Health Education In Increasing Self-Efficacy In The Treatment Of Tuberculosis Patients At Tamalanrea Makassar Health Center

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Abstract. Tuberculosis is an infectious disease caused by the bacterium Mycobacterium tuberculosis which spreads through the air (Airborne disease).symptoms of cough with phlegm for 2 weeks or more.Disease prevalenceTB (Tuberculosis)as many as 845,000 with a death rate reaching 98,000 cases, treatment coverage is only 67%, several factors cause unhealthy housing, education and non-compliance with treatment inutritional indicators, immune levels, greatly influence the quality of life of tuberculosis sufferers so that there is a need to increase self-efficacy in managing the disease,with education about the infectious disease tuberculosis The research method used was pre-experimental with a one group pre-test and post-test design with a sample size of 36 people. The instrument we used was a pre- and post-questionnaire and provided intervention in the form of health education. The results of the research showed that after health education was carried out, the Negative Ranks data showed that respondents' scores from pre-post 3 respondents experienced a decrease in self-efficacy regarding tuberculosis treatment after health education, while the positive ranks data showed that 12 respondents' scores from pre-post experienced an increase. Self-efficacy towards tuberculosis treatment after health education, and the tie data shows that 21 respondents got a fixed score from pre-post after health education. The results of the Wilcoxon statistical test obtained a p value = (0.020) <α (0.05), and so The alternative hypothesis (Ha) is accepted. The conclusion is that there is an influence of health education on increasing self-efficacy in the treatment of tuberculosis sufferers at the Tamalanrea Makassar Community Health Center

Keywords: Health Education, Self-Efficacy, Tuberculosis

I. INTRODUCTION

Tuberculosis is an infectious disease caused by the bacterium Mycobacterium tuberculosis, known as acid-fast bacteria (BTA), which spreads through the air (airborne disease) from tuberculosis sufferers to other people when they sneeze, cough, talk or sing.(Pralambang & Setiawan, 2021)and the percentage of this disease is dominated by men compared to women(Pramono, 2021). The main symptom of pulmonary TB (Tuberculosis) patients is coughing up phlegm for 2 weeks or more which is usually accompanied by additional symptoms such as phlegm mixed with blood, coughing.blood, shortness of breath, weight loss, weakness, malaise, night sweats without physical activity, decreased appetite, fever for more than a month(Tri Anti Permata Sari, 2020)

Based on data according to WHO in 2019, estimates of disease prevalenceTB (Tuberculosis)as many as 845,000 with a death rate reaching 98,000 cases. With total treatment

coverage of only 67% with an average success rate of 87%. This may result in drug resistance reaching 24,000 cases. Several factors cause the increase in TB problems, namely unhealthy housing criteria such as too many occupants, inappropriate house ventilation, low level of public education, non-compliance with treatment so that the Universal Health Coverage world health program in Indonesia itself has not reached the global target. In Indonesia treatment coverage has only reached 41.7% while globally it has reached 71%(Ade et al., 2022).PatientTB (Tuberculosis)undergo outpatient treatment for a minimum of 6 months to 9-12 months. The first examination is carried out to detect the presence of bacteria that cause tuberculosis and then treatment is given. Treatment therapy is only given if the BTA sputum (sputum) examination has a positive value, supported by X-rays, blood tests must follow routine controls to see how the disease is progressing by looking at the results of laboratory examinations. Patients will be educated regarding therapy, how to take medication, possible side effects and how to treat them. Therapy consists of two phases, namely the initial phase (first 2 months) and the advanced phase (4-10 months). Phase 2 is complete, the patient will generally undergo control as was done at the time of diagnosis to see if any changes appear or not(Papeo et al., 2021). TreatmentTB (Tuberculosis)This is done regularly for six months. Treatment that is interrupted or not in accordance with Directly Observed Treatment Short-course (DOTS) standards can cause disease recurrence and the possibility of secondary resistance of tuberculosis germs to anti-tuberculosis drugs or Multi Drug Resistance (MDR) (Faizah et al., 2016). So it is very important for sufferers to have it Self-efficacy is the belief that a person can control a situation and get positive results which are considered to have a big influence on a person's behavior(Mawaddah, 2021), This refers to people's assumptions about how effectively they can carry out strategies to achieve desired outcomes that influence people's performance, choices, and energy and persistence in following their choices.(Nakamoto et al., 2017)The influence of health education combined with dietary guidelines on nutritional indicators and immune levels greatly influences the quality of life of tuberculosis sufferers.(Retraction Retracted: Effect of Health Education Combined with Dietary Guidance on Nutritional Indicator, Immune Level, and Quality of Life of Patients with Pulmonary Tuberculosis, 2022)so there is a need to increase patient self-efficacy which is expected to be able to contribute significantly to improving outcomes and disease management, such as through increasing treatment compliance, seeking care(Cascio et al., 2014)to obtain a better health condition so that self-efficacy is considered a major factor in designing interventions to advance patient disease management. Although TB can be treated, this disease has proven difficult to eradicate, and the number of drug-resistant cases is increasing, early

