Factors Affecting the Recurrence of Tuberculosis in Health Makassar South Sulawesi

Baharuddin K.[*]

Nursing Department of the Ministry of Health Poltekkes Makassar South Sulawesi

Email: kordjabaharuddin@gmail.com

Abstract

Background, Recurrence of disease Tuberculosis (Relapse Process) will carry a high risk of wives, husbands, children, or people who live at home with the patient and or healthy people who are nearby. Tuberculosis patients who relapse can transmit Mycobacterium Tuberculosis which has been resistant to treatment of pulmonary TB and even make Mycobacterium resistant to treatment. Mycobacterium Tuberculosis which otherwise resistant to treatment of TB will require very expensive treatment costs and longer time in its handling. The aim of this study. to examine the factors in the families of patients who stated "Relapse Return (Relapse)" from tuberculosis who had suffered and had stated earlier recovered from his illness. Tuberculosis recurrence factor becomes very interesting and important to investigate and found the factors in order to break the chain of recurrence prevalence of negatively affecting the incidence of resistance to Mycobacterium Tuberculosis tehadap. The observational method with Case Control Study approach used in this study, where the risk factors studied retrospectively. The sample in this study berjulah 126 respondents consisting of TB cases (relapsed) totaled 42 respondent is subject to the characteristics of the positive effects and control (Non relapsed) totaled 84 respondents are subject to characteristic negative effects. Temuanada Effect of education, level of knowledge, drinking Noncompliance Anti Tuberculosis (OAT) and Family Support against TB disease recurrence in Puskesmas (Health Centre) of Makassar South Sulawesi. The results showed that the level of education, high level of knowledge, adherence OAT and positive family support is very significant in preventing recurrence of TB disease.

Keywords: relapsed; Lungs; Tuberculosis; Health Centre.

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* Corresponding author.

1. Introduction

Today Indonesia is a country of the 2nd largest global TB burden setelahn India, China South Africa and Nigeria. According to MoH RI [1] estimates prevalensimTB all cases was 566,000, or 244 per 100,000 population and the estimated incidence rate amounted to 528,000 new cases per year (228 per 100,000 population). BTA + TB case incidence is estimated at 102 per 100,000 population (approximately 236,000 TB patients with AFB + per year [2,3].

From the survey conducted in the initial data room New Jumpandang Care Health Center in February 2016, data showed patients with TB. in 2014 who came for treatment were 70 people, nine people were declared relapsed (12.9%). Then in 2015 there were 86 people, 12 declared relapsed (13.9%). Two successive year saw increased ± 1% / year. Similarly, in the initial survey in PHC Mangasa 2014 visit 65 patients 8 of them recurrences and 2015 found 70 TB patients and 10 were declared a relapse of the disease. This figure when seen from a very small number, but otherwise diantasipasi early, MKA in a relatively short time will betambah continue.

Incomplete TB treatment, can cause disease is not cured or even become more severe. Or the patient was cured because of the signs and symptoms have disappeared after mengomsumsi drug for a certain period and the patients discontinued treatment because they feel healthy and strong. When patients stop treatment before declared fully recovered, then this condition can be advantageous Mycobacterium tuberculosis resistant to drugs, and it took a long time to recover and are at high risk of transmitting germs that have developed resistance [4].

Resistance Mycobacterium against Anti Tuberculosis (OAT) can occur as a result of the treatment is not perfect, withdrawal, the combination of drugs is not adequat and or disobedience patients mengomsumsi medication regularly [4] Another factor which led to breaking treatment which continues with the recurrence of which type patients, health care and the treatment regimen Based on the description of the above tuberculosis disease recurrence, the authors are interested in lifting the title of the study: "factors Affecting TB disease recurrence in Puskesmas Kota Makassar South Sulawesi.

2. Material and Method

2.1. Types of Research

This type of research is observational with approach Case Control Study, in which risk factors studied retrospectively. Case is a characteristic of subjects with a positive effect while the control is subject to the characteristics of the negative effects.

2.2 Population and Sample

2.2.1 Population

Population is the variable regarding the issues examined. The population in this study were all patients with

pulmonary tuberculosis in Puskesmas New Jumpandang, health centers and health centers Mangasa-Kassi Kassi KotaMakassar yangberjumlah 132 people.

2.2.2 Sample

The sample in this study were divided into two groups of samples are:

a. Cases are TB patients who experienced a relapse (relapse) after being declared cured of the disease. b. Controls (Non Relapse) is TB patients who did not experience recurrence of TB disease who had suffered. So dengaan such a large sample in this study, the number of cases = 42 respondents, and the number of respondents control group = 84, control group 2 times the size of the case group. Thus the quantity of sample (cases and controls) as many as 126 respondents.

