

The Effect of Family Psychoeducation on Anxiety, Support and Self Efficacy on the Family of Patients with Tuberculosis

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Abstract--- Tuberculosis (TB) has a significant effect on both the sufferers and their family. The family members have been known to develop psychological problems such as anxiety, feeling that there is a lack of support, and poor self-efficacy. To date, little is known about how best to deal with psychosocial morbidity. This study aims to analyze the effect of psychoeducation on the anxiety, support, and self-efficacy of the TB patients' families. This was a quasi-experimental study with a pre-posttest design involving 28 participants for each of the control and intervention groups. The patients were selected using consecutive sampling based on their admission to the hospital in-patient wards. The intervention group received a 60-minute session on family psychoeducation comprised of an information session, discussion and a question and answer sub-session. The primary outcome measures were anxiety, family support and the self-efficacy of the family members. The data was retrieved using questionnaire and then analyzed using the Mann Whitney and Wilcoxon Signed Rank tests with a significance level $\alpha \leq 0.05$. Family psychoeducation significantly decreased anxiety ($p = 0,000$) and increased the family support ($p = 0.001$) and self-efficacy of the family members ($p = 0,000$). Family psychoeducation is an informational transfer motivator for patients. It forms an adaptive coping mechanism so then any anxiety can be overcome. It affects the personal and interpersonal factors of the respondents' related to forming self-efficacy. Family psychoeducation may have the positive benefit of solving family psychological problems, thus there is a need for support from internal and external resources.

Keywords--- Family Psychoeducation; Anxiety; Support; Self-Efficacy; Tuberculosis

I. INTRODUCTION

Tuberculosis is the ninth leading cause of death worldwide and the leading cause from a single infectious agent [1]. The World Health Organization (WHO) in 2016 stated that there were 10.4 million new cases of TB with a mortality of 1.4 million. Indonesia ranks second for the highest number of TB cases [2]. The proportion of pulmonary TB patients was confirmed to have risen by a significant increase from 1999 to 2003 (7% to 13%). The Case Notification Rate (CNR) in 2015 recorded 125 cases per 100,000 population [3]. Based on the data from the Indonesian Ministry of Health INFODATIN in 2016, the number of new cases of pulmonary TB in East Java was ranked the second highest in Indonesia, with approximately 21,606 new cases with 12,736 (59%) being men and 8,870 (41%) being women. Drug-resistant TB is a continuing threat. In 2016, there were 600 000 new cases with

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resistance to rifampicin (RRTB), the most effective first-line drug, of which 490 000 had multidrug-resistant TB (MDR-TB) [4].

Tuberculosis is still one of the major causes of death related to chronic diseases in Indonesia [4]. Tuberculosis prevention and eradication has yet to be satisfactory [5]. Tuberculosis affects the patients, and at the same time, it influences the family members who often feel shunned from the environment, scared because they perceive that it cannot be cured, and worried due to the economic burdens and other problems that may alter the psychological well-being of the family members [6]. One of the psychological problems that many families with a Tuberculosis patient encounter is anxiety [5]. Poorly-managed anxiety affects self efficacy and the provision of family support [7]. Low self efficacy has an impact on the pessimistic attitude of the family towards the treatment of tuberculosis. On the other hand, family support is expected to support the compliance system for treatment of patients with tuberculosis [8]. The family provides support by accompanying the patient to the health center, reminding them about taking the medicine and giving them their meals. Stigma leads to discrimination and this hinders the support and care mechanism [9]. Furthermore, non-compliance leads to the development of drug-resistant TB which is expensive to treat and it has an increased mortality rate [10].

The WHO has recommended the Directly Observed Treatment Shortcourse (DOTS) strategy as a strategy for TB control since 1995 [2]. The DOTS strategy involves the role of supervisors when taking drugs for TB patients. Family involvement as an active observer is an effective way to cure the sufferers and to break the chain of transmission. However, the emergence of anxiety reactions in families who treat patients will have a negative impact on the level of support and self-efficacy of the family [11]. Families often experience anxiety due to the decrease in the quality of life of the patients, due to the risk of contracting the infection, due to losing or decreasing their economic capacity and due to bearing the risk of complications and the risk of death. Female patients reported less of a sympathetic attitude and unfair treatment in the husband's home while males received emotional and physical support from their spouse [10]. A positive, non-stigmatizing environment is thus another crucial characteristic that supports the patients and goes along with the community's acceptance of their suffering [9].

