

## THE RELATED FACTORS COMPLIANCE TO BASIL FUDA PULMONARY TUBERCULOSIS PATIENTS POSITIVE RESISTANT ACID (BTA) IN COMMUNITY HEALTH CENTRE DISTRICT SENTANI

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### ABSTRACT

*Tuberculosis is an infectious disease directly caused by mycobacterium tuberculosis bacterium. In Jayapura District detection rate of smear positive TB patients in 2013 which amounted to 123 cases with a success rate of SR 84.55% and in health centers Sentani in 2013 as many as 665 suspected and treated 104 patients with smear-positive pulmonary TB, the cure rate is 83.80% . The aim of research to determine what factors are associated with treatment compliance Pulmonary TB smear positive patients at the health center Sentani Jayapura district.*

*The research method is descriptive analytic cross sectional study design. The study population was all patients with smear-positive pulmonary TB were registered and treated at the health center Sentani as many as 144 patients and a sample of 50 respondents. Analysis using chi square test with  $p = 0.05$  and the ratio of prevalence.*

*The results showed that no significant relationship between knowledge and treatment compliance of TB patients with  $p$  value: 0.145 ( $p > 0.05$ ) and the value of  $RP = 1,354$ ; 95%  $CI$ : 0.953 to 1.922, and there was a significant relationship between order taking medication with treatment compliance of TB patients with  $p$  value: 0.000 ( $p < 0.05$ ), and the value of  $RP = 11.368$ ; 95%  $CI$ : 1.738 to 74.356, and no significant relationship between the role of the PMO with TB patient treatment compliance with  $p$  value: 0.000 ( $p < 0.05$ ) and the value of  $RP = 4.407$ ; 95%  $CI$ : 1.611 to 12.055.*

**Keywords:** Tuberculosis, Medication Compliance

### INTRODUCTION

Tuberculosis is an infectious disease directly caused by the bacterium *Mycobacterium tuberculosis*. (Ministry of Health, 2014). Source of infection is tuberculosis patients AFB (acid-fast bacilli) positive, when coughing and sneezing, patients spread germs into the air in the form of droplets (*droplet nuclei*). (Handhayani, Merry, 2011).

Tuberculosis is a major health problem world. In 1993 the *World Health Organization* (WHO) has declared TB global health emergency problems (*Global public health emergency*). (Wulandari, 2012). In 2012, 8.6 million people have suffered

from TB worldwide, and this figure rose to 9 million in 2013. About 1.5 million people have died in 2013 from TB, including 360,000 people who have been HIV positive. (News one, 2014). While one out of every 6 cases of TB still ended up with the death, including the deaths of 510,000 women each year. (MoH RI, 2015).

In Indonesia TB is a major public health problem. In 2013, the number of TB cases in Indonesia is ranked fourth as the country with the highest TB burden in the world after India, China, and South Africa. (News one, 2014). Although progress has been obtained and a very significant success in TB control programs, but the magnitude

of the problem we face today is still quite large. It is estimated that in 2012 there were 730,000 new cases and re-treatment (of which 460,000 are new cases) and a treatment success rate in 2013 in Indonesia reached 82.8% and the cure rate reached (*Cure Rate*) 90.5%, where it has reached the target expected, but still high number of TB deaths is 67,000 per year or 186 / day. (TB Warta Indonesia, 2014).

One strategy used in the treatment of pulmonary tuberculosis penanggulangan is *Directly Observed Treatment- shortcourse (DOTS)*. DOTS is a comprehensive strategy to be used by primary health care workers around the world to detect and cure pulmonary TB patients. Pulmonary TB with DOTS strategy can provide a high cure rate which the WHO target a cure rate of at least 85% of smear positive pulmonary TB patients were detected. The principle is to determine the DOTS treatment services to patients that can directly supervise the regularity of taking medicine. This strategy is overseen by the health center staff, Non Governmental Organization (NGO), and others who are aware of the DOTS program. (Sholikhah, 2012).

Successful treatment of TB depending on patient knowledge factor, where TB prevalence survey (2004) of knowledge, attitudes and behavior showed that 96% of families caring for family members who suffer from tuberculosis and only 13% who hide their existence. Although 76% of families had heard of TB and 85% know that TB is curable, but only 26% were able to mention the two signs and the main symptoms of TB, mode of transmission of TB is understood by 51% of households and only 19% knew that the available TB drugs free. (Ministry of Health, 2011).

Factors compliance behavior of patients is needed to cure pulmonary tuberculosis patient, if the patient is non-compliant drinking Pulmonary TB drug treatment much less to break up, it will cause the patient's career, so it will transmit the disease to others around him. (Atik, Ade, 2010).

