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The Relationship Between The Level Of Self-Efficacy On Medication Adherence In Pulmonary Tuberculosis Patients At Imelda General Hospital Indonesia

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ABSTRACT

Pulmonary tuberculosis, one of the infectious diseases, is ranked fifth as an infectious disease that causes the most deaths in the world. Treatment with a long enough period of time allows non-adherence behavior in taking medication in pulmonary TB patients. Self-efficacy is a person's belief in his ability to achieve a desired goal. The purpose of the study was to determine the relationship between the level of self-efficacy on medication adherence in tuberculosis patients at the Imelda General Hospital of Indonesian Workers in 2023. Quantitative research method with correlational descriptive. The study was conducted at the Imelda Pekerja Indonesia General Hospital in August 2023. Population of 282 Pulmonary TB patients, study sample 73 people with Purposive Sampling. Bivariate test using Chi Square. The age of the majority of pulmonary tuberculosis respondents aged 26-35 years (Early Adulthood) was 25 people (34.2%), the gender of the majority of pulmonary tuberculosis respondents was 40 people (54.8%), the majority of pulmonary tuberculosis respondents were employed as 48 people (65.8%). The level of self-efficacy in pulmonary tuberculosis patients was the majority of high self-efficacy scores >77 as many as 55 people (75.3%), followed by low self-efficacy scores of <63 as many as 10 people (13.7%) and moderate self-efficacy scores of 64-76 as many as 8 people (11.0%). Adherence to taking medication in pulmonary tuberculosis patients the majority had moderate adherence scores 1-2 as many as 42 people (57.5%), followed by high adherence score 0 as many as 21 people (28.8%) and low adherence score >2 as many as 10 people (13.7%). There was no relationship of self-efficacy on medication adherence with a p value of 0.324>0.05.

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INTRODUCTION

Tuberculosis (TB), which is one of the infectious diseases, is ranked fifth as an infectious disease that causes the most deaths in the world (Global Health Metrics, 2020). National data shows TB disease is in first place as an infectious disease that causes the most deaths in Indonesia (IHME, 2021). Indonesia is the country with the second highest number of TB cases in the world with 14% of cases, after India (41%), followed by the Philippines (12%) and China (8%) (*World Health Organization*, 2021).

The number of TB cases in Indonesia reached 824,000 cases with 13,110 deaths and a percentage of successful treatment of 83% (Ministry of Health of the Republic of Indonesia, 2021). This proves that there is still a high rate of spread of TB cases in Indonesia. Based on the results of Basic Health Research (Riskesdas, 2018), the prevalence of TB disease in the South Sulawesi Province, which is 50,127 cases and Makassar City ranks first with the highest number of cases, namely 8,611 cases from 24 cities/regencies.

The World Health Organization (WHO) launched a global TB control strategy, namely *the End TB Strategy* with the aim of ending the TB epidemic worldwide (*World Health Organization*, 2017). Currently, the government is running a program to support WHO's strategy, namely with the *Directly*

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Observed Treatment Shortcourse (DOTS) program which is an anti-tuberculosis drug administration (OAT) program for 6-8 months (Permenkes, 2017).

Treatment with a long enough period of time allows non-adherence behavior in taking medication in TB patients. If TB patients do not undergo treatment regularly, the impact will be obtained is the risk of treatment failure, a higher risk of transmission to others, and having to start treatment all over again (Ministry of Health of the Republic of Indonesia, 2020b).

Among patients with a diagnostic history of TB, 40.2% reported stopping treatment without being cured and 26% stopped treatment because they felt better or had no symptoms (Ministry of Health of the Republic of Indonesia, 2020b). In previous studies, a number of percentages of treatment non-adherence behavior in TB patients were also found, namely 13.2% in Bone Bolango Regency (Amran et al., 2021), 11.11% in Kerinci Regency (Pameswari et al., 2016), 45.5% in Padang City, and 41.7% in Gowa Regency (Jamaluddin, 2019). From the results of the study, it revealed that the reason for patient non-compliance was caused by the side effects of drugs that were felt and felt bored taking drugs for a long time so that patients stopped their treatment.

The success of TB treatment is determined by the patient's level of compliance during taking complete OAT to completion (Gunawan et al., 2017). Adherence is one of the important components in a treatment program (Edi, 2020). Adherence in the patient's treatment process can be influenced by the level of knowledge, family support, self-stigma, and self-efficacy (Wulandari et al., 2020).

Family support is one of the factors that can affect patient treatment adherence because family is the closest person to the patient as well as a person who has an important role as a supervisor of drug swallowing (PMO) in TB patients (Irnawati et al., 2016) as well as health workers who become one of the sources of information and support during the patient treatment process (Zainal et al., 2018). However, the role of family and health workers alone is not enough if the patient does not have the confidence and spirit to heal, which in this case is called self-efficacy.

