Medical Sains : Jurnal Ilmiah Kefarmasian
Vol. 8 No. 4, October – December 2023
https:/ojs.stfmuhammadiyahcirebon.ac.id/index.php/iojs

CORRELATION OF MEDICATION ADHERENCE WITH THE CHARACTERISTICS AND QUALITY OF LIFE OF TUBERCULOSIS PATIENTS IN DR. DRADJAT PRAWIRANEGARA HOSPITAL

Yusransyah Yusransyah[1*], Rozwaliza Annintan[1], Farahdina Chairani[1], Baha Udin[1,2]

[1]*Program Studi S1 Farmasi, Sekolah Tinggi Ilmu Kesehatan Salsabila Serang, Banten, Indonesia*

[2]*Program Studi Magister Farmasi, Fakultas MIPA, Universitas Islam Indonesia, Yogyakarta, Indonesia*

**Email Corresponding: yusransyah@iai.id*

Submitted: 12 October 2023 ***Revised: 24 October 2023*** ***Accepted: 8 November 2023***

ABSTRACT

Tuberculosis remains a health threat in Indonesia because its prevalence is relatively high; therefore, special tuberculosis control is needed. One way to control tuberculosis is to increase compliance with treatment, which can affect quality of life. The main objective of this study was to determine the relationship between the level of treatment compliance and the characteristics and quality of life of patients at dr. Dradjat Prawiranegara Serang Hospital. This study used a cross-sectional, observational research method. Data were collected by distributing questionnaires filled out through direct interviews with the patients. The questionnaires used were the MARS and EQ-5D-5L questionnaires were used. The subjects in this study were outpatients with tuberculosis who were undergoing treatment at our hospital. The Drajat Prawiranegara Serang Hospital met the inclusion and exclusion criteria. Sequential sampling was used as a sampling technique in this study. Statistical data analysis was performed using the chi-square test and correlation. The number of respondents in this study who met the inclusion criteria was 30. As many as 80.0% of tuberculosis patients adhere to taking medication, and 83.3% of tuberculosis patients have a good quality of life. The results of statistical tests show that there is a relationship between the level of compliance of tuberculosis patients and the level of knowledge, income, attitude of health workers, and family support. In contrast, the variables of the level of education, employment, motivation, distance to health facilities, and quality of life did not have a significant relationship with the level of tuberculosis patient compliance. This research can be used as an evaluation material for tuberculosis control policymakers regarding the importance of efforts to increase treatment compliance in patients with TB.

Keywords: Tuberculosis, MARS, EQ-5D-5L, Adherence, Quality of Life

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*. Apart from *Mycobacterium tuberculosis*, Mycobacterium species in the Acid-Fast Bacteria (BTA) group include *M. leprae, M. bovis, M. africanum, M. tuberculosis*, and so on. Tuberculosis is an airborne disease that spreads through air. The spread of tuberculosis can occur when tuberculosis sufferers emit droplets when coughing, talking, or singing, so that someone in their environment is at risk of suffering from tuberculosis (CDC, 2016; Kementrian Kesehatan RI, 2016).

The bacterial organism *Mycobacterium tuberculosis* is the etiologic agent responsible for the pathogenesis of tuberculosis, an infectious disease characterized mostly by pulmonary involvement, but with potential extrapulmonary manifestations. Tuberculosis is largely caused by the spread of phlegm in individuals who are positive for acid-fast bacteria

(BTA). Although the possibility of transmission is reduced, individuals with negative bacteriological tuberculosis results still have the potential to transmit TB (Rosadi, 2020). Although tuberculosis treatment has been carried out for decades, the number of tuberculosis cases has not decreased to date. Indonesia currently has the second-highest tuberculosis burden in the world (Kementrian Kesehatan RI, 2020).

Pulmonary tuberculosis (PTB) is not a new disease in Indonesia. According to WHO data, there are 130/100,000 cases of pulmonary tuberculosis in Indonesia. A total of 539,000 new cases have been identified, with a mortality rate of approximately 101,000 every year. It is estimated that three million out of nine million tuberculosis sufferers die annually. Of the three million tuberculosis deaths, 25% are preventable deaths (Papeo et al., 2021).

Serang Regency, the top location in Banten Province with the highest number of tuberculosis patients in 2019, is one of the administrative regions in Banten province that is still dealing with health problems related to tuberculosis. Based on data on new cases of BTA and tuberculosis, there were 79 cases per 100,000 people in 2017 and 190 cases per 100,000 people in 2018 (Azhari et al., 2022; Dinas Kesehatan Kabupaten Serang, 2018; Dinas Kesehatan Kabupaten Serang, 2019; Dinas Kesehatan Kabupaten Serang, 2020). There was an increase in 2019, and the number of cases reached 236.54 cases per 100,000 population in Serang Regency (Dinas Kesehatan Kabupaten Serang, 2020; Dinas Kesehatan Provinsi Banten, 2019).

