Doctor visits and health services are more frequent because of deteriorating conditions, increasing health care costs and overtreatment of a condition. Various factors that influence the need for treatment are: patients, drugs, health care providers, health care systems, and socioeconomic factors.[17]

Non-compliance factors:

1. Patient factors to treatment are very dependent on the individual. The factors from these various studies have been grouped into subcategories such as mental state, physical health, demographics, past medical history, behaviors/attitudes/habits/beliefs and others.[16]

2. Different treatment factors such as formulation and packaging, drug regimen and drug handler, and other factors such as the presence of adverse drug reactions, drug interactions, poor labeling instructions, and lack of consequences when missed doses are inadvertently affect drug adherence. [16]

A patient will be more likely to adhere to a medication that has a simpler dosing schedule, for example every morning dose, compared to other more complex medications, a dosing schedule for example, twice daily dosing. Other important factors such as the cost of treatment will be relevant.[16]

3. The health care provider factor plays an important role in building a trusting relationship with the patient, the health care provider factor acts in their interests and will tend to comply with the treatment given. To form such relationships to improve adherence, there is a need for proper communication, patient involvement in decision making and professionalism.[16]

4. Health care system factors will include problems such as lack of patient education, lack of follow-up, lack of given medication schedules, short prescription duration and lack of community nursing services to package medicines. [16]

RESEARCH METHODS

The research is carried out using a quantitative approach, the quantitative approach is a study that studies the dynamics of the relationship or correlation between risk factors and impacts, the approach used is observation or data collection at a certain time. [18]

This study is a descriptive study conducted by observation in the outpatient installation of the Kabila Public Health Center which aims to determine the characteristics of the patient, the level of compliance of pulmonary TB patients and the relationship between patient characteristics. [18]

Population is a generalization area consisting of objects or subjects that have certain qualities and characteristics that are applied by researchers to be studied and then drawn conclusions. The population in

this study were all outpatient tuberculosis patients at the Kabila Health Center with a total of 28 people. [18]

The sample is part of the number and characteristics possessed by the population, while the sampling technique is called sampling. The sampling technique in this research is total sampling. Total sampling is a sampling technique where the number of samples is the same as the population. The reason for taking total sampling is because the total population is less than 100. So the number of samples in this study was 28 people in one month. [19]

Initial observations were made to collect data on patients with Tuberculosis at the Kabila Health Center who would be used as respondents in this study. [19]

The instruments used in this study to evaluate patient compliance are:

1. Informed Consent Form, is written evidence stating that there is consent given by the patient or his family on the basis of an explanation of the medical action to be taken for the patient. [20]

2. The Morisky Medication Adherence Scale (MMAS-8) questionnaire is one way of measuring adherence to self-report and health care professional assessments that contains questions about drug consumption habits, including forgetting to take medication, so that adherence can be clearly identified. [20]

Questionnaire validation was carried out to ensure that the questionnaire compiled would be really good at measuring symptoms and producing valid data. Questionnaire validation was carried out using validity and reliability tests. In this study a number of 28 respondents were given a questionnaireMMAS which contains 8 question points with Yes and No answer choices. Each answer will be given a score. For the answer Yes a score of 1 and No score 0[21]

Descriptive analysis is used to explain or describe the characteristics of each of the variables studied. The form depends on the type of data. For numerical data, the mean (average), median, standard deviation and inter-quartile range, minimum and maximum values are used. Meanwhile, for categorical data, a description of the frequency distribution and proportion of variables such as age, gender, education level, occupation, number of drugs received by patients and the duration of pulmonary TB therapy can be obtained. [21]

RESEARCH RESULT

Table 1 Characteristics of Respondents

No	Characteristics	Frequency (n)	Presentation%
1	**Gender**		
	Man	17	60.7
	Woman	11	39.3
2	**Age**		
	15-24 Years	3	10.7
	25-34 Years	7	25.0
	35-44 Years	3	10.7
	45-54 Years	8	28.6
	>55 Years	7	25.0
3	**Education**		
	No school	0	0
	SD	3	10.7
	junior high school	4	14.3
	senior High School	11	39.3
	D3/S1/S2/S3	10	35.7
4	**Work**		
	Employee	5	17.9
	Entrepreneur	7	21.4

		10	35.7
	Farmer	10	35.7
	Housewife	6	25.0

Data is expressed in n (%)
Source: Primary Data 2021

Table 2. Patient Compliance

No	Compliance level	N	%
1	Obey	23	82.14%
2	Not obey	5	17.85%

Source: Primary Data 2021

Table 3. Distribution of compliance based on Gender

No	Gender	N	%	N	%
1.	Man	12	70.56%	5	29.41
2.	Woman	10	90.90	1	5.88%

Source: Primary Data 2021

Table 4. Distribution of compliance by Age

No	Age	N	%	N	%
1	15-24 Years	3	100%	0	0%
2	25-34 Years	5	71.42%	2	28.57%
3	35-44 years old	3	100%	0	0%
4	45-54 Years	5	62.5%	3	37.5%
5	>55Years	4	57.14%	3	37.5 %