2.3 Data Collection Instrument

Digunkan data collection tool in this study was a questionnaire or form to observe respondent TB recurrence (relapsed) and observe the respondent did not have a relapse (Non relapsed)

2.4 Data Analysis

Data analysis was carried out in the form of:

2.4.1 Univariate analysis

For a description of the members in the form of a frequency distribution of each variable.

2.4.2 analysis Bivariat

Using Analysis Odds Ratio (OR) to look at the risk factors of each independent variable on the dependent variable, with the following formula:

Table 1

Risiko	Kasus (Relaps)	Kontrol (Non Relaps)
Terpapar	A	b
Tidak Terpapar	C	d
Jumlah	A + c	B + d

Odds Ratio (OR) $= \frac{ad}{bc}$

Information:

a. = Case exposed

b. = Controls exposed

c. = Case not exposed

d. = Control unexposed

Interpretation:

OR = 1 means that the independent variable is not a risk factor for recurrence kejadin TB. (Relapse). OR <1 means that the independent variable is precisely the protective effect or prevention of recurrence (relapse)

OR> 1 means that the independent variable is a risk factor for TB recurrence (relapse) If the value of 1 is between the lower and upper limit, then the hypothesis is rejected, and vice versa if the value 1 is not located between the lower and upper limit values, the research hypothesis is accepted.

2.5 Multivariate analysis

To see how much influence each independent variable on the dependent variable, and for viewing from all four independent variables, which variable greatest effect on the incidence of TB recurrence (relapse) D. Processing and Presentation of Data. Data processing is done by using a computer with SPSS for Windos version 10.0. For the presentation of data is done in the form of a frequency distribution table and table analysis of the relationship between independent variables and the dependent variable.

3. Results

3.1 Analysis Bivariat

a. Table 2. Risk Factors Education Levels with TB disease recurrence in New Jumpandang PKM PKM and PKM Kassi Mangasa-Head of Makassar, the period June-September 2016

Table 2

Tingkat Pendidkan	Kelompok		Jumlah
	Kasus	Kontrol	
Pendidikan Dasar dan menengah/tidak tamat	34	47	81
Pendidikan Tinggi	8	37	45
Jumlah	42	84	126

Table 2 shows that of the 81 respondents, which has a primary and secondary education there are 34 groups of

cases of relapse, and 47 control group of respondents who tidk relapse of TB disease. While 45 respondents were educated there are eight groups of cases relapse and 37 control group who did not relapse of TB disease. Statistical analysis of the results obtained by the value of P <0.05 and Odd Ratio obtained at nilao OR = 3.346 95% CI. Value Lower limit (LL) = 1.384 and Upper Limit (UL) = 8.086. Because the value Lower Limit and Upper Limit does not include the value of 1 then said to be meaningful and Ho Rejected. So that respondents who have high levels of primary and secondary education at risk 3.346 times rely more likely to experience a recurrence compared with respondents who have a higher education level.

a. Knowledge level

Tabel 3 Risk Factors Knowledge Level with disease recurrence incidence of TB in New Jumpandang PKM PKM and PKM Kassi Mangasa-Head of Makassar period from June to September 2016

Table 3

Tingkat Pengetahuan	Kelompok		Jumlah
	Kasus	Kontrol	
Rendah	37	38	75
Tinggi	5	46	51
Jumlah	42	84	126

Table 3 shows that of the 75 respondents, who have a low knowledge as much as 37 groups who relapse cases and 38 controls were tidal relapse of TB disease. Meanwhile, from 51 respondents who have no knowledge High 5 group relapse cases and 46 groups kontrolyang no relapse of TB disease.

Statistical analysis of the results obtained by the value of P <0.05 and Odd Ratio obtained at nilao OR = 8.958 95% CI. Value Lower limit (LL) = 3.205 and the value of Upper Limit (UL) = 25.041. Because the value Lower Limit and Upper Limit does not include the value of 1 then said to be meaningful and Ho Rejected. So that respondents who had a low level of knowledge at risk 8.958 times more likely to experience recurrence compared with respondents who have a high degree of knowledge.

a. Disobedience Drink Drugs

Table 4 Risk Factors Drinking Drug Noncompliance with disease recurrence incidence of TB in New Jumpandang PKM PKM and PKM Kassi Mangasa-Head of State MakassarPeriode June-September2016

Table 4

	Kelompok		Jumlah
Ketidakpatuhan Minum Obat	Kasus	Kontrol	
Tidak Patuh	40	47	87
Patuh	2	37	39
Jumlah	42	84	126

Table 4 shows that of the 87 respondents, who have to take medication noncompliance with TB, there were 40 cases of relapse group and 47 control group that did not relapse of TB disease. While the 39 respondents who had medication adherence 2 groups were relapse cases and 37 control group who did not relapse of TB disease.