Compliance is the extent to which a patient complies with treatment directions such as choosing a good lifestyle and treatment guidelines. Treatment compliance refers to the level of patient compliance when performing treatment. When a patient ignores the obligation to undergo therapy, recovery can be hindered so that the patient can be declared noncompliant in treatment. Tuberculosis is a disease that requires a long duration of treatment to carry out the therapy, so most patients get bored of taking medication. Apart from the saturation factor, patients with tuberculosis can sometimes stop using the drug before the specified duration, as recommended by the doctor. This occurs because of the patient's lack of awareness regarding the need to take medication in its entirety within a certain period and because of a lack of knowledge about tuberculosis, the treatment of which needs to be adhered to (Widiyanto, 2017).

Compliance in following the treatment process until completion can be a benchmark for the success of a health programme or intervention. Therefore, a treatment pattern is needed to increase compliance, completion of tuberculosis treatment, and early initiation of treatment. Compliance with tuberculosis treatment can be significantly influenced by several factors, including immigrant status, length of treatment, life history of tuberculosis patients, side effects of tuberculosis drugs, distance from the patient's home to health services, and the patient's perceived risk of tuberculosis (Gunawan et al., 2017).

A person's assessment of the quality of life is determined by his cultural background, personal values, and the environment in which he lives about his concerns, hopes, pleasures, and life goals. Each person's quality of life differs depending on how they handles a problem. If they take problems well, their quality of life will be good, and if they handle situations poorly, their quality of life will also be lousy (Alfauzan & Lucya, 2021).

Various efforts have been made to improve the quality of life of tuberculosis sufferers by implementing interventions that facilitate the healing process. This intervention emphasizes consistent drug administration according to established tuberculosis treatment principles. The main goals of tuberculosis treatment include achieving a cure, preventing recurrence, preventing death, stopping transmission, and mitigating bacterial resistance to anti-TB drugs (OAT). Patients experience improved physical health due to the treatment provided, which affects their mental health, self-confidence, and overall social well-being (Alfauzan & Lucya, 2021). This study aimed to determine the relationship between the level of compliance and the characteristics and quality of life of patients with tuberculosis in the outpatient installation of an RSUD dr. Dradjat Prawiranegara Serang.

RESEARCH METHODS

This study used a cross-sectional, observational design. Consecutive sampling is the sample collection technique used in this research. The data used in this study were primary data. Primary data were obtained from the respondents' questionnaire answers. The target population of this study was tuberculosis patients treated as outpatients at RSUD dr. Drajat Prawiranegara Serang, between January and March 2023. Outpatients diagnosed with tuberculosis who met the inclusion and exclusion criteria. This study included patients with TB undergoing outpatient treatment, aged 18–65 years, able to communicate well, and willing to be respondents. Meanwhile, the exclusion criteria determined in this study are tuberculosis patients who are not ready to be respondents and cannot write and read.

The selection criteria for inclusion were patients with tuberculosis undergoing outpatient treatment because this research obtained data appropriate to the respondent's condition. The age of respondents was selected as 18−65 years as an inclusion criterion, namely that this age is a productive age closely related to the quality of life in activities. Respondents who cannot write and read are excluded because to increase the accuracy of the data, the respondents must fill out the questionnaire.

The research instruments used consisted of Informed Consent, a demographic questionnaire sheet, the Medication Adherence Report Scale (MARS) questionnaire to assess the level of treatment compliance of tuberculosis patients, and an EQ-5D-5L (Euroqol-5 Dimension-5 Level) Questionnaire to assess the quality of life of patients with tuberculosis. The MARS and EQ-5D-5L questionnaires were adapted to Indonesian to increase the respondents' understanding of the questionnaire. Informed consent was used as a sign of the patient's willingness to participate in this research voluntarily or without any coercion from any party after the researcher explained the risks that may occur. The demographic sheet is used to obtain information regarding the characteristics of respondents, including education level, gender, length of time suffering from tuberculosis, age, level of knowledge, income, attitude of health workers, working status, motivation, family support, and distance to health services. Respondents can answer "Yes" or "No" to the variables of the level of knowledge, income, attitude of health workers, motivation, family support, and distance to health services.

The Medication Adherence Report Scale (MARS) questionnaire was used to determine the respondents' level of adherence, consisting of 5 questions. The questionnaire used an ordinal scale of answers namely respondents who answered "Selalu" got a score of 5, "Sering" got a score of 4, "Kadang-Kadang" got a score of 3, "Jarang-Jarang" got a score of 2, and "Tidak Pernah" got a score of 1 The questionnaire has been tested for validity and reliability in research conducted by Yusransyah et al. (2023) with results showing that all questions are valid and reliable. Validation and reliability tests were conducted on the questionnaire used in this research on 30 respondents. The validation test results show a Pearson correlation value of 0.387−0.839, so it can be stated that all questions are more than the r-table value of 0.349, which means that all questions can be declared valid. In addition, the reliability test results using Cronbach's alpha showed a value of 0.691 (>0.600); therefore, it can be considered reliable.

