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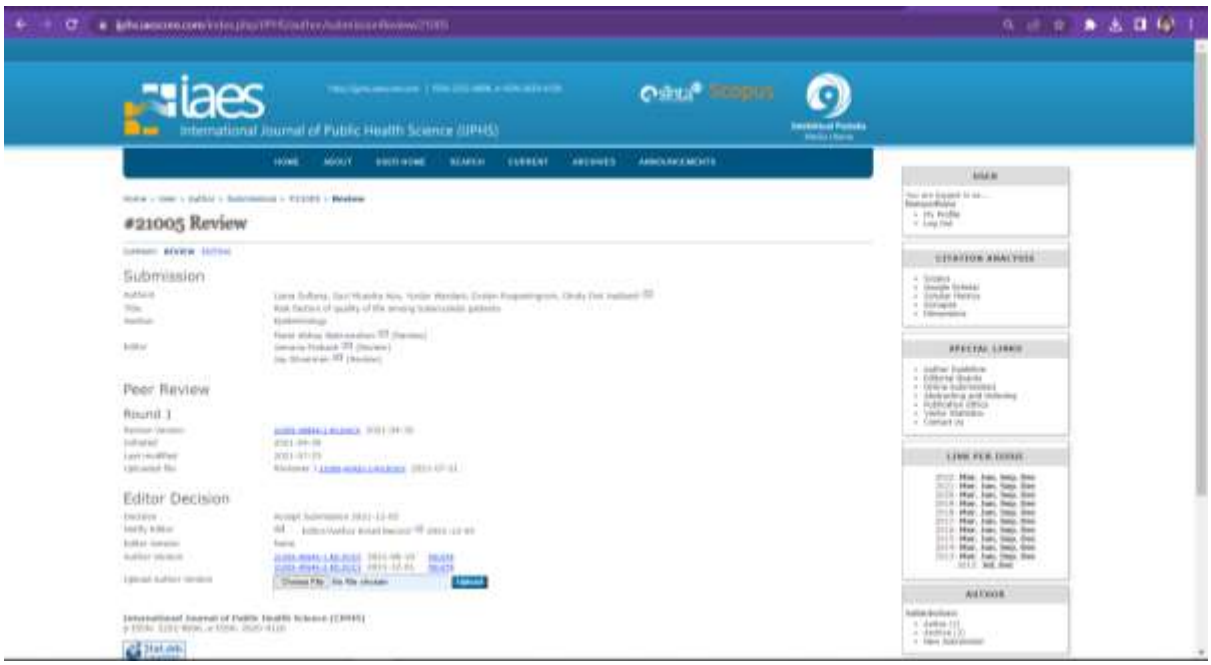

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Risk Factors of Quality of Life in Tuberculosis Patients: Sleman Regency, Indonesia

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ABSTRACT (10 PT)

Indonesia ranks third with the highest burden of tuberculosis (TB) in the world. Therefore, Indonesia still has problems related to tuberculosis control by contributing 8% of tuberculosis cases in the world. The case findings were in 2018 and found 1,016 people with positive smear as many as 436 TB disease can have an impact that affects the quality of life of patients. The purpose of this study was to analyze the risk factors to the quality of life of TB patients in Sleman Regency, Special Region of Yogyakarta, Indonesia. This research is an analytic observational study with a cross-sectional design. Respondents of the study were 2nd trimester TB patients who were still undergoing treatment at all Puskesmas in Sleman Regency, DIY in 2020. Sampling was conducted using purposive sampling technique. Quality of life was measured using the WHOQOL-BREF questionnaire, and questionnaires for knowledge, self-efficacy, family support and medication adherence were measured using the Morisky Medication Adherence Scale. Data analysis was performed using the chi-square test. Factors related to the quality of life of TB patients were self-efficacy (sig= 0.013; RP= 2.295) and medication adherence (sig= 0.014; RP= 8.333). Factors not related to the quality of life of TB patients were knowledge (sig= 0.384; RP= 0.709) and family support (sig= 0.227; RP= 0.419). Self-efficacy and medication adherence are risk factors for quality of life in tuberculosis patients in Sleman Regency, Yogyakarta Special Region.

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1. INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis [1]. TB is a disease that is a burden in various countries and is the top 10 cause of death in the world. Globally, the number of new TB cases in 2018 is estimated to be around 10 million cases, and the incidence of TB in Indonesia recorded in WHO data was 316 cases per 100,000 population and the mortality rate was 35 deaths per 100,000 population [2].

