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Analysis of drug user compliance in tuberculosis patients on therapy successat puskesmas Medan Deli Medan City year 2022

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ABSTRACT

According to WHO data, there were 6.3 million new pulmonary TB cases, this figure is the same as 61% of the incidence of tuberculosis in the world with a value of 10.4 million. The number of patients with TB increased the number of tuberculosis cases from the previous year, which was 9.6 million people. In addition, the number of deaths caused by tuberculosis worldwide is 40 people per 100,000 of the world's population. The aim of the research was to analyze the adherence of drug users in TB patients to the success of therapy at the Medan Deli Health Center in 2022. The population consisted of 112 pulmonary tuberculosis patients who were treated with a total sampling technique with a total of 112 respondents. The results showed that there was a relationship between adherence and successful therapy for TB patients (p = 0.000), there was a relationship between knowledge and successful therapy for TB patients (p = 0.000), there was no relationship between age and successful therapy for TB patients (p = 0.280), there was no gender relationship with successful therapy for TB patients (p= 0.856), there is a relationship between education and successful therapy for TB patients (p= 0.200), there is a relationship between work and successful therapy for TB patients (p= 0.003), there is a relationship between family support and successful therapy for TB patients (p = 0.010) and multivariate analysis that lack of compliance, lack of knowledge and not working has an effect on the failure of therapy.

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INTRODUCTION

Tuberculosis (TB) is common in poor countries and several developing countries. In the international agreements summarized in the Sustainable Development Goals (SDGs) in 2015, the health problem of dangerous infectious diseases such as TB is one of the main concerns of health development goals. Globally, in 2018, according to WHO data, there were 6.3 million new pulmonary TB cases, this

figure is the same as 61% of the incidence of tuberculosis in the world with a value of 10.4 million. The number of patients with TB increased the number of tuberculosis cases from the previous year, which was 9.6 million people. In addition, the number of deaths caused by tuberculosis worldwide is 40 people per 100,000 of the world's population (Organization 2020).

More people in the adult age category are infected and then die as a result of infection from tuberculosis compared to other types of bacterial infections. According to the World Health Organization (WHO) it is estimated that tuberculosis infection kills as many as two million people every year. Based on data for 2020, it is estimated that as many as one billion people will be infected if the patient is not properly treated and tuberculosis will increase by around 56 million each year if not treated immediately (Andarwati, Masrah, and Fauzi 2020).

According to (Pamungkas 2021) based on the data obtained that there are as many as 22 countries with the highest and most cases of pulmonary TB, while as many as 80% of patients with tuberculosis globally are spread over twenty-two countries, which will increase by 3 million deaths. from year to year with the latest 9,000,000 cases occurring. Based on general calculations, the number of cases of pulmonary TB has increased by 1% each year. Whereas in 2015 many cases of tuberculosis were found with a number of 330,910 data on new patients with tuberculosis, in this case there was an increase in previous tuberculosis cases, namely in the year two thousand and fourteen with a total of 324,539 with the latest tuberculosis cases of tuberculosis in Indonesia, while the country of Indonesia is a country with a high number of tuberculosis (Amalia 2020).

In 2017 it was reported that the number of pulmonary TB patients was three hundred and ninety one per hundred thousand people, with a total death of 42 per hundred thousand people, and the number of new events was found with a total of 425,089 events. This figure has increased in number from the previous year where there were 360,565 new incidents (Aini, Ramadiani, and Hatta 2017).

The highest total cases based on central data and the total Indonesian population are in the provinces in West Java, the provinces in East Java and Central Java. The total number of cases of tuberculosis from the 3 provinces is the most, with 43%, of the total number of tuberculosis in Indonesia (Widiyanto 2017).

Tuberculosis is an old disease that still occurs today. Based on data in North Sumatra Province there has been an increase in the number of tuberculosis cases, and the existence of data on finding cases of tuberculosis or pulmonary TB makes plans to eradicate this problem. If seen in 2016 for participants suffering from tuberculosis, there were a total of 189 sufferers. Based on the 2016 Ministry of Health, there are 5 regencies and cities located in North Sumatra that have the most tuberculosis. First, Medan City with a total of 2,397 tuberculosis patients, then Peematang Siiantar City with 288 patients, Binjai City with 260 patients, Tnajung Balai City with 150 patients, Tebing Tinggi City with 145 patients and Deli Serdang Regency with 1,554 patients (Utara 2021).