Statistical analysis of the results obtained by the value of P <0.05 and Odd Ratio obtained nilao OR = 15.745 on the 95% CI. Value Lower limit (LL) = 3.570 and the value of Upper Limit (UL) = 69.444, Because the value Lower Limit and Upper Limit does not include the value of 1 then said to be meaningful and Ho Rejected. So that respondents who have an attitude of non-compliance with taking the drug will have the risk 15.745 times> likely to experience relapse compared with those with drug minu subservience.

a. Family support.

Table 5 Family Support .Faktor with TB disease recurrence in New Jumpandang PKM PKM and PKM Kassi Mangasa-Head of State MakassarPeriode June-September2016

Table 5

	Kelompok		Jumlah
Dukungan Keluarga	Kasus	Kontrol	
Tidak Mendukung	37	60	97
Mendukung	5	24	29
Jumlah	42	84	126

Table 5 shows that of the 97 respondents, who did not obtain the support of the family, there are 37 groups of relapse cases and 60 control group that did not relapse of TB disease. Meanwhile, of the 29 respondents who support a family, there are five groups who relapse cases and 24 controls who did not relapse of TB disease.

Statistical analysis of the results obtained by the value of P <0.05 and Odd Ratio obtained nilao OR = 2.960 at

the 95% CI. Value Lower limit (LL) = 1.039 and the value of Upper Limit (UL) = 8.433. Because the value Lower Limit and Upper Limit does not include the value of 1 then said to be meaningful and Ho Rejected. So respondents do not support the family will have a 2,960 times greater risk for experiencing a recurrence compared with respondents who have received family support

1. Multivariate Analysis

Table 6 Effect of Education, Science and Family Support adherence to TB disease recurrence in New Jumpandang PKM PKM and PKM Kassi Mangasa-Head of Makassar period from June to September 2016

Table 6

Variabel	B	P(Sign)	Exp (B)	5% CI For Exp (B)	
				Lower	Upper
Pendidikan	2.595	.000	13.400	4,523	39,698
Pengetahuan	3.071	.008	21.558	2,197	211,483
Kepatuhan	3.227	.010	25.213	2,187	290,680
Dukungan keluarga	-.777	.035	.062	0,005	0,823

Table 9 shows that after a statistical test between variables simultaneously turns all variables have an influence on relapse of tuberculosis and variables which influenced the recurrence of TB disease is variable noncompliance with the scores level at CI OR = 25.213 95% and the Lower Limit = 2,187 Upper Limit = 290.680 of the significance level = 0.010.

4. Discussion

4.1 Level of education

Based on the test results Bivariate analysis showed the value of the Odd Ratio = 3.346 CI = 95%, P-Value = 0.007 <0.05, and UL LL = 1.384 = 8.086 does not include the value of 1 then said to be meaningful. While the results of multivariate analysis obtained by value OR = 13,400 and 95% CI P-value = 0.000 velue. Thus the test results of the bivariate or multivariate test results show that education has an influence on TB disease recurrence.

Education can influence the attitudes and behavior of someone who is the end result of education. With higher education for a person to be able to change the mindset, formed a complete awareness in order to change a healthier lifestyle in everyday life. Although the level of education does not always directly bullet with TB disease means yng enough education is not always a determinant of treatment success absoluteness someone who was stricken with tuberculosis or diseaseOther.

The results of this study are supported by theory Carter V, Good in [5] which states that education as a process

of development of one's skills in the form of attitudes and behavior in order to achieve social skills and personality intact and sturdiness.

Research Made [6] explains that the duration of TB treatment should be carried out for 6-8 months. Duration of time can cause the patient to become bored and impatient and cause undisciplined and disorganized to take medication that failed in the treatment but for patients who have sufficient knowledge will continue to take medication appropriate treatment program. Further Nurfadila explained that the failure of the treatment and cure of TB patients contribute directly to the knowledge acquired through education.

b. Knowledge level

Based on the test results Bivariate analysis showed the value OddRatio = 8.958 CI = 95%, P-velue = 0.000 <0.05, LL = 3.205 and UL = 25.041 does not include the value of 1, then it is said to be meaningful. While the results of multivariate analysis obtained by value OR = 21.558 and the 95% CI P-value velue = 0.008 <0.05. Thus the test results Bivariat or multivariate test results indicate that a low level of knowledge which have influence over the TB disease recurrence.

Knowledge is the result of the know and this occurred after people perform sensing on a particular object Notoatmodjo, [7]. Most knowledge is very important in shaping a person's actions. The statement can be proved from these results that the respondents have less knowledge level, more susceptible to treatment failure compared to respondents who have a high level of knowledge.