Sleman Regency is one of the districts that has the highest TB treatment success rate in DIY [3]. However, although the success rate is high, the number of TB case findings that prove to be smear positive in Sleman is still high and has continued to increase in the last 3 years. In 2016, the total TB cases in Sleman were 747 cases, and BTA positive was 347 cases. In 2017, positive cases increased to 372 cases of BTA positive from a total of 844 cases found. Then it continued to increase to 436 positive smear cases in 2018{Formatting Citation}.

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TB disease can affect the quality of life of sufferers from physical, psychological, social and environmental health. The data showed that 62.5% of TB patients had a low quality of life [5]. Quality of life itself is defined as the perception of their position in life both in the cultural and value systems according to where they live and in relation to their goals, hopes, standards and interests during their lifetime [6]. Quality of life can affect a person's health condition, the severity of the disease, the length of treatment, and can even aggravate the condition [5].

The quality of life of tuberculosis patients is an important thing to assess because it can affect the successful treatment of tuberculosis patients [7]. Decreased quality of life can adversely affect the continuity of treatment being irregular or incomplete [8]. Tuberculosis treatment that is irregular or incomplete can cause resistance of tuberculosis bacteria to Anti-Tuberculosis Drugs (OAT) or called Multiple Drug Resistance [9]. Meanwhile, a good quality of life can increase the chances of recovery for tuberculosis patients [10]. The quality of life of tuberculosis patients can be improved by adherently taking anti-tuberculosis drugs, increasing self-efficacy and having good knowledge regarding the disease [11],[12],[13].

Self-efficacy is an individual's belief to achieve something with its full potential [14]. Self-efficacy has an important role in controlling individual behavior including control of their health [15]. Studies have shown that there is a relationship between self-efficacy and quality of life for tuberculosis patients [12],[13]. Good knowledge will lead to an attitude to respond to something based on what is believed [16]. Research shows that there is a relationship between the level of knowledge and the quality of life of tuberculosis patients [17].

Previous research has shown that the quality of life is influenced by various factors, one of which is family support. Family support has an important role in the quality of life of pulmonary TB patients [18]. TB patients with high family support have 6 times better quality of life compared to patients who have low family support [19]. Patients with good family support have greater motivation and enthusiasm to undergo the treatment process until they recover [20].

Apart from family support factors, the quality of life is also influenced by compliance. The results of previous studies indicated that there was a significant relationship between the level of adherence to taking medication and the quality of life of TB patients. The higher the medication adherence of TB patients, the greater the chance of successful treatment [21]. Adherence has a unidirectional relationship with quality of life [22].

Based on the description above, the researcher is interested in conducting research related to the relationship of self-efficacy, level of knowledge, family support, medication adherence to the quality of life of tuberculosis patients in Sleman Regency, Yogyakarta Special Region.

2. RESEARCH METHOD (10 PT)

This research is a quantitative study with a cross sectional approach. This research was conducted in April-December 2020 in Sleman Yogyakarta, Yogyakarta. The population of this study were 2nd trimester TB patients (April-June) who were still undergoing the treatment process in all Puskesmas Sleman Regency, DIY in 2020. The sample in this study was 52 people based on the sample size formula, the sample technique used was purposive sampling with meet the requirements that the patient is still in treatment, at least 15 years old and willing to be a respondent. The instrument used in this study was the WHOQOL-BREF questionnaire, knowledge, self-efficacy, family support and medication adherence from the Morisky Medication Adherence Scale. Data analysis to test the hypothesis of the relationship between the independent variable and the dependent variable is the chi square test.

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3. RESULTS AND DISCUSSIONS

3.1. Characteristics of the Respondents

Characteristics of respondents based on gender, age, education level, marital status, employment status, and education level are presented in table 1 below.

Table 1.Frequency Distribution of Respondent Characteristics in the Public Health Center in the Sleman Regency Work Area in 2020

Respondents' Characteristics	Frequency (people)	Percentage (%)
Gender		
Male	26	50
Female	26	50
Age (Year)		
Non Productive	5	9.6
Productive	47	90.4
Education		

Low (PS, JHS)	17	32.7
HIgh (SHS, College)	35	67.3
Marital Status		
Married	30	57.7
Single	22	42.3
Occupational Status		
Working	27	51.9
Not working	25	48.1
Income		
Low (< minimum wage)	29	55.8
High (≥ minimum wage)	23	44.2

Based on Table 1. 50% of respondents are female and 50% are male. Most of the respondents belonged to the productive age group, namely as many as 47 people (90.4%) and had a high education level of 35 people (67.3%). The table above also shows that the majority of respondents are married, as many as 30 people (57.7%), 27 people (51.9%) have worked, and 29 people (55.8%) have a family income level below the minimum wage.

