

Evaluating The Impact of Self-Esteem, Commitment, and Responsibility on Tuberculosis Treatment Adherence in Parigi Moutong District Indonesia: A Cross-Sectional Study

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Abstract:- Background: *Bacillus Mycobacterium tuberculosis* causes tuberculosis, an infectious disease. Long-term adherence to tuberculosis treatment is a complex and changing phenomenon, and many factors influence how a person acts on treatment. Patients who are not adherent to treatment can develop multi-drug resistance, prolonged transmission, and poor treatment outcomes. This study evaluates the impact of self-esteem, commitment, and responsibility on tuberculosis treatment adherence. Method: The cross-sectional survey was conducted on tuberculosis patients undergoing intensive-phase treatment who had passed one month of treatment. The implementation will be carried out from February to April 2023. Data was collected using questionnaires that measured medication adherence, self-esteem, commitment, and responsibility—differences between groups using the Chi-square test. The degree of compliance is determined using a logistic regression analysis. Result: This study involved 165 tuberculosis patients, including those with high self-esteem for medication adherence (OR: 26,874, 95% CI: 2,139–337,603) and those with moderate self-esteem (OR: 2,803, 95% CI: 0.668–11,762). High commitment to medication adherence (OR: 31,223, 95% CI: 2,179–447,309); moderate commitment (OR: 36,434, 95% CI: 4,580–289,850). High responsibility for medication adherence (OR: 17,713.95%, CI: 1,505–208,406) and moderate responsibility (OR: 5,481.95%, CI: 1,385–21,700). Conclusion: Our findings show that patient adherence to tuberculosis treatment is closely related to the patient's self-esteem, commitment, and responsibility for carrying out treatment. Patients with high self-esteem, commitment, and accountability are more obedient in therapy than those with low self-esteem, commitment, and responsibility.

Keywords: *Self-esteem, commitment, responsibility, medication adherence, tuberculosis.*

1. Introduction

Mycobacterium tuberculosis bacteria can spread into the air when people who have tuberculosis expel the bacteria into the air, such as by coughing. About a quarter of people worldwide are estimated to have been infected [1]. The death rate from untreated tuberculosis is high, at about 50% [2]. Between 5% and 15% of the 1.7 billion people infected with tuberculosis will suffer from tuberculosis throughout their lives, and this rate is higher in individuals who have decreased body resistance [3]. Symptoms of tuberculosis include persistent coughing for more than two weeks and persistent fever for more than two weeks [4]. Tuberculosis is still a public health problem in Indonesia and around the world. Indonesia is the second country with the highest number of tuberculosis cases [5]. The total number of tuberculosis cases in 2022 was 677,464, more than the 397,377 cases in the previous year, while the tuberculosis death rate in 2021 was 52 per 100,000 people [6].

Tuberculosis cases in Parigi Moutong Regency in 2019 amounted to 63 cases per 100,000 people. By 2020, these cases had increased to 36 per 100,000 people [7]. The success rate of patient treatment in Parigi Moutong Regency in 2018 was 81%, and in 2019 it was 78%, but it has not met the target of 90% [8]. In Central Sulawesi and Parigi

Moutong Regency, there are obstacles to adherence to tuberculosis treatment, such as patients stopping treatment without the knowledge of officials due to drug side effects, patients feeling bored because of prolonged therapy, and patients not doing a re-examination of sputum [9].

As tuberculosis increases morbidity and mortality rates worldwide, especially in vulnerable groups, tuberculosis is still a significant global public health problem. However, the disease can be cured through timely diagnosis and treatment [1]. Although tuberculosis can be fixed, many patients are not compliant with carrying out treatment. Tuberculosis patients can be non-compliant with therapy for several reasons. These include forgetting to take medication, a very long treatment period, thinking they are healthy, not routinely seeking treatment, and the unavailability of health facilities [10,11]. The problem of side effects from drugs is the reason patients are not compliant in the treatment of tuberculosis [12].