One of the efforts to improve the role and self-efficacy of the family as an active observer for patients in taking medicine is to provide education. Psychological education or psychoeducation is needed to build a reduction in psychological disorders such as anxiety. Family psychoeducation therapy is the development and provision of information in the form of public education. This is as information related to simple psychology that influences the psychosocial welfare of society [12]. Based on the basic assumption that psychoeducation is thought to be able to reduce anxiety, improve self efficacy and support, the aim of this study is to examine the effect of family psychoeducation on anxiety, support, and self-efficacy in the families of TB patients in one of the tertiary hospital in the East Java province of Indonesia.

AI. METHODS

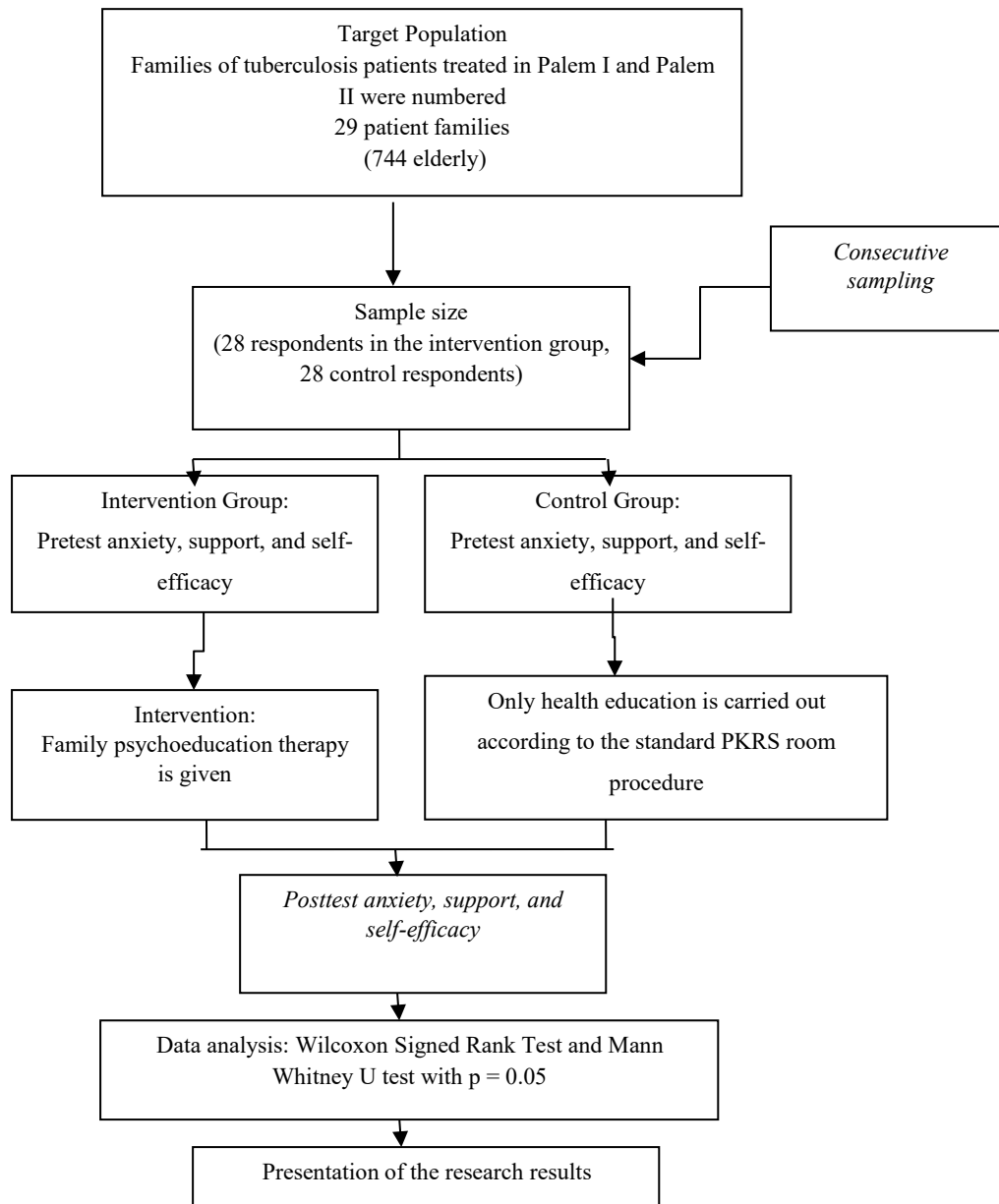
This study was conducted at a tertiary teaching hospital in Surabaya, Indonesia. We conducted a prospective quasi-experimental study with a pre-and posttest design. The participants in this study were the family members of patients with tuberculosis on the ward. Each patient was treated in the respiratory infection disease ward of Dr. Soetomo Hospital and they were allowed to be attended by 1 family member.