The health knowledge can help individuals to adapt to the disease, preventing complications and learn to solve problems when faced with a new situation [8.9].

Knowledge of TB patients about the disease are factors that influence the incidence of TB suffered by a patient, therefore, a good knowledge of the illness will make the patient aware and determined to do what should be done and so is what should not be done so as to maintain and avoid events worse. This is in line with the development goals of health to improve public health [10-13]

a. Disobedience factor Drink Drugs

Based on the test results Bivariate analysis indicates the value Odd Ratio = 15,745dengan CI = 95%, P-Value = 0.000 <0.05, LL = 3.570 and UL = 69.444 does not include the value of 1 then said to be meaningful. While the results of multivariate analysis obtained by value OR = 25.213 danCI 95% value of P-Value = 0.010. Thus Bivariat test results and the results of multivariate analysis showed that failure to take medication has an effect on TB disease recurrence.

Compliance TB patients take medicine regularly and on time is a crucial factor in the healing process of tuberculosis. Compliance covers: minumobat time schedule, mengomsumsi medicine according to the number, type of drug, and the dose is in etiquette drugs, drug spending, came to the health center regularly taking medication before the medicine runs out and always remember the advice of health workers. BTA conversion

failed and whether or not is determined by the precise and accurate treatment, while treatment can be successfully influenced by the attitude of obedience.

The high rates of treatment compliance due to the high level of motivation, education and knowledge, and understand the importance of health, it is also inseparable from the patient's awareness of the importance of healthy living. This is supported by the theory that dikemumakan by Muttaqin [14] which says that the use of Anti-Tuberculosis Drugs (OAT) improper / irregular or interrupted treatment can lead to drug resistance of Mycobacterium tuberculosis. And even worse if there Multidrugs Resistance (MDR). Where drug resistance of M. tuberculosis bacteria can no longer be killed by OAT. Variabel other factors cause irregular treatment patients even menghentikn treatment prematurely.

d. Family support

Based on the test results Bivariate analysis indicates the value Odd Ratio = 2,960dengan CI = 95%, P-Value = 0.042 <0.05, and UL LL = 1.039 = 8.433 does not include the value of 1 then said to be meaningful. While the results of multivariate analysis obtained by value and OR = 0.062 95% CI P-Value = 0.035. Thus the test results haasil Bivariate and multivariate test showed that family support have an influence on ketidakkambuhan TB disease, but with OR <1 in a multivariate analysis, the variables of family support is a protective factor for TB disease recurrence.

Family support is support given by family members (husband, wife, children, siblings and people staying at home) so that individuals who are given the support to feel that he cared for, appreciated and got a morale boost from orsng meaningful and has particularly strong family ties that strong with another family member [15].

One of the major risks associated with the transmission of TB in the community or in the health service is derived from TB patients who have not been identified. In this case the role and support of the family are expected to participate actively if there are family members who suspect TB disease or TB patients relapse. The role of the family can improve medication adherence pulmonary tuberculosis patients; attention to the progress of treatment has the greatest influence on the increase in drinking OAT patients with lung. A person who receives a full family support can be said that it has a protective effect terhada non recurrent TB disease.

5. Conclusions and recommendations

5.1 Conclusion

1. There is a relationship of education level with TB disease recurrence at bivariate and multivariate analysis showed the value of P-Value <0.05 in CI 95%, and the odds ratio value and the value of LL or UL> 1 so that the level of education is a risk factor for TB disease recurrence .

2. There is a relationship with the level of knowledge of TB disease recurrence at bivariate and multivariate analysis showed the value of P-Value <0.05 in CI 95%, and the odds ratio value and the value of LL or UL> 1 so that a low level of knowledge which is a risk factor for recurrence TB disease.

3. There is a relationship Noncompliance Take medicine with TB disease recurrence at bivariate and multivariate analysis showed the value of P-Value <0.05 in CI 95%, and the odds ratio value and the value of LL or UL> 1 so that non-compliance with taking medication is a risk factor for recurrence TB disease.

4. There is a relationship with the family support TB disease recurrence at bivariate and multivariate analysis showed the value of P-Value <0.05 in CI 95% and the value of the analysis Multivariate Odds Ratio <1 and the value of LL and UL <1 so that family support is a protective factor against TB disease recurrence.

5.2 Saaran

1. Any patient suffering from the disease of TB to seek treatment regularly and discipline to take the medicine according to the type of drug, drug dosage and drug etiquette accurately to maximize healing.

2. If taking medication irregularly or lost, the impact on Mycobacerium germs resistant to the medicine (Drug resistant).

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