Source: Primary Data 2021

Table 5. Distribution of compliance by Education

No	Education	N	%	N	%
1	No school	0	0.0%	0	0.0%
2	SD	1	33.33%	2	66.66%
3	junior high school	3	75%	1	25%
4	senior High School	10	90.90 %	1	9.09 %
5	D3/S1/S2/S3	9	90%	1	10%

Source: Primary Data 2021

Table 6. Distribution of compliance by Job

No	Work	N	%	N	%
1	Employee	5	100%	0	0.0%
2	Entrepreneur	4	100%	0	0.0%
3	Farmer	7	70%	3	30%
4	IRT	6	100%	0	0.0%

Source: Primary Data 2021

DISCUSSION

Based on the results of the study showed that there were more male patients than female patients. This is thought to be the reason why men are more susceptible to pulmonary TB infection. Due to their heavy workload, lack of rest, and unhealthy lifestyles including smoking and drinking alcohol. Several studies have confirmed that the level of adherence of the male sex is lower than that of the female, because women report more symptoms of the disease and consult a doctor because women tend to have more diligent behavior than men. [18]

Based on the results of the study that respondents aged 45-54 years in this study amounted to 28.6%. With the current demographic transition, the life expectancy of the elderly has become higher. At the age of more than 54 years, a person's immune system decreases, so he is very susceptible to various diseases, including pulmonary TB disease. [16]

About 75% of tuberculosis patients are the most economically productive age which has a socio-economic impact in the community. Patients with pulmonary TB in

old age are associated with decreased immunity caused by chronic disease and in old age also often cause side effects. In general, this disease is very sensitive and indiscriminate at all ages, whether babies, toddlers, old or young. [16]

Based on the results of the study, the highest number of respondents with high school education was 39.3%. This can happen because at the high school education level entering adolescence where promiscuity and smoking often occur which can result in exposure to TB risk factors and is influenced by various activities that cannot be postponed and feel lazy and bored, causing patient disobedience. [15]

This study explains that patients and their families have the right to receive health education so that they are able to make decisions regarding their health and lifestyle. The provision of effective health education is important in the health care provided to patients to reduce the number of clients to the hospital and minimize the spread of preventable diseases. [15]

Based on the results of the study that the respondent's occupation as a farmer was at most 35.7%. This is because farmer respondents do not pay attention to the health in their bodies which are only focused on life to earn a living without caring about the health in themselves. In a scientific article, it is stated that if workers work in a dusty environment, exposure to dust particles in the exposed area will affect the occurrence of respiratory tract disorders. Chronic exposure to polluted air can increase morbidity, especially the occurrence of symptoms of respiratory diseases and generally pulmonary tuberculosis.Based on the results of the study, the most respondents were patients who had drug side effects of 82.1%. this is because the content in the drug is very strong so that TB patients who take anti-TB

drugs will get side effects. Common side effects found in patients are indigestion, abdominal pain, nausea, vomiting, chills and skin redness. If side effects occur, it is difficult to determine which OAT is the cause. For this reason, if side effects or unwanted events are still mild, they can be overcome by giving sympathetic drugs such as anti-nausea, anti-vomiting, anti-pyretic analgesics and vitamin B6. [18]

Based on the results of the study that the most patients who did not have other diseases other than TB disease was 89.3%. This is because the patient only has TB disease that the patient has suffered for a long time. The presence of other diseases causes many drugs to be taken by patients. In addition, the possibility of drug interactions and drug side effects is increasing. This can be an inhibiting factor in the completion of patient therapy. [18]

Based on the results of the study, out of 28 respondents, patients at the Kabila Public Health Center, the availability of drugs owned by the Kabila Health Center in treating patients was available for 28 people by 100%. With the presence of TB patients who have checked at the Kabila Health Center, Kabila District, the head of the puskesmas has taken the initiative to provide adequate facilities for patients to be well served. [21]

The results showed that the same answer was obtained from 76 respondents (100%) that Anti Tuberculosis Drugs (OAT) were always available at the puskesmas and could be obtained every time the respondent came for treatment. This shows that the provision of OAT at the Kabila Health Center, Kabila District is sufficient. [21]