We recruited the participants into the study through consecutive sampling methods. The inclusion criteria used were that they were the immediate family members of patients with tuberculosis, that they were an adult in the age range of 18-65 years old, that they could read and write, that they did not have hearing loss and that they were cooperative. The participants who met the inclusion criteria were approached and the study was explained. After giving consent, the patients were then enrolled either to the intervention or control group. The sampling technique in

this study used consecutive sampling techniques (sequential) by determining the subjects who meet the research criteria included in the study until a certain period of time had elapsed as determined by the researchers.

The participants in the intervention group received 60-minutes of psychoeducation comprising of an information session, discussion and question and answer sub-session. Supportive media was used in the intervention group such as booklet media. The control group only received a routine counseling session as part of the default standard of care for tuberculosis patients in the ward

- **Consort Research:**



- **Family Psychoeducation Module**

Booklets are a medium for conveying health messages in the form of writing and drawings that can be paired with channels, tools, facilities and supporting resources to convey messages. They must adjust to the content of the material that is to be delivered.

Booklets are generally used with the aim of increasing knowledge about health issues. This is because booklets provide specific information and they are widely used as an alternative media to be studied at any time when someone wants it. To achieve the desired goals, the process of health education needs to be done by using media because the success of the health education process that is carried out depends on several factors, including the curriculum, the source of the teaching materials, the facilities and infrastructure. Based on this statement, it can be seen that booklets can be used in the independent learning process[13]. The intervention group was the family of tuberculosis patients treated in the pulmonology ward in the period 21 November - 2 December 2017, while the control group was the family of tuberculosis patients treated in the pulmonology ward on December 3 - December 14 2017.

The intervention group was given family psychoeducation therapy through 1 meeting for 60 minutes with the method providing information, facilitating discussion and allowing for questions and answers using booklet media. The control group was only given health education as a standard procedure set by the Hospital Health Counseling Team (PKRS) in the First and Second Palem Room of Dr. Hospital Soetomo Surabaya. At the end of the meeting, the treatment and control group respondents were given the second anxiety, support, and self-efficacy questionnaire or post-test. The provision of family psychoeducation therapy was given in the counseling room of the First and Second palem room of the RSUD. Dr. Soetomo Surabaya.

The family psychoeducation component consists of several parts. In the beginning is the identification of problems and providing knowledge about Tuberculosis and OAT. The nurses provide an explanation of the purpose of family psychoeducation and the families share their experiences related to caring for the family members undergoing OAT therapy. The session provides opportunities for the families to ask questions based on their experiences and to express their expectations by attending family therapy psychoeducation. The second session looked at how the family's ability to manage the knowledge related to tuberculosis and OAT therapy using the resources and strengths present in the family. In the third session, the family revealed the motivation felt while caring for the family members undergoing OAT therapy and the nurse provided management motivation to overcome the lack of interest experienced by the family. In the fourth session, the family is expected to be able to disclose the level of adherence while caring for their family members undergoing OAT therapy and to state the strategies or actions that will be taken to improve their compliance. In the last session, the family was able to express their experiences when caring for the family members and the nurses facilitated the family in being able to empower themselves and the environment[14].

- Measurement Outcomes

To measure the outcomes, we used a standard questionnaires throughout the study including the *Zung Self Rating Anxiety Scale (ZSRAS)* to measure anxiety which consists of 20 questions related to physiological, cognitive, behavioral and emotional responses with a score between 1-4 (1) very rarely (felt once a week), (2) sometimes (once every 3-4 days), (3) often (once every day) and (4) always (every day). The *Source of Social Support Scale (SSSS)* used to measure family support consists of 10 items for the questions related to social support including emotional, informational, instrumental and assessment support with positive or negative answers. The self efficacy instruments developed by Sukartini (2015) consist of 10 question items using a Likert scale 1-5 which refers to questions about the self-confidence when caring for family members with tuberculosis including their beliefs in obtaining information sources, their belief in gaining support from the social environment and their belief in overcoming disorders both physical and emotional. All contain positive statements[7]. The validity test for the self efficacy instrument was 0.496-0.880 and the reliability test was 0.872, both of which were tested on 30 respondents with the degree of

freedom being 0.2409. The data was collected using standardized forms and it was coded using Microsoft Excel v.2016. The data was analyzed using SPSS Statistics v.22, the Wilcoxon Signed Rank Test and the Mann Whitney Test in order to measure the effect of the intervention to family support, self efficacy and the level of anxiety.