In Indonesia, the number of pulmonary TB cases is still high, this is influenced by several factors, namely low economic and income sources, low public knowledge, low public education, overcrowding of Indonesia's population and poor sanitation at home (Yanti 2021) Unfavorable environmental sanitation factors affect the Mycobacterium tuberculosis bacteria. Mycobacterium tuberculosis is a type of bacteria that can survive for 2 hours and some types of bacteria can survive for weeks if the environmental sanitation is not exposed to the sun, there is no ventilation in the house, there is high humidity, temperature, and density of humidity in the house(Pamungkas 2021).

Health problems caused by pulmonary TB are a major concern for all elements of the health workforce, including community nurses. Until now, tuberculosis sufferers are still the contagion with the highest mortality rate, requiring complex treatment. The management of pulmonary TB is not only from treatment, but also from prevention. In the scope of the community, the prevention aspect has the most basic role in reducing the number of pulmonary TB sufferers. This is consistent with the role and function of community nurses as executors of nursing services and as health educators (Damayanti, Erza, and Johan 2020).

The number of patients who adhere to therapy with long-term therapy for diseases with diseases that exist in the human body with an average length of time is 50% in developed countries, while the number of patients who adhere to tuberculosis treatment in developing countries is lower than developing countries. According to the State Tuberculosis Disease Center, Indonesia is a developing country and Indonesia has entered third place with the number of tuberculosis cases in the world with a total of 528,000 cases, after that India and China. Meanwhile, in the Global Tuberculosis Control WHO Report in 2019, Indonesia ranked fifth with a total of 429,730 cases in India, China, South Africa and Nigeria. This is a countermeasure for controlling tuberculosis because Indonesia is a very large country contributing 430,000 pulmonary TB patients annually and an incidence rate of 189/100,000 people. The productive age (15-45 years) in Indonesia has more pulmonary tuberculosis, namely as much as 75%, which in this case is due to the economy, which causes the occurrence of pulmonary tuberculosis which is quite high (RI 2020).

The results of observations made by researchers at the Medan Deli Health Center, Medan Deli District, Medan City, obtained that the total cases of patients with tuberculosis were 112 cases. the population does not understand about infectious diseases besides how to prevent the transmission of infectious diseases, community economic factors, while patients who have suffered but have not recovered this can also be caused by sufferers who are excluded from therapy and complete their treatment as when taking medicine, while Tuberculosis treatment takes a long time, which is 24 weeks and up to 9 months if there are more. The patient's lack of obedience in therapy is due to the low support of the patient's family so that the patient does not complete the therapy, besides that it can be supported by the patient's lack of knowledge about the harmful effects if the patient is not obedient in completing tuberculosis treatment, besides that there is also due to health workers in evaluating patient to therapy that has been carried out by the patient.

Based on the results of the study, 65.2% adherent tuberculosis patients were 34.8% non-adherent, and 62.5% of respondents recovered and 37.5% did not recover or repeat treatment. The high number of pulmonary TB sufferers at the Medan Deli Health Center is a health center that needs attention from health workers, especially tuberculosis for the government. According to the researchers, the results of the survey at the time the health center was carried out had obtained that the area was endemic for pulmonary tuberculosis, where from 2017 to 2021 there was an increase in the number of cases of pulmonary tunerculosis by 112 patients. Based on the explanation above, researchers feel it is important to conduct research to analyze the adherence of therapy users for tuberculosis patients to the success of therapy at the Medan Deli Health Center, Medan City.

RESEARCH METHOD

The type of research used is a survey analytic research (analytic research) with a retrospective approach. Location This research was conducted at the Medan Deli Health Center, Medan City, North Sumatra and the time of research was from October 2021 to May 2022. In this study, researchers used primary and secondary data. The population in this study were all pulmonary tuberculosis patients, namely 112 people. Sampling uses the total population, namely the entire population is used as a sample. The samples taken must meet the criteria, namely all pulmonary tuberculosis patients, namely 112 people. Data analysis performed was univariate analysis, bivariate and multivariate analysis. Univariate data analysis was carried out to describe the characteristics of each independent variable and the dependent variable. Bivariate analysis was performed to prove that there is no significant relationship between the independent variables and the dependent variable using the Chi-square test. Multivariate data analysis aims to determine the effect of the independent variables and to determine the most dominant variable affecting the dependent variable (pulmonary tuberculosis patients).