Non-compliance with tuberculosis treatment can lead to disease transmission, treatment failure, and resistance [13]. To achieve a complete cure in drug-sensitive tuberculosis cases, it is essential to remain faithful to anti-tuberculosis treatment for six months or until treatment is completed. However, suboptimal adherence to anti-tuberculosis treatment significantly increases the risk of treatment failure and drug resistance [14]. The presence of multidrug resistance can cause poor disease treatment outcomes or death [15]. Therefore, assessing and understanding the variables that influence adherence is critical to knowing how effective TB treatment is at the community level.

Several researchers have previously researched problems with tuberculosis treatment adherence. Research conducted in Dalian, Northeast China's Liaoning Province, has highlighted that self-esteem patients can reduce the stigmatised impact of anxiety and depression and can help improve the mental health of tuberculosis patients [16]. Committed patients can encourage people to maintain their goals in life by giving them a sense of responsibility [17]. A greater understanding of security, a more positive self-image, and a more significant effort to achieve goals arise due to commitment within the individual [18]. When people are committed, they have a strong sense of responsibility and dependence on themselves. This sense of responsibility drives them to make decisions, even though they know the consequences. Commitment is essential to gaining the freedom to choose [19].

Currently, there is no data on the relationship between self-esteem and compliance, the relationship between commitment and adherence, or the relationship between patient responsibility and treatment adherence among tuberculosis patients in Parigi Moutong District, Indonesia. Therefore, this study evaluated the impact of self-esteem, commitment, and accountability on TB treatment adherence.

2. Objectives

This study evaluates the impact of self-esteem, commitment, and responsibility on tuberculosis treatment adherence.

3. Methods

Study design and study setting

The cross-sectional survey using questionnaires was conducted at 15 community health centres in the Parigi Moutong Region from February to April 2023. The number of health facilities in Parigi Moutong Regency in 2015 was 806 health institutions spread across various Parigi Moutong areas.

Study population

Participants in this study consisted of 165 tuberculosis patients undergoing tuberculosis treatment at public health facilities.

Inclusion criteria

Tuberculosis patients undergoing the 1-month intensive treatment phase are > 18 years old and can read and write.

Data collection

Data collection using structured questionnaires. This questionnaire was created after talking with experts in the field and reviewing relevant literature at home and abroad. In addition, a preliminary survey is conducted on-site, and the results are adjusted and updated to ensure their validity. The questionnaire includes socio-demographic characteristics, self-esteem, commitment, responsibility, and medication adherence. Groups of skilled graduate students collected data. The eight-item Treatment Adherence Scale of Morisky (MMAS-8) was used to evaluate medication adherence [20]. This scale is one of the easiest methods to measure patient adherence to treatment [21]. This scale had good sensitivity and reliability in this study, with a Cronbach value of α of 0.81.

The socio-demographic characteristics measured in this study are age, gender, and education level. The self-esteem, commitment, and responsibility questionnaire was developed based on previous research. Self-esteem questionnaires consisted of six questions in the form of embarrassment about taking medicine, belief in the drugs taken, not being happy taking medicine, feeling frustrated in taking medicine, thinking if tuberculosis drugs can cure, and fear of being kept away by friends if caught taking medicine. This questionnaire has been tested for validity and reliability, with a Cronbach value of α 0.75.

The field of commitment consists of 8 questions in the form of commitment to taking medication, commitment to sputum re-control, if there is a feeling of laziness to take medication, will try to remember the existing commitment, commitment to complete treatment thoroughly, forget the commitment made, even though there can be obstacles in treatment will remain commitment, commit to obey drinking until declared cured with a Cronbach α value of 0.75. In comparison, the responsibility questionnaire consists of five questions in the form of participating in government programmes to prevent tuberculosis transmission: if you want to recover, you must take medicine regularly, provide related information about the disease to officers, be aware that tuberculosis drugs can cure the disease, and be cooperative in taking medications with a Cronbach α value of 0.77.

Procedure

The campus institution approved this research with ethics approval number 2762-KEPK. The campus institution with ethics approval number 2762-KEPK supported this research. Before the data was collected, all participants were notified of the study and asked to sign a consent form. Each participant filled out questionnaires and other forms used in the study voluntarily. Pre-tested, semi-structured questionnaires were used to collect data. Student groups help participants who need an explanation regarding how to fill out the questionnaire. All students who assist in the field are trained to ensure the data is not biased.

