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Enhancing Anxiety Management in Post-Tuberculosis Patients through Psychoeducational Intervention in Baki Community Health Center

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ABSTRACT

Background: Tuberculosis is an infectious disease caused by mycobacterium tuberculosis by airborne transmission. TB patients are at risk of psychosocial disorders during treatment and post-treatment. This study aims to analyze the effect of psychoeducation on the level of anxiety experienced relapse in patients after Tuberculosis treatment.
Subjects and Method: This study used a quasi-experimental design of a posttest pretest at the Baki Health Center, Sukoharjo Regency, Central Java, Indonesia from June to July 2023. The sample was 30 people in the treatment group, namely post-tuberculosis treatment patients, and 30 people in the control group by paying attention to the inclusion criteria, the sample was selected in total sampling. The dependent variable is anxiety and the independent variable is psychoeducation. Psychoeducation was provided with intervention for 3 sessions with a time of 25-30 minutes and anxiety was measured by the HALS questionnaire. The data was analyzed by the Mann-Whitney test.
Results: After the intervention, the psychoeducational group had a decrease in anxiety scores (Mean = 7; SD= 4.68) than the control group (Mean= 4.07; SD= 3.14) with p=0.006.
Conclusion: Psychoeducation for post-tuberculosis treatment patients can continue to be carried out to reduce the level of anxiety about tuberculosis recurrence and awareness of the impact of the disease.

Keywords: Post-treatment patients with tuberculosis, tuberculosis, anxiety, psychoeducation

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BACKGROUND

Tuberculosis, commonly called tuberculosis, is an infectious disease caused by mycobacterium tuberculosis. Tuberculosis is transmitted through the air from an infectious patient to the surrounding people (Reviono, et al., 2017). Patients with bacteriologically confirmed tuberculosis who are not treated appropriately and qualitatively can infect about 10 people per year. About 3.5 to 10% of people who come into contact will get TB and a third will not get TB. Groups at high

risk of infection are people with close contact with TB patients, including children, the elderly, and people with immune disorders such as malnutrition and HIV infection (Ministry of Health of the Republic of Indonesia, 2019). Among these infected people, 5 to 10% are likely to develop tuberculosis in the course of their lives (Groenewald et al., 2014).

Indonesia is one of the countries with the highest TB burden in the world. WHO data estimates that there were 843,000 or 319 cases per 100,000 population in 2018 while TB with HIV was around 36,000 cases per year or equivalent to 14 per 100,000 population (Ministry of Health of the Republic of Indonesia, 2020). In 2021, 10.6 million cases were reported globally, an increase of around 600,000 from 2020, out of 10.6 million there were 6.4 million (60.3%) people who had undergone treatment and the rest had not been diagnosed. Deaths from tuberculosis are estimated at 107,000 or 40 per 100,000 population (WHO, 2022). Deaths with tuberculosis with HIV are 9,400 cases or 3.6 per 100,000 population. With an incidence of 843,000 cases per year and a notification rate of 570,289 cases of tuberculosis, around 32% of cases have not been found and have not been treated (Fawzi, 2020). WHO data shows that about 1 in 3 people with TB who experienced post-treatment recurrence due to drug resistance in 2020 (WHO, 2022).

The number of tuberculosis cases in 2020 in Sukoharjo Regency is still low at 18.03% and there is a decrease from the previous year which was 36.4% in 2019 (Ministry of Health of the Republic of Indonesia, 2015). Similarly, the achievement of finding tuberculosis cases at the Baki Health Center has also decreased, namely in 2020 by 8.4% while in 2019 it was 17%. Based on data from the Sukoharjo Regency Health Office in 2022, there were 24 cases of recurrent TB cases or around 0.5%. In 2021, 0.43% of TB treatments failed in the Sukoharjo Regency area and this decreased to 0.24% in 2022.

Psychosocial disorders in tuberculosis have a negative impact, namely hopelessness, uncertainty, and helplessness. Despair is the subjective state of an individual who sees limitations or the absence of alternatives or personal options available and is unable to mobilize the energy he has. Anxiety is a subjective individual experience that often manifests as dysfunctional behavior which is interpreted as feelings of difficulty and distress towards events that are not known for sure (Halter, 2017).