Self-efficacy is a person's belief in his ability to achieve a desired goal (Bandura et al., 1997). This is meant to undergo a TB treatment program as recommended by health workers (Novitasari, 2017). Low self-efficacy will cause failure during the treatment process (Widyaningtyas et al., 2020). Therefore, TB patients must have high self-efficacy in order to apply medication adherence to achieve recovery. Several previous studies have revealed a relationship between self-efficacy and medication adherence in TB patients (Hanif, 2018; Sutarto et al., 2019; Isnainy et al., 2020; Widyaningtyas et al., 2020; Wulandari et al, 2020).

Research conducted by Yulianti (quoted in Wulandari, 2020) said that high self-efficacy is directly proportional to medication adherence, which means that the higher the patient's self-efficacy, the higher the level of compliance. The instruments used in the study used MMAS-8 *(Morisky Medication Adhrence Scale)* questionnaires to measure medication adherence behavior in general and GSES-10 *(General Self-Efficacy Scale) questionnaires* to measure patients' general self-efficacy levels and some used instruments made by the researchers themselves. The purpose of the study was to determine the relationship between the level of self-efficacy on medication adherence in tuberculosis patients at Imelda General Hospital Indonesia in 2023.

METHOD

This research is a quantitative research with *Cross Sectional* approach. The research will be conducted at Imelda Hospital Pekerja Indonesia Medan in August 2023. The study population was 282 people, the study sample was 62 people with *Purposive Sampling* sampling technique. Bivariate analysis using *Chi Square Test*.

RESULTS AND DISCUSSION

Research Results

Characteristics of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia in 2023

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Table 1. Frequency Distribution of Characteristics of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

Data	n	%
Age		
Early Adult (26-35 Years)	25	34,2
Late Adult (36-45 Years)	17	23,2
Early Elderly (46-55 years)	19	26,0
Late Elderly (56-65 Years)	12	16,4
Total	**73**	**100**
Gender		
Man	33	45,2
Woman	40	54,8
Total	**73**	**100**
Work		
Wiraswasta	48	65,8
ASN	25	34,2
Total	**73**	**100**

Based on table 1 above, the results are described that the age of tuberculosis respondents is mostly aged 26-35 years (Early Adulthood) as many as 25 people (34.2%), followed by tuberculosis respondents aged 46-55 years (Early Elderly) as many as 19 people (26.0%), tuberculosis respondents aged 36-45 years (Late Adults) as many as 17 people (23.2%) and tuberculosis respondents aged 56-65 years (Late Elderly) as many as 12 people (16.4%).

Based on gender, the majority of tuberculosis respondents were female as many as 40 people (54.8%), followed by male tuberculosis respondents as many as 33 people (45.2%). Based on employment, the majority of tuberculosis respondents have jobs as self-employed as many as 48 people (65.8%), followed by tuberculosis respondents with ASN jobs as many as 25 people (34.2%).

Self-efficacy rate of pulmonary tuberculosis respondents

Table 2. Frequency Distribution of Self-Efficacy Level of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

Data	n	%
High Self-efficacy Score >77	55	75,3
Moderate self-efficacy score 64-76	8	11,0
Low Self-efficacy Score <63	10	13,7
Total	**73**	**100**

Based on the level of self-efficacy in pulmonary tuberculosis patients, the majority of patients had a high self-efficacy score of >77 as many as 55 people (75.3%), followed by a low self-efficacy score of <63 as many as 10 people (13.7%) and moderate self-efficacy scores of 64-76 as many as 8 people (11.0%).

Adherence to Taking Medication for Pulmonary Tuberculosis Responders

Table 3. Frequency Distribution of Adherence to Taking Medication for Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

Data	n	%
High Compliance Score 0	21	28,8
Medium Compliance Score 1-2	42	57,5

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Low Compliance Score >2	10	13,7
Total	**73**	**100**

Based on adherence to taking medication in pulmonary tuberculosis patients, the majority of patients had moderate adherence scores 1-2 as many as 42 people (57.5%), followed by high adherence score 0 as many as 21 people (28.8%) and low adherence score >2 as many as 10 people (13.7%).

The relationship of self-efficacy level to medication adherence in pulmonary tuberculosis respondents

Table 4. The relationship between the level of self-efficacy on medication adherence in pulmonary tuberculosis respondents at Imelda General Hospital Indonesia

Self-efficacy	Adherence to taking medication			Total	*P Value*
	High Score 0	Medium Score 1-2	Low Score >2		
High Score >77	17	31	7	55	0,324
Medium Score 64-76	3	5	0	8	
Low Score <63	1	6	3	10	
Total	**21**	**42**	**10**	**73**	

Based on the results of the research conducted, it was found that the majority of pulmonary tuberculosis respondents had a high self-efficacy score of >77 with a moderate drug adherence level score of 1-2 as many as 31 people with a p value of 0.324>0.05 so that it was concluded that the level of self-efficacy was not related to medication adherence.