The EQ-5D-5L questionnaire was used to determine respondents' quality of life. The EQ-5D-5L consists of 5 dimensions that indicate quality of life: ability to walk, self-care, usual activities, pain/comfort, and anxiety/depression. Each dimension had 5 answer choices indicating the respondent's abilities, ranging from not feeling/difficulty to feeling very much. Each dimension consists of five levels, namely level 1: no difficulty, level 2: slight difficulty, level 3: moderate difficulty, level 4: very difficult, and level 5: extreme. Respondents are asked to choose between 1: 'no problem' to 5: 'unable/extreme problem'. EQ-5D-5L utility index values from '11111 to 55555.' The Indonesian utility set value for '11111' is 1.000, which is considered the best health status, '55555' is - 0.865 which is stated as the patient's health status is worse than death / very sick, and the utility index value is 0 for the worst health status (died). The EQ-5D-5L questionnaire in this study was tested on patients with TB by Tondok et al. (2021). The validity test results show that the calculated r-value

(0.680−0.805) is greater than the r-table (0.361); therefore, all questions can be declared valid. The results of the reliability test on the EQ-5D-5L questionnaire were 0.799 (>0.600), indicating reliability.

The data were analyzed using univariate and bivariate tests. Univariate tests were carried out with the aim of obtaining information on the frequency and percentage of respondent characteristic answers to the MARS and EQ-5D-5L questionnaires. Bivariate tests were used to determine the relationship between the level of knowledge and the respondents' characteristics and quality of life. The bivariate test used in this study was the chi-square statistical test. The chi-squared test was used to test the relationship between the level of compliance and respondent characteristics. In the chi-squared test, if the significance result is less than 0.05, it can be stated that there is a relationship.

RESULTS AND DISCUSSION

After collecting the data, 30 respondents were obtained, who could be used in this research. The distribution of the MARS questionnaire to all respondents resulted in tuberculosis patient compliance levels, which can be seen in Table I.

Table I. Frequency Distribution of Respondents Based on Level of Treatment Compliance

Treatment Compliance Rate	Frequency (n)	Percentage
Obedient	24	80%
Not obey	6	60%
Total	**30**	**100%**

Table I shows the level of compliance of patients with tuberculosis at the RSUD dr. Dradjat Prawiranegara Serang. The results of the study are based on Table I, namely, that most respondents in this study adhered to tuberculosis treatment. There were 24 respondents (80%) who adhered to tuberculosis treatment, and 6 respondents (20%) did not comply with tuberculosis treatment. The level of adherence can be influenced by several factors such as patient characteristics, therapeutic factors, and socioeconomic factors (Al AlShaikh et al., 2016).

The characteristics of respondents in this study included gender, age, occupation, income, education level, motivation, distance to health access, family support, attitudes of health workers, and level of knowledge. Table II shows the distribution of the respondents' characteristics and their relationship with the level of compliance with the treatment of tuberculosis patients.

Table II. Distribution of the Relationship between Treatment Compliance Levels and Respondent Characteristics

Characteristics		Compliance level						*P-Value*
		Obedient		Not obey		Total		
		n	%	n	%	n	%	
Age	18-40 Years	10	33.3%	4	13.3%	14	46.7%	0.272
	41-65 Years	14	46.6%	2	6.6%	16	53.3%	
Sex	Male	16	53.3%	6	20.0%	22	73.3%	0.099
	Female	8	26.7%	0	0%	8	26,7%	
Level of education	SD/ Equal	4	13.3%	1	3.3%	5	16,7%	0.789
	SLTP/ Equal	9	30.0%	1	3.3%	10	33,3%	
	SLTA/ Equal	8	26.6%	3	10.0%	11	36,7%	
	S1/ Equal	3	10.0%	1	3.3%	4	13,3%	
Job-status	Have Work	12	40.0%	4	13.3%	16	53,3%	0.464
	Not Having Work	12	40.0%	2	6.6%	14	46,7%	
Financial	> IDR 1 million	16	53.3%	0	0%	16	53,3%	0.003

income	< IDR 1 million	8	26.6%	6	20.0%	14	46,7%	
Motivation	High	19	63.3%	4	13.3%	23	76,7%	0.517
	Low	5	16.6%	2	6.6%	7	23,3%	
Distance to health access	Far	9	30.0%	4	13.3%	13	43,3%	0.197
	Near	15	50.0%	2	6.6%	17	56,7%	
Family support	High	20	66.6%	1	3.3%	21	70%	0.001
	Low	4	13.3%	5	16.6%	9	30%	
Attitude of health workers	Good	21	70.0%	3	10.0%	24	80%	
	Poor	2	10.0%	3	10.0%	6	20%	0.040
Knowledge level	High	19	63.3%	1	3.3%	20	66.7%	0.004
	Low	5	16.6%	5	16.6%	10	33.3%	