Efforts that can be made to overcome the psychosocial impact experienced by patients are Relaxation Therapy, assertive training, cognitive therapy, and psychoeducation. Cognitive therapy helps in overcoming problems related to mood or mood, depression, anxiety, anger, panic, jealousy, and guilt (Muyasaroh, 2020). Assertive training is a nursing modality therapy in the form of group therapy which is behavioral therapy, patients learn to express angry feelings appropriately or assertively so that patients can relate to others (Casañas R et al, 2012). Psychoeducation is a modality action delivered by professionals, which integrates and synergizes between psychotherapy and educational interventions.

Psychoeducational interventions teach important aspects of patient self-care including post-tuberculosis treatment, namely diet, physical activity, sleep disorders, information about the importance of early detection of recurrent tuberculosis events, and the importance of basic information about COVID-19 disease as well as the identification and management of anxiety symptoms in group psychoeducational interventions.

Based on the results of a preliminary study at the Baki Health Center, Sukoharjo

Regency, post-TB treatment patients in TB contact investigation activities reached 48 patients, but as many as 24 patients experienced TB treatment failure. Referring to the initial study, researchers are interested in providing psychoeducational interventions in post-TB treatment patients who experience post-TB recurrent anxiety.

SUBJECTS AND METHOD

1. Study Design

This study uses a posttest pretest quasi-experimental research design. Held from June to July 2023 at the Baki Health Center, Sukoharjo Regency.

2. Population and Sample

The population in this study is 100 tuberculosis patients in Sukoharjo Regency, 60 of whom have recovered from treatment in 2023. The sample was 60 post-tuberculosis treatment patients divided into 30 intervention groups and 30 control groups. The number of samples taken using the total sampling technique.

3. Study Variables

The dependent variable is anxiety with the independent variable being psychoeducation.

4. Operational Definition of Variables

Anxiety for relapse: A disorder that has several signs, be it physical, cognitive, behavioral, or emotional. Physical signs in patients with anxiety disorders for relapse include frequent shortness of breath, elevated pulse and blood pressure, dry mouth, anorexia, diarrhea/constipation, restlessness, tremors, sweating, difficulty sleeping, and head pain in TB patients.

Psychoeducation: An action given to overcome anxiety by strengthening the coping mechanism in TB patients who experience anxiety for relapse through group therapy which includes health education, and exercise, so that patients are able to self-care. The intervention was given for 3 sessions with a time of 25-30 minutes.

5. Study Instruments

The research instruments used were HARS, pretest questionnaires, and posttests to find out whether there was a difference in the level of anxiety for recurrence in patients after TB treatment with psychoeducation.

6. Data Analysis

The research analysis used univariate to see the descriptive characteristics and the influence analysis using the Mann-Whitney test.

7. Research Ethics

This study used human subjects to determine the exposure to psychoeducation of post-TB treatment patients. Therefore, it is necessary to have a feasibility test with the following requirements. Letter of ethical feasibility from the Research Ethics Commission of Dr. Moewardi Hospital Surakarta with number 284/II/HREC/2024. Approval from the research subjects to the questionnaire given is very necessary. The confidentiality of the research subject is a responsibility during the research process until publication.

RESULTS

1. Descriptive analysis of research respondents

The results of this study describe the characteristics of general data such as age, gender, education level, comorbidities, occupation, length of TB diagnosis, and HARS questionnaire results. Based on Table 1, shows that the age of the respondents in the control group and treatment group is mostly >35 years old, namely 22 (73.3%) and 19 people (63.3%). Some others in the control group aged 15 to 25 years were 4 people (13.3%) while the age of 26 to 35 years was 4 people (13.3%). In contrast, the treatment group aged 15 to 25 years was as many as 5 people (16.7%) while the age of 26 to 35 years was 6 people (20.0%).

The gender of the respondents in the control group was mostly female 16 people (53.3%) and 14 male people (46%), in contrast to the treatment group which had 16 male (53.3%) and 14 female (46%) genders. Meanwhile, the education level of respondents in the control group and the treatment group was different. Most of the education levels in the control group were 15 high school/vocational school graduates (50.0%), high school graduates and non-school graduates were the same, as many as 4 people (13.3%), and elementary school graduates as many as 6 people (20.0%), non-school and junior high school education as many as 4 people (13.3%). In the group of elementary and high school/high school graduates, the treatment was the same, namely 11 people each (36.7%), while 1 person (3.3%) and 6 junior high school graduates (20.0%) were not in school and S1 graduated.