RESULTS AND DISCUSSIONS

Results

Univariate Analysis

Table 1. Distribution of success frequency of tb patient therapy

Variables	n	%
Therapeutic success		
Healed	70	62.5
Not cured	42	37.5
Obedience		
Obey	73	65.2
Not obey	39	34.8
Knowledge		
Well	79	70.5
Not enough	33	29.5
Age		
18-40 years	50	44.6
41->60 years	39	34.8
Education		
Tall	23	20.5
Low	89	79.5
Gender		
Woman	39	34.8
Man	73	65.2
Work		
Doesn't work	64	57.1
Work (PNS, Honor, Entrepreneur)	48	42.9
Patient Family Support		
Support	81	72.3
Does not support	31	27.7
Amount	112	100

Based on table 1 it shows that most of them recovered as much as 62.5%. that most of the patients adhered to as much as 65.2%. that most of the patients had good knowledge as much as 70.5%. that most of the patients were 18-40 years old as much as 44.6%. most do not work as much as 57.1%. that most support as much as 72.3%.

Bivariate Analysis

Table 2. Factors that influence the success of TB patient therapy

Variable	Therapeutic success				Amount		P	OR(95%CI)
	Healed		Not cured					
	n	%	n	%	n	%		
Obedience								
Yes	64	57.1	9	8.0	73	65.2	0.000	39.11 (12,829-119,287)
Not	6	5.4	33	29.5	39	34.8		
Knowledge								
Well	64	57.1	15	13.4	79	70.5	0.000	19,200 (6,731-54,766)
Not good	6	5.4	27	24.1	33	29.5		
Age								
18-40 years	34	30.4	16	14.3	50	44.6	0.280	1.535 (0.704-3.346)
41->60 years	36	51.4	26	61.9	62	55.4		
Education								
Tall	14	12.5	9	8.0	23	20.5	0.856	0.917 (0.358-2.350)
Low	56	80.0	33	78.6	89	79.5		

Gender								
Woman	28	25.0	11	9.8	39	34.8	0.200	1879 (0813-4342)
Man	42	37.5	31	27.7	73	65.2		
Work								
Doesn't work	48	42.9	16	14.3	64	57.1	0.003	3,545 (1,591-7,903)
Working	22	19.6	26	23.2	48	42.9		
Patient Family Support								
Support	57	50.9	24	21.4	81	72.3	0.010	3,288
Does not support	13	11.6	18	16.1	31	27.7		(1.394-7.757)

Table 2 shows that most of the patients were compliant and managed to carry out TB therapy as much as 57.1%. statistical test results showed that there was a relationship between compliance with TB patient therapy success (p = 0.000) at a significant level of α equal to 0.05, with an OR value of 39.11 (12.8292-119.287) stating that people who comply are 39 times more successful than people who do not comply. Statistical test results showed that there was a relationship between knowledge and successful treatment of TB patients (p = 0.000) at a significant level of α equal to 0.05, with an OR value of 19,200 (6,731-54,766) stated that good knowledge is 19 times more successful than people with poor knowledge. Statistical test results showed that there was no relationship between age and successful therapy for TB patients (p = 0.280) at a significant level of α greater than 0.05. with an OR value of 1,535 (0.704-3.346) states that people aged 41-> 60 years are twice as successful as people aged 41-> 60 years. The results of statistical tests showed that there was no relationship between education and successful TB patient therapy (p = 0.856) at a significant level of α greater than 0.05 with an OR value of 0.917 (0.358-2.350). higher education is only 1 times more successful than people with low education. statistical test results showed that there was no relationship between gender and the success of TB patient therapy (p = 0.200) at a significant level of α more than 0.05 with an OR value of 1,879 (0.813-4.342) stating that male gender is 2 times more successful than people of the opposite sex. female genitalThe results of statistical tests showed that there was a relationship between work and the success of therapy for TB patients (p = 0.003) at a significant level α equal to 0.05 with an OR value of 3,545 (1,591-7,903) stating that working was 4 times more successful than people who did not work. statistical test results showed that there was a relationship between family support and the success of TB patient therapy (p = 0.010) at a significant level α equal to 0.05 with an OR value of 3,288 (1,394-7,757) stating that people who received support from family were 3 times more successful than people who no support from family.

Multivariate Analysis

Table 3. Variable probability of therapy success

Variabel	B	OR	Score Sig
Obedience	2.858	17.420	0.000
Knowledge	2.457	11.664	0.001
Work	1.357	3.884	0.037
Constant	-9.668	.000	0.000

Because the Probability or Predicted value is 94%, the variable is less adherent, less knowledge and does not work have an effect on the failure of therapy.