The characteristics of respondents based on age showed that this study was dominated by respondents aged 41–65 years (53.3%). Age is a risk factor for the incidence of tuberculosis in Indonesia (Pralambang & Setiawan, 2021). This research is not the same as that conducted by Wahyuni et al. (2019), which showed that the majority of patients with TB were aged 18–17 years. The results of this study showed that 33.3% of respondents aged 18–40 years had a compliance level, while 13.3 who did not. For respondents aged 41–65 years, the level of medication compliance in the adherent category reached 46.6%, whereas for those who did not comply, it reached 6.6%. This shows the level of treatment compliance, with the highest compliance category in the 41–65 year age group. The chi-square test produced a p-value of 0.272 (>0.05), which indicated that there was no significant relationship between the age of tuberculosis patients and their level of treatment compliance. The findings of this study are in line with those reported by Absor et al. (2020), who showed no statistically significant relationship between age and the level of adherence to tuberculosis therapy in patients.

Table II also shows that data were obtained from 22 male respondents (73.3%) and 8 female respondents (26.6%). It can be stated that in this study, the majority of patients with tuberculosis were male. This research is in line with research conducted by Pongkorung et al. (2021), which showed that in their research, tuberculosis patients consisted of 17 men with tuberculosis and 7 women. In addition, Samsugito and Hambyah (2018) showed that the majority of tuberculosis cases occurred in men (58.1%). Likewise, in a study conducted by Agustian et al. (2022), 108 out of 206 tuberculosis patients were male. This can occur because men have habits that can reduce the body's immune system so that bacteria that enter the body can grow rapidly, including M. tuberculosis, which causes tuberculosis. These habits include smoking, drinking alcohol, and staying up late (Korua et al., 2015).

The results of this study showed that 53.3% of male respondents had medication compliance levels in the compliance category. Female respondents had a medication compliance level of 26.7% in the compliance category. Based on the results of the chi-square test, the p-value obtained was 0.099 (>0.05), indicating that there was no statistically significant relationship between sex and the level of treatment compliance in patients with TB. The results of this study are in line with the research conducted by Ariani (2019), which showed that there was no significant relationship between sex and level of compliance among patients diagnosed with tuberculosis.

The frequency distribution of characteristics based on the education level of respondents in the elementary/equivalent category was (16.6%), junior high school/equivalent was (33.3%), high school/equivalent was (36.6%), and bachelor's degree/equivalent was (13.3%), it can be stated that most respondents with the highest level of education were in the high school/equivalent group. This research is in accordance with the research conducted by Andriati and Sudrajat (2020), which showed that 89.3% of the total number of respondents had a final education level of high school or equivalent. In addition, this research is in line with research conducted by Wahyuni et al. (2019), with respondents who had a high school education (75%) being the majority category in their

research. The results of this study showed that the level of medication compliance in the adherent category was 13.3% of respondents with elementary school education, 30.0% with junior high school education, 26.6% with high school education, and 10.0% with a bachelor's degree. The chi-square test yielded results with a p-value of 0.789, which was above the significance level of 0.05, indicating that there was no significant relationship between the last education level of tuberculosis patients and the level of treatment compliance.

As shown in Table II, 16 respondents (53.3%) worked, and more than 14 (46.6%) did not. This research is not in accordance with the research conducted by Nailius and Ansari (2022), who showed that 68.3% of the participants did not work. The results showed that working and non-working patients had the same percentage of compliance in the compliance category (40.0 %). The chi-squared test produced data with a p-value of 0.464, which exceeded the significance level of 0.05. This study shows that there is no significant relationship between the level of treatment compliance of patients with TB and employment status. According to Papeo et al. (2021), there is a significant relationship between employment and level of compliance with tuberculosis treatment among patients. However, the results of this study contradict those of the previous study.

In this study, 16 respondents (53.3%) had an income of more than 1 million, and more than 14 respondents (46.6%) had an income of less than 1 million. This research is not in accordance with the research conducted by Versita et al. (2021), which shows that respondents with an income of less than 1 million are more numerous than those with an income of more than 1 million. According to the results of this study, the level of compliance in the treatment compliance category among respondents with an income > 1 million was 53.3%. The level of compliance in the compliance category for respondents with income below 1 million was 26.6%. The results of the chi-square test showed a statistically significant relationship between the income of patients with TB and the level of adherence to treatment ($p = 0.003$, $\alpha = 0.05$).

Table II shows that the majority of respondents have high motivation, with a percentage of 76.7%. This research is in line with research conducted by Disa et al. (2022), which showed that the majority of respondents in their research had good motivation, with a percentage of 56.7%. The results of this study showed that 63.3 level of patients in the compliant category had a high level of motivation. In comparison, respondents with low motivation showed a 16.6% compliance level in the compliant category.

Based on the chi-square test, a p-value of 0.517 (>0.05) was obtained, indicating that there was no significant relationship between motivation and the level of compliance of patients with TB. The results of this study contradict the statement in research conducted by Pameswari et al. (2016), which stated that one of the main factors in the level of treatment compliance in patients with TB is motivation or a strong desire to recover. Controlling disease with the aim of improving health or fertility is greatly influenced by motivation. In addition, motivation can increase self-confidence, which is a spiritual dimension, to increase treatment compliance.