3.2. Analysis of factors related to quality of life in TB patients

The relationship between knowledge, self-efficacy, family support, adherence to taking medication with quality of life in tuberculosis patients is presented in table 2 below.

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Table 2.Analysis of factors related to quality of life in TB patients at the Puskesmas in the Sleman Regency Work Area, 2020.

Variable	Quality of Life				Total		p-*value*	Ratio Prevalence (CI 95%)
	Lacking		Good					
	n	%	n	%	n	%		
Knowledge								
Low	9	39.1	14	60.9	23	100	0.384	*0.709*
High	16	55.2	13	44.8	29	100		(0.387-1.300)
Self-Efficacy								
Lacking	17	68.0	8	32.0	25	100	0.013	2.295
Good	8	29.6	19	70.4	27	100		(1.210-4.355)
Family Support								
Lacking	7	35.0	13	65.0	20	100	0.227	0.419
Good	18	56.3	14	43.8	32	100		(0.132-1.328)
Obedience								
No	11	84.6	2	15.4	13	100	0.014	8.333
Yes	14	35.9	25	64.1	39	100		(1.604-43.288)

Based on table 2, showed that factors related to the quality of life of TB patients were self-efficacy (sig= 0.013; RP= 2.295) and medication adherence (sig= 0.014; RP= 8.333). Factors not related to the quality of life of TB patients were knowledge (sig= 0.384; RP= 0.709) and family support (sig= 0.227; RP= 0.419).

Knowledge and Quality of Life in Tuberculosis Patients

The results of statistical tests showed that the level of knowledge did not have a significant relationship with the quality of life of tuberculosis patients. If it is seen from the proportion of the results, it shows that respondents who have less knowledge have a good quality of life, on the other hand, respondents who have a good level of knowledge have more quality of life. Therefore, it may not show a statistically significant relationship. This could be due to the relatively small number of respondents taken as the research sample with a heterogeneous population size of the regency area so that it could affect the results of the study. The larger the sample size, the less likely the result will be error due to sample error, the degree of population heterogeneity also affects the probability of sample error, and therefore, the more heterogeneous a population is, the larger the sample should be taken [23].

Another thing that may also be the cause of the absence of a relationship between the level of knowledge and the quality of life of tuberculosis patients is that the sampling carried out using a questionnaire allows the quality of the answer to depend on the honesty of the respondent so that bias can occur based on the respondent's

answer. The weakness of using questionnaires is that respondents are often not accurate in their answers so that something is overlooked, sometimes respondents deliberately give dishonest answers[24].

This study is in line with previous studies which stated that there was no relationship between the level of knowledge and quality of life [25]. The absence of a relationship between knowledge and quality of life could be because the knowledge possessed by patients is knowledge about TB disease, not specific knowledge about the quality of life that TB patients must do. Respondents who do not have specific knowledge cannot identify what kind of care activities should and should be done [26]. Someone who has broader knowledge can control himself in overcoming the problems faced and can shape the quality of life [18].

Self-Efficacy and Quality of Life in Tuberculosis Patients

The results of statistical tests showed that quality of life had a significant relationship with tuberculosis patient self-efficacy. Self-efficacy in both patients is influenced by the characteristics of patients who are mostly well-informed (55.8%) and the level of higher education (67.3%) which causes easy absorption of information by patients. Knowledge is an important factor in the formation of self-efficacy because knowledge is used by individuals as a basis for making attitudes and behavior [27]. Other factors that can affect self-efficacy are experience of mastering something, social persuasion, education level, physical and emotional conditions. Most of the research respondents were of productive age (90.4%) and had jobs (51.9%). This makes it easier for patients to socialize with others and obtain additional information regarding their illness, as well as get emotional support[28].

Good self-efficacy will encourage patients to undergo complete treatment so that the patient's quality of life will also improve and vice versa. self-efficacy is useful in predicting health behavior and quality of life across a variety of conditions. Self-efficacy can predict adherence (taking medication), health behavior (physical activity), effective pain management and disease management [29].

Self-efficacy is a person's belief in his abilities that can affect his life. Self-efficacy determines how a person feels, thinks, motivates himself and behaves[30]. The self-efficacy of a tuberculosis patient affects the ability to access health services, the belief is that they have enough money for medical treatment, the ability to use a vehicle and the belief that they have enough time to carry out health checks at health services [31].

Previous studies have also suggested that there is a close and positive relationship between self-efficacy and quality of life for tuberculosis patients [32]. Good self-efficacy has a 5.850 times chance of showing a better quality of life than those with poor self-efficacy[32].