Discussion

Relationship of Compliance with TB Patient Therapy Success

The table above shows that most of the patients were compliant and managed to carry out TB therapy as much as 57.1%. statistical test results showed that there was a relationship between compliance with TB patient therapy success (p = 0.000) at a significant level of α equal to 0.05, with

an OR value of 39.11 (12.8292-119.287) stating that people who comply are 39 times more successful than people who do not comply.

This research is in line with Munteh's research in 2018 with the research title The Relationship between Compliance with Taking Drugs for Pulmonary TB Patients and Recovery Rates in the Work Area of the Kuala Health Center, Langkat Regency. The results showed that the majority of patients were compliant with taking pulmonary TB medication as many as 49 people (94.2%), 3 people were disobedient (5.8%) and the majority of patients recovered as many as 47 people (90.4%), 5 people did not recover (9 ,6%). The results of the chi square test show that the p-value = 0.000 <0.05 (Munthe, 2019).

This research is supported by a theory from the Ministry of Health of the Republic of Indonesia, that adherence to TB treatment is very important, because if the treatment is not carried out regularly and not according to the predetermined time, TB germ immunity will arise against Anti-TB Drugs (OAT) widely or called Multi-Drug Resistance (MDR). Generally, sufferers take medication for 6 months to ensure their recovery, but in some circumstances it can take longer (Hasudungan 2020).

Knowledge Relationship with TB Patient Therapy Success

The table above shows that most of the patients had good knowledge and succeeded in treating TB as much as 57.1%. The results of the statistical test showed that there was a relationship between knowledge and successful treatment of TB patients (p = 0.000) at a significant level of α equal to 0.05, with an OR value of 19,200 (6.731-54.766) states that good knowledge is 19 times more successful than people with poor knowledge.

This research is in line with Tambunan's 2019 study entitled The Relationship of Knowledge and Attitudes to Compliance with TB Patients at UPT Puskesmas Belawan.

The results of the study where the number of respondents in this study were 71 respondents with the highest age, namely 15-44 years with male sex. The results of the chi square test obtained the value of the knowledge variable with pulmonary TB patient compliance, namely 40 people (91%) with a p value of 0.000 <0.05, and the attitude variable with pulmonary TB patient compliance, namely 47 people (77%) with a p value of 0.003 <0 .05 (Dasopang, Hasanah, and Nisak 2019).

According to Notoadmojo (2016), knowledge is an indicator of a person taking someone's action towards something. If someone is based on good knowledge of health, then that person will understand how health is and encourage them to apply what is known (Notoatmodjo 2016).

Correlation between Age and Successful Therapy for TB Patients

The table above shows that most of the patients were aged 41-> 60 years and 61.9% did not succeed in TB therapy. Statistical test results showed that there was no relationship between age and successful therapy for TB patients (p = 0.280) at a significant level of α greater than 0.05. with an OR value of 1,535 (0.704-3.346) states that people aged 41-> 60 years are twice as successful as people aged 41-> 60 years.

Unproductive age (> 50 years) in treating pulmonary TB is complicated by treatment for other accompanying diseases, causing increased drug side effects, drug withdrawal, and increased cases of re-medication and resistance to Anti-Tuberculosis Drugs (OAT). This can be due to reduced drug absorption associated with physiological changes related to age and strength to fight infection (Pamungkas, 2021). At the beginning of birth the body's defenses are very weak and will increase slowly until the age of 10 years, after puberty the body's defenses are better at preventing the spread of infection through the blood, but weak at preventing the spread of infection in the lungs. The age level of unproductive patients can affect the effects of the drug, because drug metabolism and organ function are less efficient in very young babies and in the elderly, so that it can have a stronger and longer effect on both age groups (Dedy, Sagita, and Artawan 2022).

The Relationship between Education and Successful Therapy for TB Patients

The table above shows that most of the patients had low education and 80.0% were successful in treating TB. -2,350) stated that education once had the opportunity to influence the success of TB therapy.

This research is in line with Yuda's 2019 study entitled The Relationship between Education Level and Compliance with Taking Medication in Patients with Pulmonary Tuberculosis. The results showed that the most pulmonary tuberculosis sufferers were in the group with primary school education as much as 43%, 76% of the patients were half adherent to taking medication, and there was no relationship between education level and adherence to taking medication in pulmonary tuberculosis patients (X2: 0.306, dk: 4, α : 0.01)(Yuda 2019).

Relationship between Gender and Successful Therapy for TB Patients

The table above shows that the majority of patients were male and 37.5% of TB patients were successful. female.