According to the theory of Green (1997) that behavioral factors adherence tuberculosis patients to take medication is influenced by several factors, including: factors of knowledge about tuberculosis,

order taking medication of patients, education level, socio-economic, stigma and lack of family support in the treatment and supervision of taking medication. (Atik, Ade, 2010).

Case detection rate of smear positive pulmonary TB in the province of Papua in 2012 amounted to 25 507 suspected soul and new smear positive patients amounted to 2708 cases and cases increased in 2013 amounted to 2751 cases. (DHO. Prov. Papua, 2013). The treatment success rate in Papua Province in 2012-2013 reached 76.3% and the cure rate only reached 57.0%. (Ministry of Health, 2014).

By the numbers invention coverage smear positive pulmonary TB patients in 2012 in Jayapura District Health Office is as much as 121 cases, these cases increased in 2013 amounting to 173 cases. While smear positive pulmonary TB were treated in 2012 as many as 165 cases with a success rate (*Success rate*) amounted to SR 86.06%, and by 2013 as many as 123 cases with a success rate of 84.55% SR. (DHO Jayapura, 2014).

The initial survey conducted by the researchers, the discovery rate of cases in Puskesmas Sentani in 2013 as many as 665 suspected and treated 104 patients with smear-positive pulmonary TB, the cure rate was 83.80%, 8.57% complete treatment, and default 7.61% , While the case detection rate in 2014 as many as 695 suspected and treated smear positive pulmonary TB, of 144 patients with a cure rate of 80.99%, 2.47% complete treatment, fail to 3.30%, 11.57% default, dies 1.65% and 23 patients are still under treatment in the fourth quarter. Based on an initial interview with the TB program leaders say that healing of pulmonary TB patients was influenced by knowledge of the patient, the regularity of taking medicine and the role of the PMO so that patients adhere to treatment and taking medication. (PHC Sentani, 2014).

Research done by Ruslan (2004), about the factors associated with cure of TB patients using *Shourcourse* strategy of *Directly Observed Treatment (DOTS)* in Biak Noemfoor. Where the results of his research there was a significant relationship between treatment compliance and

sputum conversion to cure TB patients, but there is no relationship between the type of PMO and the distance healing service with TB patients. (Ruslan, 2004). The benefits of research by Ruslan for this study is the description to conduct further research on treatment compliance, and the role of the PMO in the treatment period until the completion of treatment in which the study did not examine the relationship conversion of sputum and distance service place with the patient's recovery, but examines the relationship of knowledge of patients with treatment compliance smear positive pulmonary tuberculosis patients.

Based on the background above problems researchers interested in conducting research on factors associated with treatment compliance Pulmonary TB smear positive patients at the health center Sentani Jayapura district.

**METHOD**

The study design used is descriptive analytical, with the approach of *Cross Sectional Study*. The population of all patients with pulmonary TB smear positive in the first quarter-IV in 2014 which was recorded and treated at the health center Sentani as many as 144 respondents, Cured 98 patients, complete treatment 3 patients, failed four patients dropped out 14 patients died 2 patients and 23 in the treatment of patients still on treatment of the fourth quarter. Sample of 59 respondents. *Sampling purposive* sampling technique. Variable measurement conducted through interviews using questionnaires. Analysis of data through univariate analysis using frequency

distribution and bivariate analysis using *chi square* test with significance (*confidence interval* (CI) of 95% and  $\alpha = 0.05$ ). Presentation of data in the form of the frequency distribution table.

**RESULT**

**Univariate analysis of the study variables**

Of the 50 respondents who researched adherent treatment there are 37 people (74%), and non-adherent treatment there are 13 people (26%).

Variables studied knowledge of the 50 respondents who berpengetahuannya well there are 26 people (52%), and less than 24 people (48%).

Variables studied regularity of taking medicine from 50 respondents who regularly take medication sebnayak 38 people (76%), and irregular in 12 people (24%).

Variabal studied the role of PMO, PMO's role dikategorikan 36 well as many (72%), and the less there are 14 people (28%).

**Analysis Bivariat**

To see the relationship between independent variables and the dependent variable via the "p" value ( $p < 0.05$ ) which shows the significance of the variables. It is also to see the value of *prevalence ratio* to determine whether the independent variables tested is a risk factor or not a risk factor (protective factors) for the dependent variable

Table 1. Summary of Analysis Results Bivariat Genesis IMS On WPSTL

variable	P	RP	95% CI
Knowledge	.451	10	0.709 to 2.667
Regularity Drink Drugs	0,004	1,939	1.219 to 3.086
The role of PMO	0,000	.421	.240-.739

From table 1 above, showed that the results of the bivariate analysis there are two variables associated with the incidence of STIs in Female Sex Workers Indirect (WPSTL) ie the number of sexual

partners (p: 0.004; RP: 1.9; CI: 1.2 to 3) and condom use (p: 0.000; RP: 0.4; CI: 0.2-0,7).