Family Support and Quality of Life in Tuberculosis Patients

Family support is an attitude and action as a family response to family members. Family support can be in the form of information support, assessment support, instrumental support and emotional support[33]. Family support is also defined as the most important element to help someone solve problems. The existence of family support makes a person have a higher self-confidence and motivation to face any problems[34].

The results of the chi square test show that statistically there is no relationship between family support and quality of life for TB patients. The results of this study are not in line with the research conducted at Puskesmas Paraman Ampalu, West Pasaman Regency. The results of this study indicated a relationship between family support and quality of life in pulmonary TB patients [35]. Other studies have shown that patients with high family support are 6 times more likely to have a good quality of life compared to patients with low family support [19].

However, the results of this study did not indicate a relationship between family support and quality of life for TB patients. Researchers believe family support has a role in determining the quality of life of patients. The family functions as a support system or support system for other family members who are sick [36]. The importance of family support is related to the recovery of TB patients. The existence of good support from the family will improve the quality of life of TB patients. Therefore, with an increase in the quality of life of TB patients, it will have an impact on the level of patient health[5].

Family is the closest person and most understands the sufferer's condition. When there is a family member who is sick, other family members will certainly provide positive support for the sufferer to recover. The sense of empathy that is owned in the family towards fellow members tends to be higher than that of others. With high empathy, it will encourage families to provide full support for anyone who is sick in their family [37].

The family role referred to in this case is the family behavior in providing care to family members who suffer from TB disease. For example, being a supervisor when a patient is taking medication, providing nutritious foods. Family also has a role to provide enthusiasm or motivation to undergo treatment, pay attention to personal hygiene and environmental cleanliness around the patient and the like [38].

Family support, both social, emotional, rewarding, instrumental and informative support, has a direct relationship with a person's quality of life. The better the family support, the better the patient's quality of life

will be. Vice versa, the worse the family support provided, the more likely the patient will have a lower quality of life [20].

Medication Adherence and Quality of Life in Tuberculosis Patients

Adherence is a term to describe the patient's behavior in swallowing the drug correctly according to the dose, frequency, and time[39]. The behavior of pulmonary TB patients in taking medicine requires direct supervision by the drug taking supervisor (PMO). This is done to reduce patient neglect in carrying out the treatment process and reduce the risk of treatment failure [40].

The results of the chi square test showed a significant relationship between medication adherence and quality of life for TB patients. This result is in line with the research conducted at MDR poly TB hospital Arifin Ahmad Pekanbaru. This research shows that the sig= 0.037 (<0.05). That is, there is a significant and unidirectional relationship between adherence and quality of life in TB patients. Patients with high levels of adherence have a quality of life 5.000 times better than patients with low adherence [21].

Based on the research results, it is known that most of the respondents were new tuberculosis sufferers or were still in the early phase of treatment. In the initial phase of treatment, patients tend to have high adherence. In the early phase of treatment, the patient was enthusiastic and still disciplined in carrying out the treatment. In addition, in the early phase of treatment, the side effects caused by the drugs that are consumed have not been felt or have not caused disturbances [21].

Patients who were not adherent had a greater risk of experiencing treatment failure. If the patient is not compliant, the treatment process will return from the beginning and become longer. The longer the treatment, the side effects that arise due to treatment will be more frequent and can become more severe[5]. The side effects caused by consuming TB drugs can cause changes in respondents including changes in the dimensions of quality of life, namely physical, psychological, environmental and social interrelation [21].

In this study, patients may not have experienced any disturbances or side effects from the treatment process that could affect the patient's quality of life because they are still in the early stages of treatment. So it can be assumed that the patient has a good quality of life, from a physical, psychological, environmental and social perspective. The results of this study also showed a positive correlation between medication adherence and quality of life for TB patients. This means that the higher the compliance with taking medication, the better the quality of life for TB patients, and vice versa.

The results of this study are not in line with research in the Sumbersari Health Center, Jember Regency. The results showed that the P-value was 0.44 and the value of r = 0.12. This means that there is no relationship between medication adherence and quality of life for pulmonary tuberculosis patients and the strength of the relationship between variables is very weak [40].

4. CONCLUSION

The factors related to the quality of life of TB patients were self-efficacy and medication adherence, while factors not related to the quality of life of TB patients were knowledge and family support. Patients are expected to be able to seek more information related to tuberculosis. Patients are expected to have the confidence to recover by regularly taking medication and doing positive things such as exercising. The patient's family is expected to play an active role as a companion or supervisor of taking medication (PMO) while the patient is undergoing the treatment process.

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