detection and treatment of TB cases by Experienced and trained health workers are essential in fighting this global health problem(Alotaibi et al., 2019)One way that can be done to increase the self-confidence of tuberculosis sufferers is by educating or providing education and counseling on the infectious disease TB which can have a positive impact on the welfare of patients and family members. Education and counseling can be improved by using multiple means of communication, proactively addressing common misperceptions and reducing barriers to patient participation. These improvements can empower families to better manage their experiences and share accurate TB information(Bedingfield et al., 2023)Tuberculosis (TB) treatment must be carried out routinely, and the traditional approach to TB treatment relies on paternalistic forms of supervision by the health care system to ensure that patients complete their treatment so they can recover and return to normal.(Brumwell et al., 2018).

II. RESEARCH METHODS

This research is a pre-experimental research with a one group pre test and post test design. This design was designed not to use a comparison or control group, but a first observation (pretest) was carried out which enabled researchers to find out the changes that occurred after the intervention, namely providing health education to tuberculosis sufferers and families. The population in this study were tuberculosis sufferers who regularly came for treatment at the Tamalanre Makassar Community Health Center, with a total sample of 36 people. The instrument we used was a pre and post intervention questionnaire.

III. RESEARCH RESULT

The research results are presented in a table and explained regarding the distribution of respondents based on age, gender, education, length of treatment, and bivariate data.

1. Univariate Analysis

Table.1
Frequency Distribution Based on Age of Respondents
at the Tamalanrea Makassar Community Health Center

Age	Frequency (n)	Percentage (%)
10-20 Years	10	27.8
21-40 Years	9	25.0
41-60 Years	8	22.2
> 60 Years	9	25.0
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5.1, it shows that of the 36 respondents, the age frequency distribution showed that 10 respondents (27.8%) had an age range of 10-20 years, 9 respondents (25.0%)

had an age range of 21-40 years, 8 respondents (22.2%) had an age range of 41 years. -60 years and 9 respondents (25.0%) had an age range above 60 years.

Table .2
Frequency Distribution Based on Respondent Gender
at the Tamalanrea Makassar Community Health Center

Gender	Frequency (n)	Percentage (%)
Man	21	58.3
Woman	15	41.7
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5.2, it shows that of the 36 respondents, the gender frequency distribution showed that 21 respondents (58.3%) were male and 15 respondents (41.7%) were female.

Table .3
Frequency Distribution Based on Respondents' Educational Level
at the Tamalanrea Makassar Community Health Center

Level of education	Frequency (n)	Percentage (%)
elementary school	3	8.3
junior high school	3	8.3
high school	15	41.7
College	15	41.7
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5.3, it shows that of the 36 respondents, the frequency distribution of education level was obtained, 3 respondents (8.3%) had elementary school education, 3 respondents (8.3%) had junior high school education, 15 respondents (41.7%) had high school education and 15 respondents (41.7%) %) have a tertiary education level.

Table .4
Frequency Distribution Based on Respondents' Length of Treatment
at the Tamalanrea Makassar Community Health Center

Duration of Treatment	Frequency (n)	Percentage (%)
1-6 Months	5	13.9
7-12 Months	11	30.6
13-18 Months	7	19.4
19-24 Months	3	8.3
>24 Months	10	27.8
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5.4, it shows that of the 36 respondents, the frequency distribution of length of treatment was obtained, 5 respondents (13.9%) had a range of treatment duration of 1-6 months, 11 respondents (30.6%) had a treatment duration range of 7-12 months, 7 respondents (19.4%) had The range of treatment duration was 13-18 months, 3 respondents

(8.3%) had a treatment duration range of 19-24 months and 10 respondents (27.8%) had a treatment duration range of more than 24 months.