The characteristics of the work of the control group were mostly as IRTs, namely as many as 11 people (36.7%), while as self-employed as many as 6 people (20.0%) but as many as 4 people (13.3%) did not work. Most of the respondents in the treatment group had jobs as self-employed as 12 people (40.0%), IRT as many as 5 people (16.75), as employees as many as 4 people (13.3%) and as many as 3 people who did not work (10.05).

Table 1. Characteristics of the control group (K) and treatment (P) data samples

Variable	Group	
	Control (n= 30)	Intervention (n= 30)
Age (year)		
15-25	4	5
26-35	4	6
>35	22	19
Gender		
Male	14	16
Female	16	14
Education		
No formal education	4	1
PS	6	11
JHS	4	6
SHS/VHS	15	11
Bachelor Degree	1	1
Occupation		
Not working	4	12
Housewife	11	5
Entrepreneur	6	3
Private Employee	0	6
Others	9	4
Comorbidities		
DM	3	5
Maag	3	2
Vertigo	2	0
Heart	1	0
No	20	17
Rheumatic	1	0
Hypertension	0	2
Uric Acid	0	3
Bronchitis	0	1
How long suffering from TBC		
0-6 months	12	19
7-12 months	7	6
>12 months	11	5

Based on Table 1, there are several histories of comorbidities, including the control group showed that most of them did not have comorbidities, namely 20 people (66.7%), and as many as 2 people (6.7%) had vertigo comorbidities. Respondents who had comorbidities such as diabetes mellitus and ulcers were 3 people each (10.0%). In contrast to the treatment group which showed results that most of them did not have comorbidities as many as 17 people (56.7%), comorbidities with DM in as many as 5 people (16.7%), gout as many as 3 people (10.0%), ulcers and HT as many as 1 person each (3.3%), and with bronchitis as many as 1 person (3.3%).

There are characteristics of suffering from TB for a long time, mostly in the range of 0 to 6 months, namely 12 people (40.0%) and 19 people (63.3%), respectively. Meanwhile, the long time suffering from TB for 7-12 months in the control group was 7 people (23.3%) and for more than 12 months as many as 11 people (36.7%). In addition, for the treatment group that suffered for 7-12 months as many as 7 people (23.3%) and for more than 11 people (36.7%).

Table 2. Characteristic Data of HARS Pretest and Posttest Questionnaire Results

HARS Questionnaire Results	Control Group		Treatment Groups	
	Pretest n (%)	Posttest n (%)	Pretest n (%)	Posttest n (%)
No anxiety	22 (73.3)	13 (43.3)	0 (0.0)	20 (66.7)
Mild anxiety	8 (26.7)	12 (40.0)	20 (66.7)	7 (23.3)
Moderate anxiety	-	5 (16.7)	10 (33.3)	3 (10.0)

Based on Table 2, the results of the HARS questionnaire on the respondents in the control group showed that most of them showed that they were not anxious as many as 22 people (73.3%), and experienced mild anxiety in as many as 8 people (26.7%), in contrast to the posttest results showing that respondents were not anxious as many as 13 people (43.3%), experienced mild anxiety as many as 12 people (40.05) and experienced moderate anxiety as many as 5 people (16.7%). Respondents in the treatment group had a pretest score of mild anxiety in as many as 20 people (66.7%) and moderate anxiety in as many as 10 people (33.3%), then the intervention and had a post-test HARS score without anxiety in as many as 20 people (66.7%), mild anxiety 7 people (23.3%) and moderate anxiety as many as 3 people (10.0%).

2. Results of Analysis

a. Anxiety conditions before the Intervention

The scoring classification on anxiety ranged from 0 to 56 with no anxiety in the range of 0 to 14, mild anxiety with a range of 14-20, moderate anxiety from 21 to 27, severe anxiety from 28 to 41, and very severe anxiety from 42 to 56. Table 3 shows the results of the Mann-Whitney Mean test of anxiety (HARUS score) before the intervention between the psychoeducational group and the control group. Table 3 shows that the average anxiety in the Psychoeducational group is 18.93, and the average anxiety in the control group is 18.27.