BI. RESULTS

According to Table 1, it is known that most of the respondents (32.1%) were in a relationship as the husband of the Tuberculosis patient. The most common age ranges (48.2%) were 20-40 years old and (48.2%) 40-60 years old. The most common history of the family members who had suffered was in the treatment group (35.7%), having had TB for less than one year. The most common educational background (42.9%) was junior high school and most of the respondents (53.6%) did other informal work.

Table 1 Participants' characteristics

No	characteristics	Indicator	Total	
			n	%
1	Family relationships	Husband	18	32,1
		Wife	15	26,8
		Father	10	17,9
		Mother	7	12,5
		Siblings	6	10,7
Total			56	100
2	Age	< 20 yr	1	1,8
		20-40 yr	27	48,2
		40-60 yr	27	48,2
		> 60 yr	1	1,8
Total			56	100
3	Duration of tuberculosis	< 1 yr	20	35,7
		1-3 yr	17	30,4
		3-5 yr	12	21,4
		> 5 yr	7	12,5
Total			56	100
4	Education background	No formal education	2	3,6
		Elementary	6	10,7
		Junior High	24	42,9
		Senior high	21	37,5
		University	3	5,4
Total			56	100
5	Employment	Small trader	6	10,7
		Farmer	1	1,8
		Employee	19	33,9
		Other informal work	30	53,6
Total			56	100
6	Monthly earnings	Non-fixed income	16	28,6
		<Rp 2,000,000	18	32,1
		Rp 2 - 3 Million	22	39,3
Total			56	100

Table 2. The influence of psychoeducation on family anxiety

Variable	Intervention				Control			
	Pre-test		Post-test		Pre-test		Post-test	
	n	%	n	%	n	%	n	%
No Anxiety	11	19,6	27	48,2	5	8,9	5	8,9
Mild Anxiety	15	26,8	1	1,8	20	35,7	19	33,9

Moderate Anxiety	2	3,6	0	0,0	3	5,4	4	7,1
Uji Wilcoxon Signed Ranked Test	p = 0,000				p = 0,564			
Mann Whitney post-test	p = 0.000							

Based on Table 2, the results of the Wilcoxon signed rank test in the treatment group are significant ($p = 0,000$ or $p < 0,05$). This means that there is an effect from family psychoeducation on the respondents' anxiety before and after the intervention. The control group p value was 0,564 or $p > 0,05$ which means that there is no statistically significant influence between the anxiety value of the pre-test and post-test. The Mann Whitney test in the post-test value of the treatment group and the control group yielded a value of $p = 0,000$ or $p < 0.05$. This means that there was a significant difference between the scores for anxiety in the post-test group and the control group.

Table 3. The influence of psychoeducation on family support

Variable	Intervention				Control			
	Pre-test		Post-test		Pre-test		Post-test	
Family support	f	%	F	%	f	%	f	%
Low	17	30,4	4	7,1	14	25,0	11	19,6
Moderate	9	16,1	15	26,8	12	21,4	17	30,4
High	2	3,6	9	16,1	2	3,6	0	0,0
Wilcoxon Signed Ranked Test	p = 0,000				p = 0,763			
Mann Whitney post-test	p = 0.001							

Table 3 shows the influence of psychoeducation on family support. The Wilcoxon signed rank test results in the treatment group were $p = 0,000$ which means that there is a significant effect from family psychoeducation on the respondents' support before and after the intervention. The control group score was $p = 0,763$ which means that there is no significant difference between the value of the pre-test and post-test support. In the Mann Whitney test, the post-test value of the treatment group and the control group obtained a value of $p = 0.001$. This means that there is a significant difference between the post-test scores of the treatment group and the control group.