In this study, the majority of respondents (56.6 %) were close to health facilities. These results are similar to those of Rani (2023), who showed that 56.1% of the total number of respondents were close to health facilities. The findings of this study revealed that 30.0% of the respondents who had distant access to health facilities were in the complaint category. In comparison, 50.0% of respondents who were close to health facilities had a compliance level in the compliance category.

Based on statistical analysis using the chi-square test, the significance value (0.197) exceeds the specified significance level of 0.05; therefore, it can be stated that there is no statistically significant relationship between distance to health facilities and the level of compliance with treatment of tuberculosis patients. The findings of this study are not in line with those of Yudiana et al. (2022) and Wulandari (2015), who found a statistically significant relationship between distance to health facilities and the level of compliance of tuberculosis patients. However, this study is in accordance with the research conducted by Rani (2023). The results showed that there was no significant relationship between distance

to health facilities and treatment compliance in patients with tuberculosis, which was indicated by a significance value of 0.218.

In this study, the level of family support was classified as high or low. In this study, the respondents dominated the high category of family support (70%). These results are in line with research conducted by Siallagan et al. (2023), with the results of respondents who received a high level of family support reaching 80%. The results of this study showed that individuals who received high levels of substantial support from their families showed a level of compliance in the obedient category of 66.6%. In comparison, 13.3% of respondents with low levels of family support had a level of compliance in the obedient category.

The chi-square test produces a p-value of 0.001, which indicates statistical significance at a significance level of 0.05. Therefore, it can be stated that there is a significant relationship between family support and the level of compliance in patients diagnosed with tuberculosis. Family support can increase attention, comfort, and appreciation in accepting the condition of tuberculosis patients; therefore, it is necessary for tuberculosis patients (Nasution & Tambunan, 2020). High motivation can occur due to family support. Family members must be able to understand and comprehend the conditions of patients with TB. Family support can take the form of building good relationships with tuberculosis patients, especially in the healing process, so that it can increase compliance with treatment (Nasution & Tambunan, 2020).

The attitude of the health workers in this study was found to be good, reaching 80%. These results show that the majority of respondents in this study received positive attitudes from health workers. This research was conducted by Herawati et al. (2020), with results reaching 51.6% of the total number of respondents who had good health worker attitudes. This study's results showed that the compliance level in the compliance category was 70.0% for respondents who felt health workers served them well. The level of compliance in the obedient category was 10.0% for respondents who experienced poor service based on the attitude of health workers.

The chi-square test produced a p-value of 0.040 ($p < 0.05$), which indicated a significant relationship between the attitude of health workers and the level of patient compliance with tuberculosis therapy. Health workers play an important role in improving the quality of health services for the community, including for patients with tuberculosis. One of the reasons for non-compliance with treatment in patients with TB is that there is no counseling and home visits that should be carried out by health workers (Muna & Soleha, 2018).

In this study, 20 respondents (66.6%) had a high level of knowledge and 10 respondents (33.3 %) had a low level of knowledge. These results are not in accordance with research conducted by Fitri et al. (2018), which showed that the majority of respondents had a low level of knowledge (76.5%). Respondents with high knowledge levels in the obedient category reached 63.3% and respondents with low knowledge reached 16.6%, respectively. As shown by the p-value listed in Table II, which is 0.004 (less than 0.05) from the chi-square test results, there was a significant relationship between the level of knowledge and the level of compliance of tuberculosis patients.

A person's perspective on their quality of life is based on the cultural context, attitudes, and value systems in which they live and how they relate to their living standards, levels of enjoyment, expectations, and personal judgments. The quality of tuberculosis patients in Indonesia can be assessed using the EQ-5D-5L with the utility value version, which consists of 5 dimensions: walking ability, self-care, routine activities, pain, and anxiety. The compliance of patients with tuberculosis can be measured using the MARS instrument. 80% of the 30 tuberculosis patients in this study who received OAT therapy were known to have high adherence, so it is important to determine whether there is a significant correlation between adherence and patient quality of life after receiving treatment for 4 weeks or more. According to a study by Papeo et al. (2021) at the Bandung City Health Center, the majority of respondents had high compliance and a statistically significant

relationship with quality of life in Dimension 2, namely the psychological aspect (WHOQOL-BREF).

Table III. Frequency Distribution of Respondents Based on Quality of Life

Quality of Life	Frekuensi (n)	Persentase
Good	25	83.3%
Poor	5	16.7%
Total	**30**	**100%**

Table III shows that the quality of life of respondents with a good quality of life was 25 respondents or a percentage reaching 83.3%. In comparison, the number of respondents with a poor quality of life was 5 respondents, or a percentage reaching 16.7%. This shows that most patients in this study had a good quality of life.