Discussion

Characteristics of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

Age of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

The results of the study found that the age of tuberculosis respondents was mostly aged 26-35 years (Early Adulthood) as many as 25 people (34.2%), followed by tuberculosis respondents aged 46-55 years (Early Elderly) as many as 19 people (26.0%), tuberculosis respondents aged 36-45 years (Late Adults) as many as 17 people (23.2%) and tuberculosis respondents aged 56-65 years (Late Elderly) as many as 12 people (16.4%).

In line with the results of research conducted by Lestari et al., (2022) it was explained that the majority of respondents in this study were from the productive age group, namely 20-30 years as many as 89 people, 31-40 years as many as 34 people, 41-50 years as many as 19 people.

The productive age group is a period that plays an important role in making a living outside the home and often leaves the house which results in the easy process of transmission of pulmonary TB (Andayani, 2020). At the age of non-productive (>50 years) the body will experience a decrease in physiological functions in several organs such as lungs, liver, kidneys and blood vessels as well as a decrease in the immune system which will affect various infectious processes and treatment. In the airway, there is a decrease and number of mucocilia and a decrease in cough reflex which can facilitate pneumonia. One that occurs with age is the process of thynic involution, which is a decrease in volume in thymus tissue. Where thymus tissue is located behind the breastbone which is the organ where T lymphocytes mature. As age can affect the production of T cellocytes, the reduced number of cells produced by the body will result in infection resistance less quickly reacting and less efficient than at a young age. In addition, the number of antibodies and the duration of response produced in old age are shorter and less compared to young age (Anggraini, 2020).

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Gender of Pulmonary Tuberculosis Respondents at Imelda General Hospital Indonesia

The results of the study obtained based on gender, the majority of tuberculosis respondents were female as many as 40 people (54.8%), followed by male tuberculosis respondents as many as 33 people (45.2%).

Gender is one of the factors related to compliance. However, men and women have differences in many ways, including: social relations, environmental influences, living habits, biological and physiological differences. However, women and men have equal opportunities to access any information, including information about pulmonary TB treatment, where men and women receive the same pulmonary TB treatment program. In addition, the completeness of pulmonary TB treatment is based on the decision taken by each individual in undergoing treatment according to the wishes of each individe to recover. Therefore, if both of them seek treatment regularly, then they have the opportunity to complete the treatment.

In contrast to research conducted by Marleni, (2020) it was found that respondents experienced pulmonary tuberculosis and were male as many as 26 people (92.9%) more than respondents who experienced pulmonary tuberculosis and female as many as 9 people (33.3%). With the result of p value = 0.047 greater than a = 0.05 shows a significant relationship between sex and the incidence of Pulmonary Tuberculosis. Pulmonary tuberculosis tends to be higher in men than women. Men have heavy workloads and unhealthy lifestyles such as smoking and alcohol. Women pay more attention to their health than men, therefore women are less likely to develop Pulmonary TB disease. Women report more symptoms of the disease and consult a doctor because women tend to have more diligent behavior than men (Dewanty et al., 2016).

Self-Efficacy Rate Of Pulmonary Tuberculosis Respondents At Imelda General Hospital Indonesia

Self-efficacy is one way to achieve cure and prevent transmission of pulmonary TB disease by convincing from within the patient to routinely take medication. The results of the study obtained based on the level of self-efficacy in pulmonary tuberculosis patients found that the majority of patients had a high self-efficacy score of >77 as many as 55 people (75.3%), followed by a low self-efficacy score of <63 as many as 10 people (13.7%) and moderate self-efficacy scores of 64-76 as many as 8 people (11.0%).

Self-efficacy is a behavior that has been ingrained in every person before taking action. Self-efficacy will greatly affect a person's compliance in taking anti-pulmonary TB drugs because self-efficacy means readiness or willingness to act and is not the implementation of a certain motive (Maulana &; Mutiara, 2020).

The condition of pulmonary TB patients who have a good level of efficacy means that the patient's confidence or confidence has the ability to manage, perform an obligation in treatment, is optimistic for a cure achievement, and is able to implement all his actions in the pulmonary TB treatment program (Sutarto et al., 2019). With the confidence that each patient has, the patient should be able to complete his treatment program during the patient's treatment. Patients who have high self-efficacy usually perceive failure as one of the results of lack of hard effort, knowledge and skills. (Quarter, 2019).

