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Family Factors and Their Relation to the Treatment Adherence of Pulmonary TB Patients in Surabaya

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Original Research

Family Factors and Their Relation to the Treatment Adherence of Pulmonary TB Patients in SurabayaDhian Satya Rachmawati^{1,2}, Dwi Priyanti², Qurrotul Aini²¹ Doctoral Student, Faculty of Public Health, Universitas Airlangga, Surabaya, Indonesia² Stikes Hang Tuah, Surabaya, Indonesia**ABSTRACT**

Introduction: Pulmonary TB is a chronic disease of which is one of the keys to its successful management is the quality of the patient's family support system. The family has a role in the psychological wellbeing of sick family members in the care process. The purpose of this study was to look for the effects of family factors (family stress level and family resilience) with treatment adherence of pulmonary TB patients in North Surabaya.

Methods: The design of this research was analytic observational research design with cross-sectional approach. A sample of 284 respondents was taken using proportional random sampling technique from 990 patients with pulmonary TB in the North Surabaya area. The instrument used was a questionnaire that had been tested for validity and reliability. Data were analyzed using Pearson correlation test at $\alpha \leq 0.05$.

Results: The results showed that family stress level was mostly in the normal category (86.6%), family resilience was mostly in the good category (79.9%), and TB medication adherence was in the moderate category (39.8%). The Pearson correlation test results obtained family stress level associated with TB medication adherence ($p = 0.004$) and family resilience has a relationship with TB medication adherence ($p = 0.001$).

Conclusion: Families can work to reduce stress and increase the resilience of their families to increase adherence with TB treatment in family members suffering from pulmonary TB

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INTRODUCTION

A Global Tuberculosis Report in 2017 indicated that Indonesia had taken the third biggest position in the number of TB patients (WHO, 2017). Tuberculosis is a disease that attacks the lungs, so it is called pulmonary TB. Pulmonary TB disease is a large problem for society, especially in developing countries and has become one of the leading causes of death globally, regionally, nationally, and locally among a wide variety of infectious diseases (Firdaufan et al., 2015). Pulmonary TB is an infectious disease that requires long-term treatment and may have an impact on treatment adherence (RR Dian Tristiana et al., 2019). In general, cases of pulmonary TB in Indonesia have increased every year. The

number of new cases of pulmonary TB in Indonesia were as many as 420,994 cases in 2017 (Pusdatin Kemenkes RI, 2016). TB case detection BTA + new cases in East Java in 2015 ranked second in Indonesia. The score indicated as many as 23,183 people with a discovery case detection rate (CDR) of 56% whereas the target is at least 70% (Kemenkes RI, 2017). In 2016, the number of pulmonary TB patients who were treated was as many as 47,478 cases while the estimated number of cases amounted to 123,414. Based on reports from 63 Community Health Centers in the City of Surabaya, the number of patients with pulmonary TB in Surabaya increased by 6,488 people.

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MATERIALS AND METHODS

This study design was analytical observational with cross-sectional approach whereby the researchers took measurements and observations of the dependent variable, TB treatment adherence, and the independent variables included family stress level and family resilience. Measurements were made simultaneously.

The study population was 990 tuberculosis patients' families in North Surabaya undergoing treatment, of which 284 persons met the following criteria: Families willing to study and fill out the consent form, age 17-70 years old, families who have a family member with positive smear, pulmonary TB patients newly diagnosed and undergoing treatment at least two months, respondents who live in Surabaya with family registered card. There are families who share the same home (parents / husband / wife / son / daughter), with immediate family members caring for patients with pulmonary TB.

The study used probability sampling with proportional random sampling technique in three Community Health Centers representing Community Health Centers in the City of Surabaya. The family stress instrument in this study used a stress measurement questionnaire adopted from DASS-42 (Depression Anxiety Stress Scale 42) to measure family resilience used the Family Resilience Assessment Scale (FRAS) instrument, while the instrument for TB Lung treatment adherence used MMAS-8 (Morisky Medication Adherence Scale). All of the instruments had been already tested for validity and reliability in a pilot study consisting of 25 respondents. Each item in the statements reached

validity ($r > 0.514$) and each questionnaire reached reliability as well (> 0.8).