Table IV. The Relationship between the Level of Treatment Compliance and the Quality of Life of Tuberculosis Patients

	Compliance level	Quality of Life				Total	
		Poor		Good			
		n	%	n	%	n	%
Dimension 1	Not Obey	1	3.3	6	20.0	7	100
	Obedient	0	0	23	76.6	23	100
	Total	1	3.3	29	96.6	30	100
Dimension 2	Not Obey	1	3.3	7	23.3	8	100
	Obedient	1	3.3	21	70.0	22	100
	Total	2	6.6	28	93.3	30	100
Dimension 3	Not Obey	1	3.3	2	6.6	3	100
	Obedient	1	3.3	26	86.6	27	100
	Total	2	6.6	28	93.3	30	100
Dimension 4	Not Obey	0	0	6	20.0	6	100
	Obedient	1	3.3	23	76.6	24	100
	Total	1	3.3	29	96.6	30	100
Dimension 5	Not Obey	0	0	13	43.3	13	100
	Obedient	1	3.3	16	53.3	17	100
	Total	1	3.3	29	96.6	30	100

Table IV shows that the higher the level of patient compliance, the better the quality of life for all dimensions. Dimension 3, which describes the patient's routine activities, has the highest quality of life value compared to the other dimensions. Dimension 5, which describes the patient's anxiety level, has the lowest quality of life value.

Tuberculosis sufferers experience various changes that occur mentally, physically, and socially, such as weight loss, coughing, shortness of breath, and weakness, which affect the sufferer's daily life. These changes affect a person's outlook on life or quality of life, both in terms of health, physical, psychological, social, and environmental relationships. One of the healing factors for patients with tuberculosis is compliance with medication. Compliance is defined as the behavior of patients who have met officials who explain the plan and effects of a treatment and then agree to the plan and carry it out.

The quality of life of patients with TB is influenced by compliance with the treatment program, and with compliance in undergoing the treatment program, the patient's condition is expected to improve, and they will not feel the signs and symptoms of the disease so that they can improve the patient's physical, psychological, and social condition, the higher the level of patient compliance. The better the patient's quality of life. However, in undergoing a treatment program, sufferers need support from family, the environment, and health services (health workers). Therefore, it is hoped that sufferers will get good support, making it easier for sufferers to get information and knowledge about the disease and treatment. With the

support they receive, they will also be able to reduce the risk of spreading the disease and increase the cure rate for tuberculosis.

This study has limitations, namely, the category of patients who were respondents, the time of data collection, and the therapy used. The respondents in this study were tuberculosis patients undergoing outpatient therapy, but the category of tuberculosis patients was not explicitly determined. The time for data collection in this study was limited, and the research was only conducted at a particular time. Hence, the data obtained were compliance data for a short period. This study did not include the therapy received by respondents, which could result in not receiving medication that affects the quality of life.

CONCLUSION

A significant relationship was found between the level of knowledge, income, attitudes of health workers, family support, and treatment compliance level of TB patients. There was no significant relationship between level of education, employment, motivation, distance, and treatment compliance in patients with TB. The higher the level of patient compliance, the better the quality of life for all dimensions. It is necessary to carry out similar research in other hospitals or other health facilities so that it can be used as a comparison to find obstacles to tuberculosis treatment if there are significant differences in the results of each study. In addition, a program can be created that can increase compliance with treatment for tuberculosis patients so that they can also improve their quality of life.

REFERENCES

Absor, S., Nurida, A., Levani, Y., & Nerly, W. S. (2020). Hubungan Tingkat Pendidikan dengan Kepatuhan Berobat Penderita TB Paru di Wilayah Kabupaten Lamongan pada Januari 2016 – Desember 2018. *Medica Arteriana (Med-Art)*, *2*(2), 80. https://doi.org/10.26714/medart.2.2.2020.80-87

Agustian, M. D., Masria, S., & Ismawati. (2022). Hubungan Usia, Jenis Kelamin, dan Tingkat Pendidikan dengan Kejadian TB Paru di Wilayah Kerja Puskesmas Cibadak Kabupaten Sukabumi. *Bandung Conference Series: Medical Science*, *2*, 1120. https://doi.org/10.29313/bcsms.v2i1.2256

Al AlShaikh, S., Quinn, T., Dunn, W., Walters, M., & Dawson, J. (2016). Predictive Factors of Non-Adherence to Secondary Preventative Medication After Stroke or Transient Ischaemic Attack: A Systematic Review and Meta-Analyses. *European Stroke Journal*, *1*(2), 65–75. https://doi.org/10.1177/2396987316647187

Alfauzan, & Lucya, V. (2021). *Gambaran Kualitas Hidup pada Penderita Tuberkulosis di Asia: Literature Review*. *7*(3), 65–70.