Table 4. The influence of psychoeducation on family self-efficacy

Variable	Intervention				Control			
	Pre-test		Post-test		Pre-test		Post-test	
Self-Efficacy	f	%	F	%	f	%	f	%
Low	5	8,9	1	1,8	1	1,8	0	0,0
Moderate	17	30,4	0	0,0	13	23,2	13	23,2
High	6	10,7	27	48,2	14	25,0	15	26,8
Wilcoxon Signed Ranked Test	p = 0,000				p = 0,480			
Mann Whitney post-test	p = 0.000							

Based on Table 4, the result of the Wilcoxon signed rank test for the treatment group was $p = 0,000$. This means that there is a significant effect from family psychoeducation on the respondent's self-efficacy before and after the intervention. The control group score was $p = 0.480$ which means that there is no significant effect between the value of self-efficacy pre-test and post-test. The Mann Whitney test for the post-test value of the treatment group and the control group yielded a value of $p = 0,000$. This means that there is a significant difference between the post-test values of the self-efficacy of the intervention group compared to the control group.

IV. DISCUSSION

Based on the results of the above research, family psychoeducation can significantly reduce family anxiety and improve the family support of tuberculosis patients. Psychoeducation significantly influences anxiety and the family ability to treat Tuberculosis patients[13]. Psychoeducation significantly decreases depression, stress, and anxiety in 74 Tuberculosis patients[15]. However, there is established evidence showing that patients who receive an adequate amount of social support (SS) are likely to have optimal mental health outcomes such as lower psychiatric morbidity and increased quality of life [5]. Family support is defined as the amount of both perceived and actual care received

from the family, friends and community [16]. Furthermore, family support is an essential buffer to adverse life events (e.g. the diagnosis of TB). Higher SS leads to increased treatment adherence and improved treatment outcomes [17]. Social support via various educational, psychosocial interventions has also been implemented to enhance treatment adherence [18].

Family psychoeducation may improve the support available by developing the cognitive side of the patient's family. Family psychoeducation contains information about the definition of tuberculosis, the symptoms and signs of tuberculosis, tuberculosis examinations, management and medication compliance and varied information about the importance of family involvement in the success of the DOTS program. Family psychoeducation provides an understanding of the fact that the family is a source of strength needed by the patients to achieve successful treatment. The understanding in the next stage will form the behavior of supporting the patients in the form of informational, emotional, instrumental, and assessment support.

Others research shows that family psychoeducation has been proven to increase the family support and adherence when it comes to taking medication [19]. Research on the effect of family psychoeducation on family support shows that family psychoeducation influences knowledge, family support and self-stigma. A good family support will improve the patient's compliance when they are part of a TB treatment program[20].

Family psychoeducation influences self-efficacy due to both personal and interpersonal factors. The personal factor in question is the patient's family demographics. Demographics include age, experience of treating Tuberculosis patients, and educational background. The interpersonal factors refer to the ability of the respondents when conducting discussions and two-way communication when engaged in family psychoeducation[21]. Being of an adult age with sufficient maturity of thought can form self-confidence and self-efficacy. The duration of the family members being diagnosed with tuberculosis is related to the prognosis of the disease. The respondents with family members who have been newly diagnosed for less than one year have a greater chance of achieving success (the initial treatment phase) than where the treatment has been protracted (multidrug-resistant TB). The prognosis of a good disease will form higher self-efficacy. Educational background also serves as the cognitive basis of the patient's family.

The results of this study are in line with Muhtar's study on the influence of family empowerment in relation to increasing the self-efficacy and family self-care activity of the tuberculosis sufferers. This shows that the patients who get together with their families benefit from the family empowerment interventions with a higher self-efficacy than the control group[22].

This study is limited by the non-randomized nature of the quasi-experimental study that was conducted. The other potential limitation was also the small sample size for both groups in light of the large number of patients with tuberculosis in Indonesia. Despite this, we believe that the psychological aspect of the family members plays an important role in determining the success of tuberculosis therapy and thus the family is in need of support from both internal and external resources.

V. CONCLUSION

Family psychoeducation can significantly reduce the family anxiety and improve the level of family support in tuberculosis patients. Family psychoeducation forms an adaptive coping mechanism so then any anxiety can be overcome. Family psychoeducation is an informational transfer process that provides an understanding that the family plays an important role as a DOTS and a compliance motivator for treatment patients. Family psychoeducation can significantly improve the self-efficacy of the families of Tuberculosis patients. It also affects the personal and

interpersonal factors of the respondents when forming self-efficacy. Family psychoeducation can be further developed to improve the support system of TB patients and to avoid the stigmatization of the patients by their families.

CONFLICT OF INTEREST

No conflicts of interest have been declared.

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