RESULTS

General Data of Research Respondents

The result of this study showed 181 respondents (63.7 %) living in nuclear family type, and 104 respondents (36.6 %) at senior high school in their level education, and 122 respondents (43%) working as a private employee. The position in the family of respondents is mostly as husband / wife with 135 respondents (47.5%); research shows that among 268 patients with pulmonary TB (94.4%) family members act as supervisors to take medication.

Effects of family stress on adherence with pulmonary TB treatment

Research shows data that, from 284 respondents, there are 246 respondents in the category of normal stress with normal stress levels and having a high level of medication adherence, as many as 107 people (43.5%) who have normal stress levels, those having moderate levels of medication adherence as many as 92 people (37.4%), and those whose stress level is normal and have a low level of adherence as many as 47 people (19.1%). Furthermore, out of 284 respondents, there were 26 respondents in severe levels who had severe stress levels and a high level of adherence with five people (19.2%), those with severe stress levels and moderate adherence levels were 15 people (57.7%), and those who had severe stress levels and low adherence rate were six people (23.1%). Of the 284 respondents, there were six people in the category of mild and moderate stress, those with mild stress levels and had moderate adherence levels were six people (100%), and those with moderate stress levels and low adherence rates were people (100%). Based on the Pearson statistical test, the results were $p = 0.004$ where $\alpha \leq 0.05$. This means that there is an influence between family stress level and pulmonary TB treatment adherence in North Surabaya.

Effects of family resilience on adherence with pulmonary TB treatment

The study showed data from 284 respondents who had good family resilience and high levels of adherence as many as 101 people (44.5%), those with good family resilience and moderate levels of adherence as many as 90 people (39.6%), those with good family resilience and low levels of adherence as many as 36 people (15.9%), those with adequate family resilience and high levels of adherence 11 people (21.6%), those with adequate family resilience and moderate levels of adherence 17 people (33.3%), those with sufficient family resilience and low levels of adherence 23 people (45.1 %), and lack of family resilience and moderate level of adherence 6 people (100%). Based on the Pearson statistical

Table 1. General Data of Research Respondents

Characteristics	n	%
Family Type		
Nuclear Family	181	63.7
Extended Family	103	36.3
Education Level		
Elementary	97	34.2
Junior High School	46	16.2
Senior High School	104	36.6
College	26	9.2
Other	11	3.9
Occupation		
Government employees	5	1.8
Entrepreneur	61	21.5
Private	122	43
Other	96	33.8
Family member position		
Husband /Wife	135	47.5
Child	67	23.6
Parents of husband / wife	82	28.9
The Supervisor Took the Medicine		
Health careers	6	2.1
Health workers	10	3.5
Family	268	94.4

Table 2. Effects of Family Stress on Adherence with Pulmonary TB Treatment

Family Stress Level	Pulmonary TB Treatment Adherence						Total	
	High		Moderate		Low			
	n	%	n	%	n	%	n	%
Normal	107	43.5	92	37.4	47	19.1	246	100
Mild	0	0.0	6	100	0	0.0	6	100
Moderate	0	0.0	0	0.0	6	100	6	100
Severe	5	19.2	15	57.7	6	23.1	26	100
Total	112	39.4	113	39.8	59	20.8	284	100

Pearson Correlation: 0.004 (n=0.05)

Pearson Correlation: 0.004 (p=0.05)

Table 3. Effects of Family Resilience on Adherence with Pulmonary TB Treatment

Table 5. Effects of Family Resilience on Adherence with Pulmonary TB Treatment								
Family Resilience	Pulmonary TB Treatment Adherence						Total	
	High		Moderate		Low			
	n	%	n	%	n	%	n	%
Good	101	44.5	90	39.6	36	15.9	227	100
Adequate	11	21.6	17	33.3	23	45.1	51	100
Lack of	0	0.0	6	100	0	0.0	6	100
Total	112	39.4	113	39.8	59	20.8	284	100

Pearson Correlation: 0.001 (p=0.05)

test, the results were $p = 0.001$ where $\alpha \leq 0.05$, which means that there is an influence between family resilience with pulmonary TB treatment adherence in North Surabaya.