Andriati, R., & Sudrajat, A. (2020). Analisis Faktor Kepatuhan Terapi Obat Anti Tuberkulosis Kombinasi Dosis Tetap pada Penderita Tuberkulosis di Puskesmas Serpong 1 Kota Tangerang Selatan. *Edu Dharma Journal: Jurnal Penelitian dan Pengabdian Masyarakat*, *4*(2), 53. https://doi.org/10.52031/edj.v4i2.60

Ariani, S. (2019). Hubungan Kepatuhan Minum Obat dengan Kualitas Hidup Pasien Tuberkulosis Paru di Wilayah Kerja Puskesmas Sumbersari Kabupaten Jember. *Skripsi Universitas Jember*, 1–124.

Azhari, A. R., Kusumayati, A., & Hermawati, E. (2022). Studi Faktor Iklim dan Kasus TB di Kabupaten Serang, Provinsi Banten. *Higeia Journal of Public Health Research and Development*, *6*(1), 93–105. https://journal.unnes.ac.id/sju/index.php/higeia

CDC. (2016). *TB Risk Factors*. https://www.cdc.gov/tb/topic/basics/risk.htm

Dinas Kesehatan Kabupaten Serang. (2018). *Profil Kesehatan Kabupaten Serang Tahun 2018*. Dinas Kesehatan Kabupaten Serang.

Dinas Kesehatan Kabupaten Serang. (2019). *Profil Kesehatan Kabupaten Serang Tahun 2019*. Dinas Kesehatan Kabupaten Serang.

Dinas Kesehatan Kabupaten Serang. (2020). *Profil Kesehatan Kabupaten Serang Tahun 2020*. Dinas Kesehatan Kabupaten Serang.

Dinas Kesehatan Provinsi Banten. (2019). *Profil Kesehatan Provinsi Banten 2019*. Dinas Kesehatan Provinsi Banten.

Disa, M., Matury, H. J. El, & Purba, B. B. (2022). Faktor-Faktor yang Mempengaruhi Tuberkulosis Paru di UPT Puskesmas Lawe Alas Tahun 2021. *Inovasi Kesehatan Masyarakat*, *3*(2), 25–33.

Fitri, L. D., Marlindawani, J., & Purba, A. (2018). Kepatuhan Minum Obat pada Pasien Tuberkulosis Paru. *Jurnal Ilmu Kesehatan Masyarakat*, *7*(01), 33–42. https://doi.org/10.33221/jikm.v7i01.50

Gunawan, A. R. S., Simbolon, R. L., & Fauzia, D. (2017). Faktor-Faktor yang Mempengaruhi Tingkat Kepatuhan Pasien Terhadap Pengobatan Tuberkulosis Paru. *Jom Fk*, *4*(2), 1–20.

Herawati, C., Abdurakhman, R. N., & Rundamintasih, N. (2020). Peran Dukungan Keluarga, Petugas Kesehatan, dan Perceived Stigma dalam Meningkatkan Kepatuhan Minum Obat pada Penderita Tuberculosis Paru. *Jurnal Kesehatan Masyarakat Indonesia*, *15*(1), 19. https://doi.org/10.26714/jkmi.15.1.2020.19-23

Kementrian Kesehatan RI. (2016). Hasil Riset Kesehatan Dasar Tahun 2018. *Kementrian Kesehatan RI*, *53*(9), 1689–1699.

Kementrian Kesehatan RI. (2020). *Pedoman Nasional Pelayanan Kedokteran Tatalaksana Tuberkulosis*. 282.

Korua, E. S., Kapantow, N. H., & Kawatu, P. A. T. (2015). Hubungan antara Umur, Jenis Kelamin, dan Kepadatan Hunian dengan Kejadian TB Paru pada Pasien Rawat Jalan di Rumah Sakit Umum Daerah Noongan. *Jurnal Unsrat*, 1–9. https://fkm.unsrat.ac.id/wp-content/uploads/2015/05/JURNAL-ELISA-S.-KORUA.pdf

Muna, L., & Soleha, U. (2018). Motivasi dan Dukungan Sosial Keluarga Mempengaruhi Kepatuhan Berobat pada Pasien TB Paru di Poli Paru Bp4 Pamekasan. *Journal of Health Sciences*, *7*(2), 172–179. https://doi.org/10.33086/jhs.v7i2.506

Nailius, I. S., & Anshari, D. (2022). Hubungan Karakteristik Sosial Demografi dan Literasi Kesehatan dengan Kepatuhan Minum Obat Pada Penderita Tuberkulosis di Kota Kupang. *Perilaku dan Promosi Kesehatan: Indonesian Journal of Health Promotion and Behavior*, *4*(2), 43. https://doi.org/10.47034/ppk.v4i2.6332

Nasution, Z., & Tambunan, S. J. L. (2020). *Hubungan Dukungan Keluarga dengan Kepatuhan Minum Obat pada Penderita TB Paru di Puskesmas Padang Bulan*. *7*(2), 71–76.