Table 5
Frequency Distribution Based on Health Education Pre-Test on Increasing Respondents' Self-Efficacy at the Tamalanrea Makassar Community Health Center

Pre Test Health Education to Increase Self-Efficacy	Frequency (n)	Percentage (%)
Not enough	19	52.8
Tall	17	47.2
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5 Frequency distribution based on the pre-test of providing health education to increase respondents' self-efficacy, it was found that 19 respondents (52.8%) had less increase in self-efficacy and 17 respondents (47.2%) had a high increase in self-efficacy.

Table 5.6
Frequency Distribution Based on Health Education Post Test on Increasing Self-Efficacy of Respondents at Tamalanrea Makassar Community Health Center

Post Test Health Education on Increasing Self-Efficacy	Frequency (n)	Percentage (%)
Not enough	10	27.8
Tall	26	72.2
Total	**36**	**100.0**

Source: Primary Data, 2023

Based on Table 5.6 Frequency distribution based on the post test of providing health education on increasing respondents' self-efficacy, it was found that 10 respondents (27.8%) had a low increase in self-efficacy and 26 respondents (72.2%) had a high increase in self-efficacy.

2. Bivariate Analysis

Table 5.7
The Effect of Health Education on Increasing Self-Efficacy in Treatment of Tuberculosis Patients

		Ranks				
		n	Mean Rank	Sum of Ranks	Z	*P-Value*
Post test Increasing Self Efficacy Pre Increasing Self Efficacy	*Negative Ranks*	3a	8.00	24.00		
	Positive Ranks	12b	8.00	96.00	-2.324b	0.020
	Ties	21c				
	Total	36				

Source: Primary Data, 2023

a. Post Test Increased Self-Efficacy < Pre Test Increased Self-Efficacy
b. Post Test Increased Self-Efficacy > Pre Test Increased Self-Efficacy
c. Post Test Increased Self Efficacy = Pre Test Increased Self Efficacy
d. Wilcoxon Signed Ranks Test
e. Based on negative ranks

Based on Table 7, it can be seen that after the health education was carried out, the Negative Ranks data on respondents' scores from pre-post, 3 respondents experienced a decrease in self-efficacy regarding tuberculosis treatment after health education, while the positive ranks data shows that there were 12 respondents' scores from pre-post. experienced an increase in self-efficacy regarding tuberculosis treatment after health education was carried out, and data ties showed that 21 respondents got a constant score from pre-post after health education was carried out.

The results of the Wilcoxon statistical test obtained a value of p= (0.020) <α (0.05), so the alternative hypothesis (Ha) was accepted. This means that it can be seen that there is an influence of health education on increasing self-efficacy in the treatment of Tuberculosis sufferers at the Tamalanrea Makassar Community Health Center.

IV. DISCUSSION

The role of health workers is very important in providing health education for patients and families in an effort to create behavior that supports health and prevents disease transmission(Januarti & Ariesta, 2022)Tuberculosis self-management management based on ITHBC can deepen tuberculosis patients' understanding of their disease and improve objective initiatives and compliance behavior and the quality of tuberculosis prevention and control. Increase knowledge about preventing TB transmission, such as treating, implementing cough etiquette and the correct use of respiratory protective equipment, educating to improve a clean environment, adequate ventilation and consuming nutritious food to increase the body's

resistance to reduce the risk of contracting tuberculosis. Other interventions that focus on providing education about tuberculosis, treatment and prevention to help patients make the right decisions and the health care team to provide care patient-centered. The patient reminder and tracker system is targeted to help patients to book appointments and take action when patients miss appointments. These interventions include reminder letters, telephone calls, home visits and instant messaging technology. Psychological intervention aims to support through psychological or emotional counseling or social networking those undergoing TB treatment as a means of increasing compliance with TB treatment (Ardiana et al., 2021). Nurses also control the administration of OAT to patients suffering from pulmonary TB, in addition nurses provide education regarding trigger factors for pulmonary TB and avoid risk factors for pulmonary TB as well as nurses providing moral support and motivation for the recovery of TB patients(Januarti & Ariesta, 2022)From the results of research that has been carried out with several demographic data which are used as benchmarks, namely age, gender, education and length of treatment, the results obtained in terms of age are one of the factors that can influence the completeness of treatment for tuberculosis patients. The increasing age of a person has an effect on the production of lymphocyte cells, the lower the lymphocyte cells produced, the more it will affect the immune system thereby reducing the reaction to treatment(Lestari et al., 2022)