Table 3 Results of the Mann-Whitney Mean test of anxiety (HARUS score) before the intervention between the psychoeducational group and the control group

Group	n	Mean	SD	p
Psychoeducation	30	18.93	5.51	0.610
Control	30	18.27	4.50	

Both groups of post-treatment patients with tuberculosis before receiving psychoeducational therapy fell into the level of mild anxiety. The results of the statistical test obtained a p-value of 0.610, so it can be concluded that there is no significant difference in the average anxiety condition between the intervention group and the control group.

b. Anxiety conditions after the intervention

Change in mean anxiety after intervention of intervention group and control group. Table 4 shows the results of the Mann-Whitney test of the difference in the mean difference in anxiety reduction (HARS score) before and after the intervention between the psychoeducational group and the control group. Decrease in the mean anxiety score in the psychoeducation group (Mean= 7.00; SD= 4.68) than the control group (Mean= 4.07; SD= 3.14), and the difference was statistically significant (p= 0.006). Thus, it was concluded that psychoeducation was effective in reducing anxiety about the possibility of recurrence in tuberculosis patients who had completed treatment.

Table 4 Results of the Mann-Whitney test difference in the mean of anxiety reduction (HARS score) before and after the intervention between the psychoeducational group and the control group

Group	n	Mean	SD	p
Psychoeducation	30	7.00	4.68	0.006
Control	30	4.07	3.14	

DISCUSSION

1. Analyze the characteristics of respondents

The results showed that the average age, gender, education, and occupation showed no difference between the intervention group and the control group. Although other theories and studies state that age affects a person's level of anxiety and level of distress. From the results of previous research, everyone both young and old people still feels stress at the time of diagnosis of chronic diseases, in contrast to the research of Maryam, et al in Vellyana (2017) showed that people with younger ages have higher levels of depression and anxiety than older people or older people, which is closely related to experiences in facing different situations such as their worries about their treatment procedures, complications of chronic diseases influence of other physical diseases, psychological function and quality of life.

In addition, the study showed that the mean age, and sex, showed no difference between the intervention group and the control group. Although other theories and studies mention that age affects a person's anxiety level. According to the results of previous studies people who are young or old person still feel stress at the time of diagnosis of chronic disease, in contrast to the study conducted by Ole Maryam et al. showed that young individuals have higher levels of depression and anxiety compared to someone older, it is related to their experience in dealing with different situations such as their worries about the their treatment procedures, complications of chronic diseases, the influence of other physical diseases, psychological functioning and quality of life.

One of the reasons for the good psychoeducation in the treatment group is also because the majority have a mature age, which is more than 35 years, people with

this age will have more experience with the tuberculosis disease that they have suffered from so that it is easy to receive information and affect the level of anxiety for recurrence of tuberculosis. However, it is inversely proportional to a study that shows that there is no relationship between age and psychoeducational acceptance (Robert and Brown, 2011).

The majority of TB patients without comorbidities are elderly, those without comorbidities have a good acceptance of the psychoeducation provided so as to reduce the level of anxiety in the recurrence of TB disease. This is in accordance with research that states that there is a level of anxiety in the elderly who have degenerative diseases or comorbidities (Budiarti et al., 2022).

According to the results of this study, women have a higher level of anxiety than men. This is in line with showing that women have twice the risk of experiencing signs of depressive symptoms. Women play many social roles associated with women (passivity, dependence, and emotional expression) that allow them to be more emotional. According to Durrand and Borrow, the gender difference in the development of emotional disorders is greatly influenced by the perception of the inability to control their emotions. The source of this difference is cultural because men are encouraged to be more independent and aggressive, while women are expected to be more passive, sensitive to others, and may be more dependent on others.

The results of the study showed that the majority of respondents had basic education consisting of elementary and junior high school graduates 27 (45%). According to Notoatmojo (2005) that education in general changes the mindset, behavior, behavior and decision-making patterns. The higher the education, the more mature a person is in thinking and behavior. Research conducted by Bjelland shows that a high level of education is a protective agent against anxiety and depression. A person who has a higher level of education is expected to be able to reduce risky behaviors in health, including smoking, drinking liquor, and behaviors that are at risk of someone becoming obese.