Pameswari, P., Halim, A., & Yustika, L. (2016). Tingkat Kepatuhan Penggunaan Obat pada Pasien Tuberkulosis di Rumah Sakit Mayjen H. A Thalib Kabupaten Kerinci. *Jurnal Sains Farmasi & Klinis*, *2*(2), 116. https://doi.org/10.29208/jsfk.2016.2.2.60

Papeo, D. R. P., Immaculata, M., & Rukmawati, I. (2021). Hubungan antara Kepatuhan Minum Obat (MMAS-8) dan Kualitas Hidup (WHOQOL-BREF) Penderita Tuberkulosis di Puskesmas di Kota Bandung. *Indonesian Journal of Pharmaceutical Education*, *1*(2), 86–97. https://doi.org/10.37311/ijpe.v1i2.11143

Pongkorung, V. D., Asrifuddin, A., Kandou, G. D. (2021). Faktor Risiko Kejadian TB Paru di Wilayah Kerja Puskesmas Amurang Tahun 2020. *Jurnal KESMAS*, *10*(4), 151–157.

Pralambang, S. D., & Setiawan, S. (2021). Faktor Risiko Kejadian Tuberkulosis di Indonesia. *Jurnal Biostatistik, Kependudukan, dan Informatika Kesehatan*, *2*(1), 60. https://doi.org/10.51181/bikfokes.v2i1.4660

Rani, R. septi. (2023). Analisis Kepatuhan Minum Obat TB Paru pada Masa Pandemi di Puskesmas Sukarami Kota Palembang Tahun 2022. *Jurnal Kesehatan Saelmakers PERDANA*, *6*(1), 179–189. https://doi.org/10.32524/jksp.v6i1.825

Rosadi, D. (2020). Faktor-Faktor yang Berhubungan dengan Kepatuhan Pasien Tuberkulosis Paru Terhadap Obat Anti Tuberkulosis. *Jurnal Berkala Kesehatan*, *6*(2), 80. https://doi.org/10.20527/jbk.v6i2.9452

Samsugito, I., & Hambyah. (2018). Hubungan Jenis Kelamin dan Lama Kontak dengan Kejadian Tuberkulosis Paru di Rumah Sakit A. Wahab Sjahranie Samarinda. *Jurnal Kesehatan Pasak Bumi Kalimantan*, *1*(1), 28–40.

Siallagan, A., Tumanggor, L. S., & Sihotang, M. (2023). *Hubungan Dukungan Keluarga dengan Kepatuhan Minum Obat pada Pasien Tuberkulosis Paru*. *4*(November), 1377–

1386.

Tondok, S. B., Watu, E., & Wahyuni, W. (2021). Validitas Instrumen European Qualitiy of Life (EQ-5D-5L) Versi Indonesia untuk Menilai Kualitas Hidup Penderita Tuberkulosis. *Holistik Jurnal Kesehatan*, *15*(2), 267–273. https://doi.org/10.33024/hjk.v15i2.4759

Versita, R., Yustisia, N., Rahmawati, S., & Ningsih, C. F. (2021). Hubungan Karakteristik Demografi terhadap Kepatuhan Kontrol Pasien Menjalani Pengobatan Tuberculosis (TBC) di Puskesmas Bintuhan Kabupaten Kaur Provinsi Bengkulu. *Health Sciences Study*, *Vol. 1 No.*(2), 55–62.

Wahyuni, E. N., Widyastuti, D. U., & Padoli. (2019). Faktor-Faktor yang Mempengaruhi Kepatuhan Klien TB Paru dalam Pengobatan di Wilayah Kerja Puskesmas Pacar Keling Surabaya. *Jurnal Keperawatan*, *XII*(2), 71–81. http://journal.poltekkesdepkes-sby.ac.id/index.php/KEP/article/view/1514

Widiyanto, A. (2017). Hubungan Kepatuhan Minum Obat dengan Kesembuhan Pasien Tuberkulosis Paru BTA Positif di Puskesmas Delanggu Kabupaten Klaten. *Interest : Jurnal Ilmu Kesehatan*, *6*(1), 7–12. https://doi.org/10.37341/interest.v6i1.71

Wulandari, D. H. (2015). Analisis Faktor-Faktor yang Berhubungan dengan Kepatuhan Pasien Tuberkulosis Paru Tahap Lanjutan untuk Minum Obat di RS Rumah Sehat Terpadu Tahun 2015. *Jurnal Administrasi Rumah Sakit Indonesia*, *2*(1), 17–28. https://doi.org/10.7454/arsi.v2i1.2186

Yudiana, R., Zulmansyah, & Garna, H. (2022). Hubungan Jarak Rumah ke Puskesmas dengan Kepatuhan Pengobatan Pasien Tuberkulosis Paru di Puskesmas Patokbeusi Subang. *Bandung Conference Series: Medical Science*, *2*(1), 14–17. https://doi.org/10.29313/bcsms.v2i1.172

Yusransyah, Y., Lutfiyah, F., Safitri, E., & Udin, B. (2023). *Faktor-Faktor yang Mempengaruhi Kepatuhan Berobat Responden Rawat Jalan di RSUD Banten Tahun 2022*. *8*(3), 971–980.