The TB case detection rate is higher in males than females which may reflect exposure to infection risks (including sedentary lifestyles such as smoking and work with indoor or outdoor pollutants) and disease progression. Factors that influence the success of treatment are the difficulty of access to health care facilities, the behavior of seeking health care facilities, and stigma. Limited information, transportation, and health and financial dependence (medical costs) can cause difficulties for female TB patients to seek treatment due to concerns about the effect of the TB diagnosis he received (Andarwati et al. 2020).

Occupational Relations with TB Patient Therapy Success

The table above shows that most of the patients did not work and successfully carried out TB therapy as much as 42.9%. The results of statistical tests showed that there was a relationship between work and the success of therapy for TB patients (p = 0.003) at a significant level of α equal to 0.05 with an OR value of 3,545 (1,591-7,903) stating that working was 4 times more successful than people who did not work.

In relation to the success of TB treatment, there are several factors that can affect the success of TB treatment such as employment, economic status, role of PMO, level of knowledge, presence of multidrug resistance (MDR TB), adherence to treatment, role of cadres, role of health facilities, distance and family support. . In this study, researchers obtained data that work affects the success of treatment of TB patients. This is because patients who work sometimes tend to forget about the drugs they are taking, so this is the trigger for patients not to recover and further treatment is carried out for sufferers (Wahyuni and Cahyati 2020).

The Relationship between Family Support and TB Patient Therapy Success

The table above shows that most of the patients received family support and managed to carry out TB therapy as much as 50.9%. statistical test results showed that there was a relationship between family support and the success of TB patient therapy (p = 0.010) at a significant level α equal to 0.05 with an OR value of 3,288 (1,394-7,757) stating that people who received support from family were 3 times more successful than people who no support from family.

According to research conducted by (Rismayanti et al. 2021) it shows that there is a relationship between family support and patient success in treating pulmonary TB. Family support greatly supports the success of the treatment of pulmonary TB patients by always reminding sufferers to take medicine, deep understanding of patients who are sick and encouraging them to remain diligent in treatment. Family support is needed to encourage pulmonary TB patients by showing concern and sympathy, and caring for patients. Family support that involves emotional concern, assistance and affirmation, will make the patient feel comfortable.

The Most Dominant Factor in the Success of TB Patient Therapy

The variables tested in the third stage of the regression (logistic regression) were all independent variables that were declared significant at p<005 in the bivariate analysis. The results of the analysis of variables using the logistic regression test show that the analysis of adherence of drug users in TB patients to therapy success using linear logistic statistical tests found that the independent variables that have a significance value of <0.05 are adherence with a value of 0.000, knowledge with a significance value of 0.001 and work with a significance value of 0.037. Independent variables that have a significance value of <0.05, are then entered into the equation. Because the probability or predictive value is 94%, less adherence, less knowledge, and not working have an effect on the failure of therapy.

Pulmonary TB treatment which requires a long period of time has a strong effect on the results of therapy. Most patients who are unsuccessful are patients who are not compliant during treatment visits because the patients experience goodness so they do not return for treatment. According to (Amalia 2020) states that patients are not regular in treatment during the intensive phase because there is inadequate motivation for adherence to treatment and patients feel good at the end of the intensive period so they do not need to return for treatment. Compliance only partially affects the success of therapy. Other factors that can affect the success of therapy in tuberculosis patients such as factors from the health system, environmental factors and family support. Of these factors, all of them greatly influence the success of therapy, but what most encourages sufferers to be compliant in taking their medication, encourages treatment success and does not avoid sufferers because of their illness. In this way, it is hoped that health workers can play an active role by applying the concept of pharmaceutical care so that adherence can be increased so that The success of pulmonary tuberculosis therapy can be increased (MISFALLAH 2020).

CONCLUSION

The results showed that there was a relationship between adherence and successful therapy for TB patients (p = 0.000), there was a relationship between knowledge and successful therapy for TB patients (p = 0.000), there was no relationship between age and successful therapy for TB patients (p = 0.280), there was no gender relationship with successful therapy for TB patients (p= 0.856), there is a relationship between education and successful therapy for TB patients (p= 0.200), there is a relationship between work and successful therapy for TB patients (p= 0.003), there is a relationship between family support and successful therapy for TB patients (p = 0.010) and multivariate analysis that lack of compliance, lack of knowledge and not working has an effect on the failure of therapy. It is hoped that the health workers at the Medan Deli Health Center will provide encouragement, in addition to providing counseling and education about tuberculosis to all ages and genders to increase patient knowledge about the factors supporting the success of therapy in tuberculosis patients.

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