Based on the results of the study that patients who received treatment at the Kabila Health Center, most of the houses were close to the puskesmas, which was 71.4. This is because the Puskesmas is in

the middle of the TB patient's house so it can be easily accessed. The results showed that as many as 51 respondents (67.11%) stated that the distance from their homes to the puskesmas was close. Meanwhile, the perception of respondents who stated that the distance from home to the puskesmas was medium and far, respectively, 16 respondents (21.05%) and 9 respondents (11.84%), from 28 respondents. with transportation rarely available amounted to 8 patients or 28.6% and patients who received treatment with available transportation amounted to 8 people or 71.4%. Thus, the majority of patients who receive treatment at the Kabila Health Center are available with transportation of 71.4. In this case, the access to the puskesmas with community houses is already on the side of the road which is the main access for the community so that many vehicles can be used, besides that patients have private vehicles to use during treatment. The results showed that most of the respondents revealed that transportation was always available to the puskesmas, as many as 57 respondents (75%). Meanwhile, as many as 19 respondents (25%) said that transportation to the Puskesmas was rarely available. [21]

In this case, the access to the puskesmas with community houses is already on the side of the road which is the main access for the community so that many vehicles can be used, besides that patients have private vehicles to use during treatment. The results showed that most of the respondents revealed that transportation was always available to the puskesmas, as many as 57 respondents (75%). Meanwhile, as many as 19 respondents (25%) said that transportation to the Puskesmas was rarely available. [21]

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side of the road which is the main access for the community so that many vehicles can be used, besides that patients have private vehicles to use during treatment. The results showed that most of the respondents revealed that transportation was always available to the puskesmas, as many as 57 respondents (75%). Meanwhile, as many as 19 respondents (25%) said that transportation to the Puskesmas was rarely available. [21] as many as 19 respondents (25%) revealed that transportation to the Puskesmas is rarely available. [21] as many as 19 respondents (25%) revealed that transportation to the Puskesmas is rarely available. [21]

Patients at the Kabila Health Center, Kabila District, patients who take treatment at the Kabila Health Center have family support in the role of treating TB disease suffered by patients with a total of 28 people or 100%. The results showed that respondents who felt the role of the family/PMO were included in the category of supporting efforts to treat pulmonary TB as many as 44 respondents (57.89). While the rest are respondents who feel that the role of the family/PMO is quite supportive and less supportive of pulmonary TB treatment, respectively, amounting to 20 respondents (26.32%) and 12 respondents (15.79%). Frequency distribution table of respondents based on the role of family/Drug Swallowing Supervisor (PMO). [21]

Patients at the Kabila Public Health Center, Kabila District, patients who take treatment at the Kabila Health Center have support with the role of officers in treating TB patients at the Kabila Health Center totaling 28 patients or 100%. The actions or roles of TB officers at the puskesmas were assessed as consisting of the attitude of the officers while providing health services to patients with pulmonary TB, providing information about the importance of regular treatment to

completion, explaining the correct rules for taking medication and the symptoms of side effects that may be experienced by the patient, the willingness of the staff to take medication. to listen to patient complaints and provide solutions, and the role of officers in providing health education to patients' families. [11]

The results showed that respondents who felt the role of TB officers at the Puskesmas were included in the category of supporting pulmonary TB treatment efforts, only 30 respondents (39.47%). While the rest are respondents who feel that the role of TB officers at the Puskesmas is included in the category of being quite supportive and not supportive of pulmonary TB treatment, respectively, amounting to 19 respondents (25.0%) and 27 respondents (35.53%).[10]

The analysis used in this study by using *Morisky Medication Adherence Scale* (MMAS) because with this analysis it can facilitate research to obtain information from respondents who are researching about the level of compliance possessed by patients in taking drugs or during TB treatment, in addition to the use of analysis *Morisky Medication Adherence Scale* (MMAS) can clearly describe the behavior of TB patients at the Kabila Health Center, Kabila District, Bone Bolango Regency.[10]

Based on the results of research conducted at the Kabila Health Center that the level of compliance is categorized as obedient, which is indicated by the level of compliance as many as 17 people at a percentage of 60.7%. Respondents pulmonary TB who complied as much as 71%. These results are because the level of patient compliance in undergoing treatment is very important, because TB is one of the infectious diseases that is difficult to cure. Patients who adhere to treatment are those who complete regular and complete

treatment without interruption for a minimum of 6 months to 9 months. [19]

From the results of the analysis, it can be seen that all respondents (100%) are obedient in taking Anti Tuberculosis Drugs (OAT) at the Puskesmas according to the specified time, this is based on the direct observation of researchers at the Kabila Health Center from the respondent's statement. Although direct observation cannot be carried out from the beginning to the end of treatment and not all pulmonary TB patients can be monitored regularly, the history of taking OAT can be seen from the patient's treatment card. not taking medication regularly (not compliant), so that the patient can drop out of treatment. [18]

CONCLUSION

From the results of these studies, the researchers can conclude that

1. Patients with TB disease at the Kabila Health Center, Kabila District, Bone Regency Bolango has a high level of compliance in the use of drugs for the healing process of TB disease, it can be seen in the results of the study above where the level of patient compliance is in a good category amounted to 17 people or 89.4%

2. TB patients who complied in this study were 60.7% rRespondents who have a high school education at the most are 39.3% and for respondents who work as entrepreneurs the most are 35.7%

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