Table 1 shows that the dominant age is 10-20 years as much as 27.8%. This happens because the productive age group is a period that plays a role outside the home, both for those who are still studying at school or college, especially for those who earn their living outside the home and often leaving the house which makes it easier for the process of transmitting pulmonary TB because they interact a lot with people around them without knowing what disease they are suffering from. And in table 2, gender is dominated by men as many as 21 (58.3%) because basically men do more activities outside the home so it is easy to interact with people around them without knowing the history of their illness. while in table 3 the level of higher education, namely the high school and tertiary categories, is 41.7% each because the main thing that can influence changing the level of knowledge is education, so the higher the level of education, the easier it will be for someone to receive knowledge information.(Fitriyani & Dwijayanti, 2023)Health education based on the health belief model theory is one of the patient's perceptions and beliefs regarding their health(Magdalena T. Bolon et al., 2021)Receiving more information about tuberculosis can empower people to feel more confident and active in their treatment. Meanwhile, in table 4, the results show that the duration of treatment for tuberculosis patients is 7-12 months, as many as 11 respondents (30.6%), this

shows that compliance has an impact on the success of treatment for tuberculosis patients if they are able to follow the rules or treatment instructions from both doctors and health workers. other things such as being on time, the right dose, the right medication and the right time of administration will speed up the recovery or cure rate of tuberculosis patients(SUPRAYATINA, 2022)On the other hand, if the patient has been on treatment for a long time, there may be side effects from the use of antituberculosis drugs such as pyrazinamide and ethambutol which can cause an increase in uric acid levels because pyrazoic acid from the metabolites of pyrazinamide and ethambutol inhibits uric acid excretion by reducing urate transport in the proximal tubule of the kidney. Increased uric acid in tuberculosis patients is not only caused by the use of OAT therapy(Trilianto et al., 2020)This anti-tuberculosis drug can also cause many side effects from hematological disorders. In principle, hematological abnormalities in tuberculosis can be caused by the Mycobacterium tuberculosis infection process(Sudirman & Pusat, 2023)Another factor that needs to be paid attention to by patients and their families with tuberculosis is if there is a history of the disease, such as TB sufferers with comorbid DM, they should consult more with persuasive health workers about the importance of taking anti-tuberculosis medication regularly and conducting blood sugar checks. because poor blood sugar control can cause disruption in the function of phagocytosis, chemotaxis, reactive oxygen species (ROS) and T-helper cell function which can reduce the immunity of TB patients who are undergoing treatment butIf this problem is not resolved, then the patient will continue to be a source of infection so there needs to be self-efficacy in tuberculosis sufferers so they are able to think and behave positively in undergoing the tuberculosis treatment process.(Trilianto et al., 2020)The belief that a sufferer is in treatment will have an influence on compliance with taking medication which is called Self Efficacy, if the sufferer has high confidence in recovering then they will be able to do positive things or be aware of taking medication regularly and be able to maintain this habit every day(Girsang, 2023)So in this study it can be concluded that there is an influence between self-efficacy and the length of treatment, with high self-efficacy the patient will regularly take medication and pay attention to it so that the treatment period does not take a long time. It is proven that in the table above the average time or duration Treatment is 7-12 months.

The Health Belief Model (HBM) theory explains that individuals carry out health actions such as adhering to treatment and trying to prevent a disease with the aim of improving health status which is influenced by factors such as susceptibility to disease, perceived seriousness, perceived benefits, perceived barriers. and a person's confidence in carrying out healthy behavior(Patricia et al., 2020)Several interventions have been developed to improve

compliance and self-management in tuberculosis patients, most of which consist of a combination of several interventions such as health education, psychoeducation, and behavioral therapy.(Ardiana et al., 2022)

V. CONCLUSION

The results of the Wilcoxon statistical test obtained a value of p= (0.020) <α (0.05), so the alternative hypothesis (Ha) was accepted. This means that it can be seen that there is an influence of health education on increasing self-efficacy in the treatment of Tuberculosis sufferers at the Tamalanrea Makassar Community Health Center.

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