Self-efficacy indicates an increase in *self-efficacy* and practice with awareness, and is able to maintain the practices that have been taught by nurses every day. Hospital nurses can use the level of awareness method to encourage patients and control the patient's condition every day with the aim of increasing *self-efficacy* in the patient himself (Noorratri et al., 2016).

Adherence to Taking Medication for Pulmonary Tuberculosis Responders at Imelda General Hospital Indonesia

The results of the study obtained based on adherence to taking medication in pulmonary tuberculosis patients found that the majority of patients had moderate adherence scores 1-2 as many

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as 42 people (57.5%), followed by high adherence score 0 as many as 21 people (28.8%) and low adherence score >2 as many as 10 people (13.7%).

Treatment adherence is a complex issue involving the health care system, the process of care, the behavior of health workers and the quality of communication with patients, community attitudes, and the behavior of patients themselves. Follow-up and independent care at home by family Chronic disease patients are key to comprehensive disease management. Independence and medication adherence occur if individuals have the knowledge, skills, and *self-efficacy* to perform TB management and self-care behaviors at home (Muhtar, 2013).

The level of adherence to pulmonary TB treatment is very important, because if treatment is not done routinely or regularly and not in accordance with the predetermined time it will cause the emergence of tuberculosis germ resistance to anti-tuberculosis drugs (OAT) widely or called *Multy Drugs Resistance* (MDR). Non-adherence to treatment will result in a high failure rate of treatment for pulmonary TB patients, so that it will increase several risks such as the risk of illness, the risk of death and can cause many cases of patients with pulmonary TB who are resistant to standard treatment (Pameswari et al., 2016).

The Relationship Between The Level Of Self-Efficacy On Medication Adherence In Pulmonary Tuberculosis Respondents At Imelda General Hospital Indonesia

The results of the study obtained based on the results of the research conducted, it was found that the majority of pulmonary tuberculosis respondents had a high self-efficacy score of >77 with a moderate level of adherence to taking medication scores 1-2 as many as 31 people with a p value of 0.324>0.05 so that it was concluded that the level of self-efficacy was not related to adherence to taking drugs.

Self-efficacy has been associated with various clinical problems The level of self-efficacy in patients in carrying out pulmonary TB treatment is influenced by the level of adherence to the patients themselves. Patients must have the awareness to be obedient in carrying out their treatment and also be able to maintain adherence. Many factors can affect *self-efficacy*, self-confidence is needed in carrying out treatment to completion. This can be improved by providing support from family and health workers so that patients focus on carrying out treatment that has been determined by health services.

According to research by Sutarto et al., (2019) based on the results of their study showed that pulmonary TB patients had good self-efficacy (74.4%) and so did the results of observations on medication adherence in pulmonary TB patients found that 74.4% had high adherence, only 11.5% had moderate adherence, and 14.1% had low adherence from 78 pulmonary TB patients.

In Fintiya & Wulandari's (2019) research, the results found that the p-value was 0.030. This indicates that the p-value < 0.05. This means that the research conducted by Mella et al found that self-efficacy has a positive relationship with medication adherence with a correlation value of 0.454 (moderate relationship). In the results of Isnainy et al.'s research, (2020) using statistical tests, the p value = 0.001 is smaller than the alpha value. There were 25 people out of 36 respondents (69.4%) had good self-efficacy, of which 23 people (63.9%) were adherent in taking medication, and 2 people (5.5%) were not adherent to taking medication. According to Alit (2017) stated that most respondents with high *self-efficacy* have a tendency to be obedient in taking drugs. It is appropriate that patient adherence affects the success of treatment carried out by patients in their recovery. The results of the treatment will not reach the optimal level without the confidence of the patient himself, can even cause therapy failure, and can cause complications that are very detrimental and will ultimately be fatal (Sutrisna et al., 2017).

CONCLUSION

The age of the majority of pulmonary tuberculosis respondents aged 26-35 years (Early Adulthood) was 25 people (34.2%), the gender of the majority of pulmonary tuberculosis respondents

was 40 people (54.8%), the majority of pulmonary tuberculosis respondents were employed as 48 people (65.8%). The level of self-efficacy in pulmonary tuberculosis patients was the majority of high self-efficacy scores >77 as many as 55 people (75.3%), followed by low self-efficacy scores of <63 as many as 10 people (13.7%) and moderate self-efficacy scores of 64-76 as many as 8 people (11.0%). Adherence to taking medication in pulmonary tuberculosis patients the majority had moderate adherence scores 1-2 as many as 42 people (57.5%), followed by high adherence score 0 as many as 21 people (28.8%) and low adherence score >2 as many as 10 people (13.7%). There was no relationship of self-efficacy on medication adherence with a p value of 0.324>0.05.

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