## DISCUSSION

### 1. Variable Knowledge

The results showed that out of 50 respondents surveyed on average 78.3% of smear positive pulmonary TB patients in the region work of Puskesmas Sentani Jayapura District knowledge is good enough. Of the 24 people (48%) have less knowledge about TB disease and treatment of pulmonary tuberculosis. Based on the results of interviews with 14 people saying that never get education about TB disease and overall lack of outreach to the community. However, based on interviews with the person in charge of TB and observation schedule Sentani counseling at the health center an average of 3 times a week for one month every year is held every TB outreach posts located in villages.

According to the theory cited Nukman Laurence W. Green (1997), understanding the instructions, the quality of the interaction, attitudes, values and beliefs are factors that affect the non-compliance of TB patients so that TB patients can relapse, failure, resulting in death, become a source of transmission and treatment be prolonged (Wulandari, 2012).

The results of the interview shows that there are 4 people (8%) said that prior to treatment is not aware of any program *Directly Observed Treatment Shourcourse* (DOTS) and TB treatment, and there are 18 people (36%) consider that the disease of pulmonary tuberculosis is a hereditary disease and non-communicable diseases, other than that, according to one respondent said that pulmonary tuberculosis disease is inherited Sentani people who envy, specifically to the Sentani only. It is known to the respondent by a Dutch doctor she recognized the doctor know of pulmonary TB patient data in Sentani very much compared to patients with pulmonary tuberculosis in other areas, so that respondents strongly believe that. While the cause of TB there are five people (10%) who said that the cause of TB caused by heredity and curse.

Results showed that people still have confidence regarding pulmonary TB disease is not caused by bacteria *Micobacterius tuberculosis* as the

cause TB disease. This can be due to educational factors the respondents were less where the highest is the only high school education reached 44%. Education is closely associated with pengetahuan, hopefully with someone higher education more widespread knowledge. (Ruhdiana, 2012).

Patients more does not work because most patients are still uneducated, apart from that age that most respondents are 15-29 years by 72%, which the interpreter found, the older people became more conducive to solving the problems faced. (Ruhdiana, 2012). But these two things do not affect the respondents' knowledge.

According to field observations of print media such as posters and slogans about TB disease, symptoms, treatment, and suppression OAT free and so forth, is lacking in public places, so that it can also affect the level of patients' knowledge, because if the information regarding the TB disease only through it is quite lacking counseling to people who do not have time to receive information from the extension.

In theory Laurence W. Green cited Nukman (1997), factors patient knowledge that exists within individuals affect treatment compliance behavior (*predisposing factor*) (Wulandari, 2012).

### 2. Variable Regularity Drink Drugs

The results showed that out of 50 respondents surveyed on average 81.6% of smear positive pulmonary TB patients in the region work of Puskesmas Sentani Jayapura District regularly take medication. Based on interviews with some respondents said that taking the drugs with the basic desire healing, although it must follow a few guidelines on TB treatment, other than that based on observations card 01 treatment of TB patients, the majority of TB treatment are referred by the patient's own initiative. So that it can be seen that the success of the regularity of taking medications patients based on the great motivation of the patient himself who wants to recover. Although patient education is quite less than that of high school education only reaches 44% only.

According to the theory cited Nukman Laurence W. Green (1997), factors that exist within

the individual that affect behavior regularity of taking medicine (*predisposing factors*), among others; Patients' knowledge about the disease and understand the treatment of pulmonary tuberculosis pulmonary tuberculosis, attitude and determination to heal the patient, regularly taking medication for the treatment for 6 months for category 1, and the level of patient education (Wulandari, 2012).

Factors presence of PMO and provide family support have resulted regularity TB patients take medication goes very well. According to the theory cited Nukman Laurence W. Green (1997), Driving factors include the support of the patient's family, the community, the environment and the role of supervisor to take medication (PMO) to monitor the patient during the treatment period. (Wulandari, 2012).

Availability of anti tuberculosis (OAT), which is a supporting factor regularity of taking medications patients are well. (Wulandari, 2012). The wellness facilities are very influential in the treatment of the patient so that it can run smoothly and TB control can be achieved so that the success rate of treatment and recovery of patients in health centers Sentani almost 85% according to national guidelines. Successful treatment will not be successful if the regularity of taking medication irregularly. Some respondents who did not regularly take medication caused when after taking the first category of early stage patient's immune response to be better, and symptoms of TB wane. Where the function of early phase drug to reduce the number of bacteria (MoH RI, 2014), so that patients feel has cured and did not continue to take medicine advanced stage. This results in patients relapse advanced stage where the function of medicine is to kill remaining bacteria and cure the disease and prevent recurrence of pulmonary tuberculosis (MoH RI, 2014).