Data analysis

Researchers coded each questionnaire after verifying that it was complete and correct. The data is fed into SPSS (IMB 27) for descriptive and inferential analysis. Frequency and percentage are used to describe categorical data. To assess absolute data differences between different groups, use the chi-square test. This study conducted a binary logistic regression analysis to determine the effect of self-esteem, commitment, and responsibility on simultaneous or partial tuberculosis treatment adherence. Hypothesis testing is used to answer the hypothesis proposed. The test criteria state that if the significance value is < significant alpha 5% or <0.05, it indicates an influence of the independent variable on the dependent variable. Determine the odds ratio (OR) with a 95% confidence interval (CI). If $p < 0.05$, this difference is considered statistically significant.

4. Results

a. Socio-demographic characteristic

A total of 165 tuberculosis patients were involved in this study. With a response rate of 96.4%. Overall, Table 1 of 165 respondents shows that some respondents aged 46–55 amounted to 23.6%, males by 66.1%, with a junior high school education level of 40.0%.

Table 1 Social-demographics of tuberculosis patients

Characteristic	Frequency	Percentage
Umur		
19-25 Year	24	14.5
26-35 Year	31	18.8
36-45 Year	30	18.2
46-55 Year	39	23.6
56-65 Year	33	20.0
> 65 Year	8	4.8
Gender		
Man	109	66.1
Woman	56	33.9
Education		
Primary school	41	24.8
Junior high school	66	40.0
High School	48	29.1
College	10	6.1

b. Treatment adherence to self-esteem, commitment, and responsibility

Based on Table 2 of the results of the analysis with chi-square, it is known that all variables produce p-values smaller than significant alpha 5% or 0.05. Thus, it can be concluded that there is a substantial relationship between self-esteem and adherence to tuberculosis medication, a meaningful relationship between commitment and adherence to tuberculosis medication, and a significant relationship between responsibility and adherence to tuberculosis medication.

Table 2. Treatment adherence to self-esteem, commitment, and responsibility

Variables	Total	Adherence Level n (%)		p-value
	n (%)	Disobedient	Obedient	
Self-Esteem				
Tall	28 (17.0)	1 (1.4)	27 (28.1)	< 0.001
Keep	121 (73.3)	56 (81.2)	65 (67.7)	
Low	16 (9.7)	12 (17.4)	4 (4.2)	
Commitment				
Tall	19 (11.5)	2 (2.9)	17 (17.7)	< 0.001
Keep	109 (66.1)	31 (44.9)	78 (81.3)	
Low	37 (22.4)	36 (52.2)	1 (1.0)	
Responsibility				
Tall	18 (10.9)	1 (1.4)	17 (17.7)	< 0.001
Keep	114 (69.1)	39 (56.5)	75 (78.1)	
Low	33 (20.0)	29 (42.0)	4 (4.2)	

c. Results of hypothesis testing

Table 3 Binary logistic regression analysis and predictors of treatment adherence

Variables	OR	95% CI	P-Value
Self-Esteem			0.039
Tall	26.874	2.139 to 337.603	0.001
Keep	2.803	0.668 to 11.762	0.159

Variables	OR	95% CI	P-Value
Low			
Commitment			0.003
Tall	31.223	2.179 to 447.309	0.011
Keep	36.434	4.580 to 289.850	0.001
Low			
Responsibility			0.025
Tall	17.713	1.505 to 208.406	0.022
Keep	5.481	1.385 to 21.700	0.015
Low			

Table 3 shows the results:

1. The effect of self-esteem on medication adherence
Based on the results in the table, it can be seen that the significance value resulting from the influence of self-esteem on medication adherence is 0.039. The significance value is less than 5%, or 0.05 alpha. This means that self-esteem has a substantial influence on medication adherence. The OR score produced by the moderate self-esteem category was 2,803, meaning respondents with average self-esteem had a 2,803 times higher chance of adhering to medication than respondents with low self-esteem. Then, the OR value produced by the high self-esteem category was 26,874, meaning that respondents with high self-esteem had a 26,874 times higher chance of adhering to medication than respondents with low self-esteem.
2. The effect of commitment on medication adherence
The table results show that the significance value resulting from the effect of commitment to medication adherence is 0.003. The significance value is less than 5%, or 0.05 alpha. This means that there is a substantial effect of commitment on medication adherence. The OR value generated by moderate commitment was 36,434, meaning that respondents with reasonable commitment have a 36,434 times higher chance of adhering to medication than respondents with low commitment. Then, the OR value generated by the increased commitment category is 31,223, meaning that respondents with high commitment have a 31,223 times higher chance of adhering to medication compared to respondents with low commitment.
3. The effect of responsibility on medication adherence
While responsibility significantly affects medication adherence by 0.025, the significance value is less than the considerable alpha of 5%, or 0.05. This means that there is a substantial effect of responsibility on medication adherence. The OR value for moderate category responsibility is 5,481, which means that respondents with reasonable responsibility have a 5,481 times higher chance of sticking to their medication regimen than respondents with low responsibility. The OR value for high category responsibility is 17,713, which means that respondents with high responsibility have a 17,713 times higher chance of sticking to their medication regimen than respondents with low responsibility.

5. Discussion

Our study found that patients with high self-esteem were more compliant with tuberculosis treatment than patients with low self-esteem. This finding is in line with previous research that reported that there was a statistically significant difference in $p < 0.05$ and $p\text{-value} < 0.0001$; the average self-esteem score before and after the intervention increased from 10.42 to 17.44, meaning that patients with higher self-esteem tended to be more adherent to tuberculosis treatment compared to patients with low self-esteem [22]. Patients with low, moderate, and high self-esteem evaluated the effect of moderation of self-esteem on the relationship between perceptions of discrimination and psychological distress among tuberculosis patients [23].

Our research also confirms that patients with high and moderate self-esteem can play an essential role in tuberculosis treatment adherence. These results may be due to the more negative self-awareness of patients with low self-esteem, which reduces their ability to handle painful situations. In addition, patients with low self-esteem

often feel insurmountable when faced with adversity, leading to poor mental health [24]. Increasing self-esteem as a way to reduce the effects of stigma on anxiety and depression can also help improve the mental health of tuberculosis patients. High self-esteem can moderate the relationship between stigma, anxiety, and depression [25,15].

The results showed that patients with high commitment had better treatment adherence compared to patients with low commitment. These results align with previous research reporting that commitment and acceptance therapy strongly influence self-management and compliance behaviors [26]. Patients who are satisfied and trust the services provided by health workers can increase patient commitment and develop positive attitudes towards the health services offered [27]. Healthcare professionals consider outpatient commitment essential for patients who do not collaborate and lack insight [28].

The patient's commitment is very effective towards treatment, improving the patient's physical and psychological condition and preventing neglect in health recovery; this is due to the multidimensional concept built through cooperation between the patient, family, and rehabilitation team [29]. Commitment encourages people to act, maintain relationships, pursue goals and benefits, and make them feel safe and secure [30]. Patients who do not take action will affect the patient's compliance behavior. The patient's exemplary commitment indicates a situation in which the patient chooses or is willing to continue treatment until it is complete [31]. Therefore, it can be interpreted that high-commitment patients can increase patient compliance in carrying out treatment.

Patients who have high responsibility for the treatment of tuberculosis are more obedient in the treatment of tuberculosis. This study aligns with previous research that revealed that patients with a high level of responsibility for preventing the spread of germs, providing information about their disease, and following a tuberculosis treatment plan can help eradicate tuberculosis [32]. Patients with low responsibility towards health care providers can hurt the patient's relationship with health care providers [33]. Responsibility-based nursing interventions can help diabetes mellitus and tuberculosis patients improve their medication adherence, self-management skills, self-efficacy, and quality of life [34]. Responsibilities are obligations related to tasks that must be completed carefully. One of the most important things to do before an event happens is responsibility [31].

This study revealed that patients with high self-esteem, commitment, and responsibility are more obedient in carrying out tuberculosis treatment than patients with low self-esteem, commitment, and accountability. These findings are beneficial for patients by improving tuberculosis treatment adherence. The importance of counselling patients about self-esteem, commitment, and responsibility in improving adherence to tuberculosis treatment.

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