DISCUSSION

The results showed that families with normal stress levels and high adherence were 107 respondents (43.5%). A good coping mechanism will affect the family in dealing with stressors, which come from inside or outside the family. Adaptive attitude will have a positive impact on patient adherence in undergoing pulmonary TB treatment, so that patients will achieve a high level of adherence.

Families with normal stress levels and moderate adherence were 92 (37.4%) and families with normal

stress levels and low adherence were 47 (19.1%). Stable family stress condition does not guarantee that the patient is fully obedient in taking medicine. Researchers assume that, in addition to family, sufferers also need support from external factors, namely the environment. Feeling bored and fed up is also a factor in causing a patient's low adherence to treatment.

When associated with adherence of pulmonary TB treatment, stress will greatly affect the patient's family. The duration of pulmonary TB treatment that requires a long period of time can be a stressor for the family. When the family is unable to cope with the stressor, it will affect the continuity of the pulmonary TB treatment process, which can be seen from the level of patient adherence. This can be seen from the results of the study, where there are still sufferers

who are included in low adherence as many as 59 people (20.8%) and moderate adherence as many as 113 people (39.8%).

The presence of stressors is interpreted by the family as a burden of care. Families try to optimize the family's strength, called family structure, as a resource for managing stressors, but if the family thinks that the stressors are threatening to the family stability, then this may result in a family burden. This situation brings families into stressful situations. The findings of the study have proven that the patient's frequency of relapse, stigma, the burden of care, and family structure can predict the stress experienced by the families (Rizky Fitryasari et al., 2018)(Sulistiyono et al., 2020).

The study also showed that, out of 227 families included in the category of good resilience, there were high levels of adherence of 101 people (44.5%), moderate adherence of 90 (39.6%), and low adherence of 36 people (15.9%). The adaptation process in the family as a functional unit allows the family to mediate stress and overcome a prolonged crisis (Walsh, 2012). Families who see difficulties as common challenges and natural things that happen in life are able to survive and rise from these difficulties. It is also driven by the view that the difficulties experienced can be explained and predicted; the availability of resources needed to overcome the difficulties experienced is something that is valuable for family security. Thus, when a family member is sick, the rest of the family feels this as a burden (Rr Dian Tristiana et al., 2018). This is in line with the results of previous studies that showed that the burden of care felt by the family is related to confusion about the illness, emotions, physical, time, and financial and social burdens. This leads to a decrease in the quality of life of family and family functionality. There are opportunities for negative outcomes in relation to family resilience (Rizki Fitryasari et al., 2018).

The problem for the families of TB sufferers is the misunderstanding of the family and community, which leads to discrimination related to the disease (Rachmawati et al., 2019)(Sulistiyono et al., 2019). Discrimination felt at the beginning of the diagnosis is one of the causes of depression in TB patients and their families (Li-Yun Lee, Heng-Hsin Tung, Shu-Ching Chen, 2017). The results of the analysis from previous studies indicate that the acceptance stage of the family endurance stage ranks first, with a structural equation which states that it has a 0.94 effect on family endurance in the family of pulmonary TB patients. This shows that, when family members suffer from pulmonary TB, the family tries to adapt to new sources of stress in the family (Rachmawati et al., 2019).

According to (Walsh, 2012), the Family Resilience Framework explains that family resilience is built including three components, namely: family beliefs, organizational patterns, and communication processes. The researcher assumes that one of the families suffering from pulmonary TB in North

Surabaya has an open communication pattern, where most of the people in North Surabaya are classified as nuclear family. The key to family resilience is evidenced by the existence of endurance when one family member experiences a chronic illness and is able to complete treatment to completion. The higher the family's resilience, the higher the level of adherence with pulmonary TB treatment. Readiness is the key to family security. Families must be encouraged to be proactive in anticipating life's challenges. Declining family resilience researchers are the most valuable resource, providing not only care but also a sense of security and comfort that goes on in an emotional bond.

CONCLUSION

From the results of the study it can be concluded that the lower the level of family stress, the adherence of patients carrying out the treatment program of pulmonary TB will be better, and the higher the resilience of the family, the higher the patient's adherence implementing the pulmonary TB treatment program.

CONFLICT OF INTEREST

This research does not have a conflict of interest

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