Regularity of taking medicine that is taken whether or not a given drug, it is important for treatment of disorder causes the problem of resistance (Hapsari, 2010). But this does not correspond to a respondent who works as a pastor, respondents were based on an interview the patient treatment compliance and regularity of taking medicine is very good. However, respondents in the running to take medication to keep working to renovate a church in

the village. Where every day and on average in the period of 9 hours in direct contact with building materials which have a high enough dust particles. so by taking OAT can reduce the performance of the drug because of increasingly resistant bacteria.

Activities susceptible exposed to smoke and dust as well as the duration of exposure will affect the respiratory tract that will be easier to be exposed again by TB. According to specialists, who tend to work exposed to pollution, dust, air pollution tends to be more easily exposed to TB. This type of work determine what risk factors that must be faced every individual and affect relapse pulmonary TB because it can lower the immune system of patients (Wahyuni, Yaumil, et al 2011-2012).

In theory Laurence W. Green cited Nukman (1997), a factor regularity of taking medications that exist within the individual affect treatment compliance (*predisposing factor*) (Wulandari, 2012).

#### **Variable role of PMO**

The results showed that out of 50 respondents surveyed on average 81.7% of smear positive pulmonary TB patients in the region work of Puskesmas Sentani PMO role very well. Respondents who had come from the PMO that the patient's family is very good at running, and helps in the treatment of TB there were 44 respondents (88%). This is because the PMO tasks executed very well. PMO assessed the role consists of supervising TB patients take medication regularly in order to complete the treatment. (MoH RI, 2014). Although the PMO comes from a family that is a lack of education about TB disease and treatment, but the PMO continued her task.

The results of this study were similar to studies conducted by Armelia Haryati (2011). Where the majority of respondents feel the role of the PMO are included in the category of supporting the efforts of treatment of pulmonary tuberculosis. But on the contrary the result of research conducted by Ruslan (2004) does not coincide with the study. Where there is no influence of the type of PMO to cure TB patients, this is because the majority of respondents have come from the PMO that family members often

travel far, always being in the garden / sea, so that TB patients less attention to the task PMO.

According to the theory cited Nukman Laurence W. Green (1997), PMO Knowledge about TB disease, attitude and determination to provide the patient in order to take medicine to support treatment compliance (Wulandari, 2012).

Factors family support have resulted in the role of a PMO run very well. Incentives include a lack of support from the patient's family, community, and environment. (Wulandari, 2012). Encouragement for patients to want regular medication, reminds patients to check the sputum at the scheduled time health workers, provide counseling to family members of TB patients who have symptoms of TB suspicious to immediately went to the Health Services Unit. (MoH RI, 2014).

Ease to reach health facilities close enough to home for patients and PMO by 72%, due to the existence of health centers located in Tengah Sentani town so it can be reached by the patient. Although the socio-economic situation of patients is less than 86%, but the motivation of the patient to recover and PMO role of the family is so large that the treatment period can all terkecukupi. According to the theory cited Nukman Laurence W. Green (1997), PMO supporting factor is the ease to reach health facilities, socio-economic circumstances affect patient treatment compliance (Wulandari, 2012).

PMO derived from health officials have recorded quite a bit of 10%. According Penanggung TB responsibility, role of cadres who are in Puskesmas Sentani cadre of TB by 18% less stints as a PMO and 82% of TB cadres still active duty until now. One of them is based on an interview to one of the cadres who are in Kampung Lemongrass very participates becomes a PMO. The role of these cadres help to many patients with suspected TB and run crawl in Kampung Citronella.

In theory Laurence W. Green cited Nukman (1997), PMO's role as a driving factor (*reinforcing factor*) to monitor the patient during the treatment period affect treatment compliance so that TB patients can be cured (Wulandari, 2012).

## knot

The variables that proved to be a factor associated with pulmonary tuberculosis treatment compliance BTA Positive namely: Regularity of taking medication (P value 0.000) and the role of the PMO (P value of 0.000)

## SUGGESTION

### 1. Health agencies

It is hoped that health agencies can take advantage of print media such as poster and slogan as a medium of information about TB to facilitate networking TB are widespread and increasing knowledge, understanding of the community and improve the success rate of TB treatment for TB patients.

### 2. For Integrated Health centre (IHC)

For IHC is expected to improve patient education activities in the Integrated Health centre

### 3. For Researchers

Provide information or additional reference material for further research regarding the factors associated with treatment compliance smear positive pulmonary Tuberculosis patients.

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