The educational background of the majority of TB patients is a high school/ vocational background so that patients are easily able to understand when given an explanation related to how recurrence occurs in TB patients and this is in line with research conducted by Cahyono et al, (2022) which states that the level of education of a person or patient influences the understanding of the information conveyed by the informant.

The results of the study showed that 28 (47%) respondents were working, while 42 (52%) were not working. According to the results of previous research, a person who does not work is more prone to anxiety and depression. A person who is not employed or unemployed is vulnerable to fulfilling his or her sociological functions such as time structure, status and identity, social contact, participation in collective goals and routine activities.

The distribution of data on the work in the control and treatment groups was different, but the work did not affect the level of anxiety about TB recurrence. This is the same as the results of a study that showed that there was no significant difference in the work of respondents in the control and intervention groups (Hijriani, 2018).

Tuberculosis is an infectious disease that can happen to anyone. Any job in the respondents still provides anxiety levels even though they are given information through psychoeducation. The majority of TB patients in both groups were in the

range of 0-6 months, there was no difference in anxiety levels in the control group and treatment. The duration of suffering from TB disease for less than one year does not affect the level of anxiety in the recurrence of TB patients even though they have been given psychoeducation, this is in line with the study of Solehah, (2021) which showed that the provision of psychoeducation in the treatment group had the same level of anxiety in the control group for patients with family members.

2. Analysis of anxiety level conditions before psychoeducational therapy

Anxiety is a subjective individual experience that often manifests as dysfunctional behavior that is interpreted as feelings of difficulty and distress towards events that are known for sure. Anxiety disorders have several signs and symptoms both physically, cognitively, behaviorally and emotionally. Examples of physical signs of symptoms in anxiety include frequent shortness of breath, increased pulse and blood pressure, dry mouth, anorexia, diarrhea, constipation, restlessness, tremors, sweating, difficulty sleeping and headaches.

Anxiety disorders attack the cognitive part of the body and can be seen from the way the sufferer perceives things. The perception of sufferers with anesthetic disorder tends to be narrowed, unable to receive external stimuli and the sufferer focuses too much on what he or she is paying attention to. The results of the study showed the level of anxiety before the intervention between the psychoeducational group and the control group. The results showed that the average anxiety in the psychoeducational group was 18.93 and the control group was 18.27. The results of the statistical test obtained a p-value of 0.610, there was no difference in anxiety levels between the psychoeducational group and the control group.

3. Analysis of anxiety level after psychoeducational therapy

The results of the statistical test showed a difference in the mean decrease in anxiety before and after the intervention between the psychoeducational group and the control group. The mean decrease in the psychoeducational group was 7.00 greater than that of the control group, which was 4.07 with a p=0.006 all these respondents experienced anxiety before being given psychoeducational intervention (according to the inclusion criteria) with varying scores, where signs and symptoms of anxiety were frequent shortness of breath, increased pulse and blood pressure, dry mouth, anorexia, diarrhea, constipation, restlessness, tremors, sweating, difficulty sleeping and headaches. The results of the study showed that the average decrease in anxiety levels in the psychoeducational group was 7.00 and the average decrease in the control group was 4.07 with a P value of 0.006.

Psychoeducation is one of the appropriate therapies for reducing anxiety levels for patients or sufferers of certain diseases, including tuberculosis patients because of the provision of information in the form of community education (Agusthia, 2018). In a study, it was also proven that the provision of psychoeducation can help control a non-communicable disease in self-treatment (Zhou et al., 2021). Providing education and interventions about recurrence to TB patients reduces anxiety levels because it can increase the level of comfort and motivation of patients in their TB treatment (Heri et al., 2020).

The control group and the treatment group had the same significant indigo, meaning that both the control group and the intervention group had differences or effects on the level of relapse anxiety in TB patients, from mild anxiety to non-anxiety levels. It had a mean result that was not

much different, meaning that there was no difference between the level of pretest and posttest anxiety in the treatment group and the control group. The existence of the things mentioned in the previous sentence is one of the reasons there is a similarity in the characteristics of TB respondents in the Baki Health Center Area, both in control group and the intervention group.

AUTHOR CONTRIBUTION

All authors contribute significantly to the research and writing process.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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